



**ISSN 2334-7171**

ISSN 2334-7058 (Online)

DOI 10.12709/issn.2334-7058

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# **MEST Journal**

**Edited by  
Zoran Čekerevac**

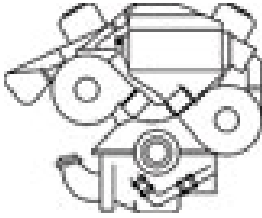
**MESTE**

**Vol. 7**

**No. 1**

**January 2019**





**ISSN 2334-7171**

ISSN 2334-7058 (Online)

DOI 10.12709/issn.2334-7058

This issue:

DOI 10.12709/mest.07.07.01.00

# **MEST Journal**

Management  
Economics  
Education  
Science & Society  
Technologies

**Edited by**  
**Zoran Čekerevac**

**MEST Journal**

**Vol. 7**

**No. 1**

**January 2019**

CIP – Каталогизacija u publikaciji  
Narodna biblioteka Srbije, Beograd

005+37+3+66

**MEST Journal** : Management, Education,  
Science & Society, Technologies /  
editor-in-chief Zoran P. Ćekerevac. –  
[Štampano izd.]. – Vol. 7, no. 1 (2019) –  
– Belgrade : MESTE NGO : Faculty of Business  
and Law of the “Union – Nikola Tesla”  
University in Belgrade ; Toronto : SZ &  
Associates, 2013- (Belgrade : ICIM+). – 30 cm

Polugodišnje. - Drugo izdanje na drugom  
medijumu: MEST Journal (Online) = ISSN  
2334-7058

ISSN 2334-7171 = MEST Journal (Štampano Izd.)

COBISS.SR- ID 196182028

Circulation: 100 copies



## MEST Journal online

[www.mest.meste.org](http://www.mest.meste.org)

DOI 10.12709/issn.2334-7058

Current Issue: DOI 10.12709/mest.07.07.01.00



**MEST Journal** is an international academic journal, the official journal of the non-profit organization MESTE, published online, as well as print, which publishes scientific and professional research articles and reviews in the English language. MEST Journal is published from Belgrade - Serbia and Toronto - Canada. The focal point of the journal is at international level, with the view on matters from a global perspective, but, also, some papers concerning some local specific events could be published. The science and technological advancements and their socio-political impact that happens all over the world can find a place in the MEST Journal. The journal is indexed by Index Copernicus in ICI Journals Master List ICV from 2015, in ERIH PLUS from 2017, in Google Scholar, CrossRef, COBIS.SR, COBIB.RS, Kobson, Scilit, etc.

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Printed by: **ICIM+, Belgrade**

Circulation: 100 copies

The journal was published online at URL:

[http://mest.meste.org/MEST\\_1\\_2019/K1\\_eng.html](http://mest.meste.org/MEST_1_2019/K1_eng.html)

The MEST Journal is registered in doiSerbia of the National Library of Serbia, COBIB.SR, Matica Srpska Library, COBISS.SR, Google Scholar, CrossRef, OALIB, EleCas base of KoBSON, the Index Copernicus ICI Journals Master List from 2014 (*ICV 2017 =100.00*), Scilit, ROAD, ERIH PLUS, and in the ResearchBib (IF: 2018 Evaluation Pending).

**All published papers have been internationally reviewed**

**Two issues of journal are published annually, on January 15<sup>th</sup>, and July 15<sup>th</sup>.**

**ISSN 2334-7058 (Online)      &  
ISSN 2334-7171**



MEST Journal  
Year VII, Vol. 7, Issue 1  
DOI: 10.12709/mest.07.07.01.00

## Editorial on MEST Journal 2019-1

Prof. Dr Zoran Čekerevac, Dr. h.c.<sup>1</sup>  
Editor-in-Chief  
(1) Faculty of Business and Law, "Union - Nikola Tesla" University, Knez Mihailova 33, 11000 Belgrade, Serbia

Belgrade, January 15<sup>th</sup>, 2019

Welcome to the newest issue of the MEST Journal!

Two years ago, we have started to use a new platform for publishing our journal, Open Journal System (OJS). All the previous issues we republished on it. At the request of readers and authors, we are prolonging the publication of both versions of the journal.

Between the two issues of the MEST Journal, we actively participated in the organization and realization of the International Scientific Conference "ZITEH 2018" which dealt with the topic "Modern Information Technology - Use, Misuse, and Protection". The conference was fruitful, and we plan to organize it this year again.

The MEST Journal is registered in the DOI system by CrossRef and all articles published in this issue, as well as in the previous issues of the MEST Journal, have their own DOIs. The MEST Journal is registered in **doiSerbia** of the **National Library of Serbia, COBIB.SR, Matica Srpska Library, COBISS.SR, Google Scholar, CrossRef, OALIB, EleCas** base of **KoBSON**, the **Index Copernicus ICI Journals Master List (ICV 2017 = 100.00), Scilit, ROAD, ERIH PLUS**, and in the **ResearchBib**.

We keep the practice that articles, that have undergone peer review, and will be published in the next issues, we make available to readers in the form of preview - early reading.

The focal point of the journal remained at international level, with the view on matters from a global perspective. However, due to their importance, in this issue have been published some papers relating to some specific local events.

This issue is published online and in print. In this issue, eighteen of the submitted papers were published, of which four were classified in the group of the original research scientific papers, and thirteen in the group of the scientific review articles. One article is classified as a scientific discussion.

We follow the mission and vision of the journal, and we help authors to publish their works and present their achievements in the most convenient way. However, we point out that the editors do not censor the works that we publish, as well as the published works, can contain and/or proclaim views that could differ from the views of the editorial board. We check articles on plagiarism, but we are not able to guarantee the accuracy of the data published in scientific and professional works of our authors. We believe that our authors are honorable and publish only their original works with really achieved results. For the quality of papers that we publish, we thank the authors and reviewers who did their job well and conscientiously.

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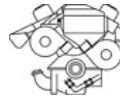
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*Zoran Čekerevac*

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***These are basic, but not exclusive themed areas.***



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# THE MECHANISMS OF HIGHER EDUCATION PUBLIC REGULATION IN BULGARIA

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**Nina Gergova**

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Management, Department of Economics and Accountancy in Transport,  
Sofia, Bulgaria

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JEL Category: I23, I25

## **Abstract**

*Today, the challenges Bulgarian higher schools face, are related to the Strategy for development of the higher education of the Republic of Bulgaria for the period 2014-2020. The state policy in the field of higher education fully responds to the requirements of the European policy. This means equivalence and harmonization of main objectives of the education policy at the national and European level, as well as unity and colinearity of the systems for education quality management. The relationship between higher schools and the labor market, related to the supply and demand of experts in the field of higher education, the encouragement of research activities, modernization of management systems of higher education and better financial control systems are some of the main goals of the Strategy for development of higher education of Republic of Bulgaria for the period 2014-2020. In the present publication, the mechanisms of public regulation of higher education in the last years are studied. The accent is put on the financial mechanisms of the state through which the policy for the fulfillment of the main goals of the Strategy for development of the higher education in the Republic of Bulgaria for the period 2014-2020 is done. Through the amendments of the legislation and the financial mechanisms of the state, the main objective of the government is to be achieved a high quality of the services provided, the high public rate of return, higher competitiveness and higher implementation of the theory in the practice.*

**Keywords:** higher education, high schools, quality, rating

## **1 INTRODUCTION**

In the contemporary world, the main objectives of the state policy for education must respond to the changing needs of customers for knowledge, skills, and competencies.

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The adopted “Strategy for development of higher education in the Republic of Bulgaria for the period 2014-2020” (MON, 2014) fully responds to the European policy in the field of education for better quality and efficiency of the education system, as well as higher employment rate.

Today, the main challenges the Bulgarian higher schools face, are related to the implementation of

the Strategy for the development of higher education in the Republic of Bulgaria for the period 2014-2020. Some of the main goals of the strategy are related to the link higher education-business through training of qualified professionals; modernization of the funding methods and management of higher schools.

## 2 STATUS QUO OF THE HIGHER EDUCATION MARKET IN BULGARIA

The analysis of the data from the National Statistical Institute ([www.nsi.bg](http://www.nsi.bg), 2018) and Eurostat (<http://ec.europa.eu>, 2018) shows that in the academic year 2016/2017 the number of students in Bulgaria is 236 264 or 3.33% of the population of the country. The number of foreign students is 13673 and the total number of students in the 51 higher schools for that period is 249 937. In the last years, the number of students is continuously decreasing in the three educational degrees “professional bachelor”, “bachelor” and “master”. The number of students in the academic year 2016/2017 is 35 389 less than the number of students in the 2012/2013 academic year or a drop of 14.55% is observed (fig.1). Some of the main reasons for the decreasing number of students are the demographic crisis; early school leavers, equal rights and opportunities for education in the EU.

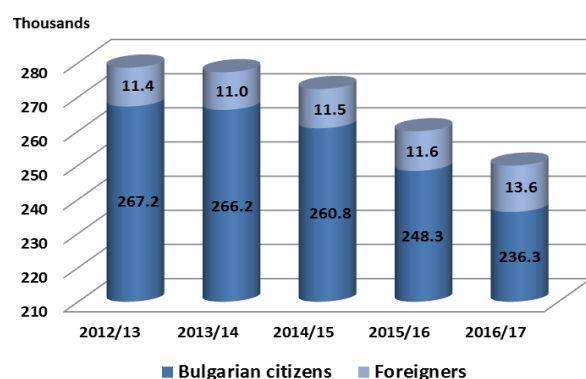


Fig. 1 Students Bulgarian citizens and foreigners  
Source: ([www.nsi.bg](http://www.nsi.bg), 2018)

The number of young people in the age 20-24 is 457 433 in 2012 and in 2016 this number is 350 006 (23.48%) which number is less than 24 993 students compared to the previous year. It should be noted that the low number of secondary school graduates apart from the demographic crisis dues to the great number of school leavers – 13.4% in 2016 for Bulgaria and 11% for the EU. Because of

the Bulgarian membership in the EU, a great number of the young people in the country took advantage of the equal rights and opportunities of the European educational institutions.

In the last years, the number of Ph.D. students (Fig. 2) is sustainably increasing as in the academic year 2016/2017 a growth of 25.45% compared to the academic year 2012/2013 is observed. This means both, many of the graduates have the motivation to develop their academic skills and competencies, and the number of working places in the field of science and research is increasing.

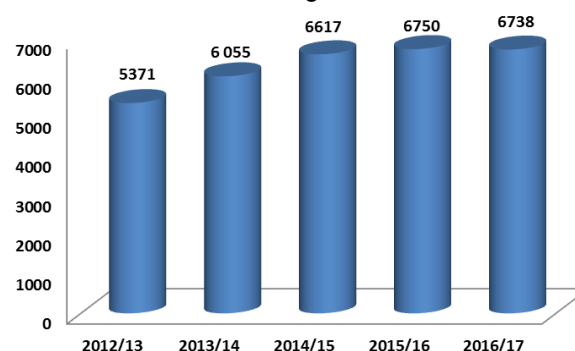


Fig. 2 Ph.D. students  
Source: ([www.nsi.bg](http://www.nsi.bg), 2018)

The education funding system, based on the enrolled number of students and not considering the labor market needs, results in the establishment of many universities and higher schools’ branches. Almost half of the students (49.04%) in bachelor’s degree are educated in three academic fields – “Economics and business administration” – 22.25%, “Technical science and technical professions” – 15.14%, and „Humanities“ – 11.64%. The smallest is the share of educated students in academic fields „Natural Science” – 0.76% and “Mathematics and Statistics” – 0.28%.

What is observed in the last years is that the public expenditures for education remain low (Fig. 3), in spite of the need for more funding. The public expenditures for education directly affect the economic growth and professional qualification of employees. In 2016, the sum of the public expenditures as a percentage of GDP is 3.5% which is much lower compared to the average EU level, 4.9%. The public expenditures for higher education as a percentage of GDP are 0.86%, of which 0.19% is spent on additional activities and 0.02% for R&D.

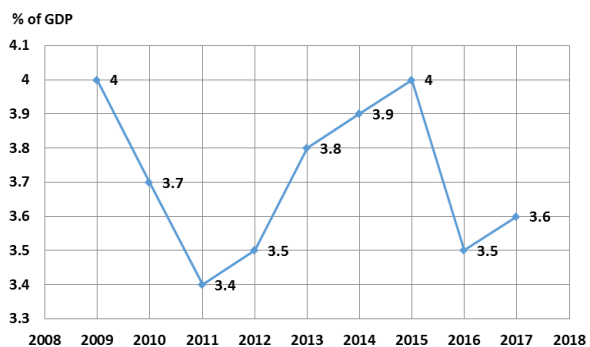


Fig. 3 Public expenditures for education % of GDP  
Source: (www.nsi.bg, 2018)

As a conclusion, we could say that the share of graduated students aged 30-34 in 2016 in Bulgaria is 33.8% compared to the average level for the EU - 39.1% (see fig.4). Consequently, we could expect that in 2020 the share of tertiary graduates will exceed the national goal of 36% and will reach the average European share of 40%.

### 3 CHALLENGES TO THE EDUCATIONAL MARKET IN BULGARIA

#### 3.1 Bulgarian University Ranking System

In 2011, the Bulgarian Ministry of education and science implemented the project Bulgarian University Ranking System (<http://rsvu.mon.bg>, 2017). The project was funded through the Human Resources Development Operational Programme and co-funded by the European Social Fund. Based on many indicators, the University Ranking

System compares 51 universities in 52 professional fields, measures various aspects of the education process, takes into account the higher schools image, as well as the professional realizations of graduates at the labor market. The universities ranking allows being assessed the interest of students to the various higher schools. The needed statistical data for filling out the information system “AdminUni” of the ministry of education and science is accessed through interviews with the students, teachers and staff of the universities as well as through the international reference databases (Scopus and Web of Science), by the National Evaluation and Accreditation Agency and the National Statistical Institute. A few experts prepare a standardized classification of the professional fields of higher schools, based on preliminary selected criteria.

For the defined groups of users, the experts studied the significance of the separate indicators, taking into account the quality of information, as well as the number and relationship among the selected indicators. The number of indicators and their significance is fixed in advance.

The users of the university ranking system receive a comprehensive quality assessment of the education at Bulgarian higher schools.

Main users of the system are:

- students and their parents;
- employers;
- higher schools and the academic community;
- institutions, providing policies for the development of higher education.

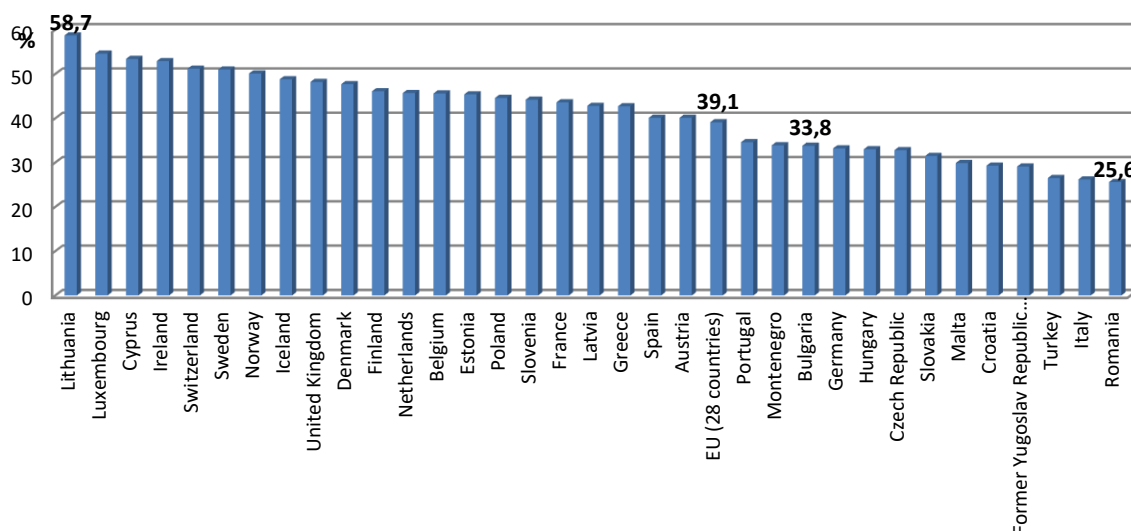


Fig. 4 Share of the graduated higher school students aged 30-34 in 2016 in the European Union (Eurostat, <http://ec.europa.eu>, 2017)

The professional realization of graduates in the labor market depends mostly on the specialty they study at the university. The main objective of the university ranking system is to help applicants choose what specialty to study and in which higher school. The university ranking system allows students to make comparisons between the higher schools and to be well informed about the image of every university. The university ranking system users can make various classification and comparisons among the higher schools in view of their individual interests. The university ranking system gives information about the educational process, the quality of education, as well as the negative and positive trends in the development of the relative higher school.

Thanks to the university ranking system, the employers could be informed about the human resources management in their organizations as well as about the relationship education-business.

The university ranking system encourages a higher quality of education to be achieved and identifies the areas in which further progress could be made. The best results of universities in the ranking system could be used for implementing benchmarking models and good practices.

The results of the university ranking system help higher schools to develop their education policy to be more competitive in the educational market. The university ranking system is a powerful instrument for the development of higher education in Bulgaria.

### **3.2 Main actions and measures of the Strategy for the development of higher education in the Republic of Bulgaria for the period 2014 - 2020**

The Bulgarian government has started to implement the *Strategy for the development of higher education in the Republic of Bulgaria* through its funding mechanisms, related to the quality of education:

- *The state subsidy for professional fields ranked in the first places in the university ranking system is increased;*

The government uses a comprehensive quality assessment of education at higher schools when defining the state funding of universities. As a

result, the universities, where students are educated in the professional fields, ranked in the first places receive 4% additional subsidy.

- *The state subsidy for higher schools depends on the quality assessment for education, received by the university in the University ranking system;*

In 2016 30% of the state subsidy for higher schools depends on the quality assessment for education, and what is forecasted is this subsidy to reach 60% till 2020.

- *Defines priority professional fields;*

Depending on the professional realization of students at the labor market, as well as in response to the over-crowded market with employees in some professional fields at the expense of others of which there is a public need, a Decree No. 64 of the Council of Ministers in 2016 was adopted. In this Decree, it is stated that 70% of the professional fields in which education is conducted in the Bulgarian universities become priority axes and protected specialties, which the government will fund and encourage in a special order.

- *The number of enrolled students and Ph.D. students at higher schools depends on the criteria of the university ranking system and the key priorities of the government for socio-economic development of the country;*
- *Reducing government subsidies for students enrollment;*

For the period 2010 – 2015 a drop of 25% in the number of secondary school graduates is observed while at the same time the number of enrolled students is constant. To achieve a balance between the proportion of state-funded freshmen and the number of secondary school graduates in the academic year 2016/2017, the total number of state-subsidized students in the first year is decreased by 8%. The main goal is to be achieved the admission levels of 62% in 2010, while in 2016; these levels reach 80% of the graduating students. Exempt financial resources from reduced student intake will be used to improve the quality of the education by increasing the subsidy for a student in the areas where it is the smallest.

- *Less admission of students in professional fields “Economics”, “Administration and management” and “Tourism”;*

In accordance with the results of the university ranking system, the professional realization of students at the labor market in the aforementioned professional fields is too low and among 19% and 38% of them takes occupations where higher education is needed. At the same time, according to the publications of the National Statistical Institute, there is a shortage of qualified professionals in the professional fields “Information and communication technologies”, “Mathematics” and “Pedagogy” at the labor market.

The negative trends in the education market are related to the drop in the number of students in all educational degrees, the outflow of students, enrolled in natural sciences, mathematics and statistics, as well as the poor funding of education in terms of GDP. The need to balance the funding of different professional fields in a way that will improve the quality of education and the realization of students in the labor market has been taken into account in the strategy.

### 3.3 Main results of the Bulgarian University Ranking System for 2017

The results of the university ranking system in 2017 confirmed the main trends in higher education in Bulgaria.

Data show that the number of students continues to decline. Despite the 10.48% and 15.76% drop in the number of students enrolled in professional fields “Economics” and “Administration and Management”, they remain the fields where most of the students are enrolled. At the same time, the professional fields with the best professional realization of students at the labor market are different – “Military” - 98.85%, “Medicine” - 95.56%, “Pharmacy” - 95.02%, “Dentistry” - 92.45%. The good opportunities for professional realization in Bulgaria and abroad as well as many foreign students are some of the main reasons for the significant growth of students enrolled in the professional fields “Medicine”, “Health Care” and “Pharmacy”.

The proportion of hired graduates who in the first 5 years of their post-graduate work take

occupations, requiring higher education, has risen to 48.56% from 46% in 2013. However, just over half of the university graduates in our country, take occupations, requiring low qualifications in the last 5 years, which means a persistent mismatch between the supply and demand of labor in Bulgaria.

There is still a continuing tendency of increase in the average insured income of graduates which reaches BGN 1075.17 at levels below BGN 900 in 2013. But it should be noted that there are still large income inequalities, depending on the professional fields. The professional fields with highest average earnings by the graduates are Informatics and Computer Science - 1613.43 BGN; Mathematics - BGN 1560.41; Military - 1506.46 BGN; Exploration, extraction, and treatment of mineral resources -1493.54 BGN.

The proportion of graduates who do not earn their incomes in the country drops to 21.5% from 23.21% compared to the last year and from 24.76% in 2015. The positive trend is that more and more graduates choose to work in Bulgaria.

According to the university ranking system, the share of registered unemployed higher school graduates in the last 5 years drop to 2.91% compared to the 3.38% in the last year and to 4.15% in 2013. The unemployment rate among graduates of professional fields “Military” - 0.19%, “Medicine” - 0.30%, “Pharmacy” - 0.48% and “Dentistry” - 0.68% is under 1%. In 2016, the unemployment rate in 10 professional fields is 4%, such as “Religion and Theology” - 4.29%, “Social activities” - 4.12%, and “Materials and materials science” 4.10%.

The main trends of the university ranking system in Bulgaria for 2017 shows the need to be improved the relationship between higher education and the labor market.

## 4 CONCLUSIONS

The main goals of the government policy for higher education are improved quality of education, higher public returns, greater competitiveness and higher professional realization of graduates in the labor market. With the financial mechanisms and implemented regulatory changes, universities are forced to focus on funding and maintaining of professional fields and specialties which employers and society need.

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Received for publication: 01.04.2018

Revision received: 31.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

#### Style – **APA Sixth Edition:**

Gergova, N. (2019, January 15). The Mechanisms of Higher Education Public Regulation in Bulgaria. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 1-6. doi:10.12709/mest.07.07.01.01

#### Style – **Chicago Sixteenth Edition:**

Gergova, Nina. 2019. "The Mechanisms of Higher Education Public Regulation in Bulgaria." Edited by Zoran Čekerevac. *MEST Journal (MESTE)* 7 (1): 1-6. doi:10.12709/mest.07.07.01.01.

#### Style – **GOST Name Sort:**

**Gergova Nina** The Mechanisms of Higher Education Public Regulation in Bulgaria [Journal] // MEST Journal / ed. Čekerevac Zoran. - Belgrade - Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 1-6.

#### Style – **Harvard Anglia:**

Gergova, N., 2019. The Mechanisms of Higher Education Public Regulation in Bulgaria. *MEST Journal*, 15 January, 7(1), pp. 1-6.

#### Style – **ISO 690 Numerical Reference:**

*The Mechanisms of Higher Education Public Regulation in Bulgaria*. **Gergova, Nina**. [ed.] Zoran Čekerevac. 1, Belgrade - Toronto: MESTE, January 15, 2019, MEST Journal, Vol. 7, pp. 1-6.



# GENERATIONAL DIFFERENCES IN ACHIEVING WORK-LIFE BALANCE

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JEL Category: **J62**

## **Abstract**

*Each generation is influenced by broad forces that create common value systems distinguishing them from people who grew up at different times. Reaching a balance between life and work is an intangible ideal considered to be a complete fairytale. But by making deliberate choices about which opportunities they'll pursue and which they'll decline, rather than simply reacting to emergencies, leaders can and do engage meaningfully with work, family, and community. The concept of work-life balance, as implied, consists of the management and balance of work responsibilities and non-work responsibilities. Professionals discover through hard experience that prospering is a matter of carefully combining work and home so as not to lose themselves, their loved ones, or their foothold on success. In that light the main goal of this paper is to find understanding for the main aspects of work-life balance and stressing the practical aspects of professionals in the struggle to face a satisfied professional and personal life, considering the attainment to a different generation. It has been widely discussed that individuals from different generations have been related to a different set of values which influences their image of what work-life balances mean. This paper aims at finding some ground bases for the analysis of, these different approaches, which could enable better organizational understanding of the needs of employees.*

**Keywords:** Work Life, Professional life, Generation, Human Resource

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## **1 INTRODUCTION**

Differences between generations are confounded with changes due to aging, experience, life stage,

and career stage. (Cennamo, & Gardner, 2008). The impending retirement of a large cohort of North American employees (Baby Boomers) has created a crisis in organizations as they strive to recruit and retain the younger generations, who purportedly hold significantly different values, attitudes, and expectations from the generations of workers who preceded them (Economist 2009). However, variations to work and the fact that each generation was introduced to work at differing points in time suggest that work value differences may exist between generations. The challenges related to professional orientation has made it particularly difficult to make decisions and choices related to family and pursuing a professional career path. Professionals take the challenging path of commitment and sacrifices in order to achieve outstanding results. However, engaging and commitment are just not enough nowadays, the fiercer the competitions are, the more specific career managing is needed. The main aim in this paper to present a relevant overview of the most important aspects influencing the actions towards achieving work-life balance. Work-life aspects have always been a concern of those interested in the quality of working life and its relation to broader quality of life (Guest, 2002). In general, the modern life imposes a certain misbalance related to professional and personal commitment which deteriorates the society on one hand and influences the results of organizations on the other.

At this point, it should be noted that there are many examples facing the issues, like those presented in this paper. Different authors have been discovering the layers of defining the work-life balance. The literature indicates different approaches for analyzing work-life balance. According to certain authors (Zedeck, & Mosier, 1990) typically five models could be used for explaining the relationship between work and personal life. The following models could be distinguished: segmentation model, spillover model, compensation model, the instrumental model and conflict model. These models propose different relationships between work and personal life setting an emphasis on a professional or personal aspect. Organizations interested in implementing work-life balance policies are keen to track their own progress and, also, to compare

their progress in relation to cross-organizational benchmarks (Bardoel, De Cieri, & Mayson, 2008)

The empirical as the well theoretical discussion has been discussing the rewards and problems of balancing the demands of coexistence of employment and family life (Barnett, 1994) (Bielby, & Bielby, 1989) (Brennan, & Rosenzweig, 1990), (Higgins, et al., 1992). The understanding of work-life balance brings certain results both for the individual and for the organization, at the same time enables managing the optimization between those most important aspects of life. Managing work-life balance should result in a more content loyal employee on one side and better performance results for the organization where individuals are engaged on the other. There is certainly a strong implication that to understand work behavior in relation to work-life balance, we need to explore aspects of family life (Guest, 2002).

Work-life balance is defined as a state of equilibrium in which the demands of both a person's job and personal life are equal" (Word Spy, 2012). Work-life balance is founded on the idea that every person should have a complete life in which a sufficient amount of time is spent on personal interests and family interest. The organization is shaped by organizational, sociocultural, and individual-level factors (Bruening, & Dixon, 2005). Mostly within our research, we have predominantly focused our research at an individual level factor. One of the main determinants influencing the attitudes towards certain behavior is strongly related to the person's values. Research has indicated influencing work-life balance concerns the values and attitudes of people in work engagements. This issue has been stimulated by writers advocating the arrival of Generation X (Tulgan, 1996), which has been specified by individuals who put a greater accent and prioritize seeking balance between work and personal life.

## **2 THE GENERATION**

A generation can be defined as an "identifiable group that shares birth years, age location, and significant life events at critical developmental stages" (Kupperschmidt, 2000). The concept of generations dates back to the year 1952, to the work of Karl Mannheim (Mannheim, 1952).

Research indicates that different generations exhibit different value priorities (Bogdanowicz, & Bailey, 2002). The investigation of work characteristics is, therefore, an important area for research for diverge generational groups and results in different outcomes in investigating differences between the generational groups.

The generations show differences in how they value work (Cennamo, & Gardner, 2008). The work style and belief systems of Generation Y (employees aged from late teens to the mid-20s) is regarded as fundamentally different from any other group of young people in the last fifty years (O'Reilly, & Vella-Zarb, 2000). A Price Waterhouse Coopers survey of 2500 University students in 11 countries found that 57% name "attaining a balance between personal life and career" as their primary career goal (O'Bannon, 2001). When discussing the notion of generation, like any other concept in the literature there can be found many different attempts. Basically, they all have one thing in common which is that under the term generation it is considered a group of people who are born, live and work in approximately the same historical timeframe. In addition, questions are raised, to determine the criteria which define the appropriate generation. Though the following factors are determined as more significant in defining the generation (Howe, & Strauss, 2002):

- Year of birth;
- A sense of belonging;
- Common beliefs and behaviors;
- Sharing a common history.

*The sense of belonging* means creating a perception of belonging to a generation that has its beginnings in the puberty stage and ends at the stage of so-called young adulthood.

In terms of *common beliefs and behaviors*, the focus is pointed towards family and marriage, career, personal life, politics.

*Sharing a common history* involves joint participation in common and significant events that characterize the time in which they are present.

In terms of *year of birth* (which is usually considered as the fundamental criterion for determining the respective generation) different classifications could be pointed out. Belonging to

an appropriate age is characterized by specific behaviors, as well as perceptions of reality.

Generation could be also considered as an identifiable group that shares birth years, age, location, and significant life events at critical developmental stages (Tolbize, 2008). Research indicated that authors have presented a wide number of definitions related to generations. Still, it could be stressed that members of one generation share experiences that influence their thoughts, values, behaviors, and reactions. Despite the fact that individuals bring their own specific personalities, some broad generalizations are possible about those born in approximately the same years. In this line considering one classification, the generations are divided into :

- A group of employees until 1950 ;
- Born between 1951 and 1960 ;
- Born in the period between 1961-1970 ;
- Born after 1971.

According to another classification (Martin, & Tulgan, 2002), there are the following three groups (with their "synonyms") :

- Baby Boom generation (born between 1946 and 1964);
- Generation X (born between 1965 and 1977);
- Generation Y (born between 1978 and 2000 - the so-called millennium generation).

Demarcations of generation boundaries are challenging. However, it has been considered that the two generational groups most analyzed in today's workforce are often called the Baby Boomers and Generation X. As for Boomers they are generally considered to be born between 1945 and the mid-1960s with the decline in birth rates that signaled the end of the Baby Boom. The generation now most active in the workforce corresponds with the rise in birth rates in the early 1980s when Baby Boomers began to have children and this has been referred to as the Baby Boom Echo, Generation Y, or Generation Next (Lyons, 2004).

### 3 UNDERSTANDING OF THE GENERATION Y

Generation Y or Millennials refers to a generation born between the eighties and the start of the new millennium, having a different set of personality characteristics, values, behaviors, expectations, and perspectives. There are considered as the

most educated, well traveled and technologically sophisticated generation in general. This generation has lived in a world of computers, the Internet, DVDs and cell phones. This group is considered to be less process or outcome focused. (Crampton et al., 2009) For generation Y making a lot of money is less important instead their values are more oriented toward their contribution to society and their role as parents.

Generation Y is similar to their Generation X counterparts in that Generation Y is independent, tech savvy, entrepreneurial, hardworking and thrives on flexibility (Martin, & Tulgan, 2001). Generation Y related to work engagement consider their job as a contract, not a calling. In general, it is considered that generations X and Y believe there is more to life than work—and this is especially true for Generation Y. Considering the different aspects of life Generation Y works to live as opposed to living to work. The items below summarize the significant events that have occurred since 1980 (Crampton, & Hodge, 2009).

- 1981: MTV
- 1984: AIDS
- 1986: Challenger Disaster
- 1995: The Oklahoma City bombing
- The 1990s: Clinton-Lewinsky scandal
- 1999: Columbine High School massacre
- 1980s-90s: Popularity of the Internet and ESPN

The first and main feature of members of this generation is that they are individuals who have never lived in a world without technology. That means that mobile phones, Internet, SMS, skype, facebook, twitter, etc., are an integral part of their lives. It is a generation that doesn't know how to calculate at heart, but does that using the help of computers and mobile phones; generation that does not know what it means to have a film in the photography camera; generation where the images of Fiat 750 and a blue Skoda 110 L, are interesting, but unusual (yes, they will indicate as members of this generation, that their grandfather had this type of car). Somewhere in the 60s, 70s or 80s of the last century at a concert during some slow songs lighter were lit and used, now in the air are risen iPhones', tablets and so on.

The culture in which the members of this generation live, grow up and work, is characterized by high speed, uncertainty,

turbulence, and major changes. Reliability, inertia, slowness, low turbulence were characteristics of the generations before (baby boom and generation X- as an example).

Generation Y consists mainly, of the children of baby boomers, but their mindset, beliefs, values, and attitudes are far more different than those of their parents.

The members of Generation Y, have the following basic features:

- Access to modern IT and other modern technology;
- Participation in decision making;
- The existence of feedback;
- Teamwork ;
- Flexible and unbalanced fees ;
- Ready for equal negotiation.

But also these members (Generation Y), search for a proper career, balance between work and private life and independence. Finding the perfect career is more important for them than just finding work and job satisfaction is more important than the salary provided by an organization. Some of the main attributes of generation Y are summarized and presented in Table 1.

It should be noted that some professionals as part of this generation have been interviewed. One of the main features of these individuals is that they require a balance between the professional and private life. Plus as individuals, they have been considered which despite everything are aiming to achieve that balance between professional and private life.

*Table 1. Attributes of generation Y*

1. They have an incredible amount of talent and believe that innovation is crucial to corporate growth.
2. Being wealthy is very important to them. They are fiercely ambitious and motivated by money, status and career advancement
3. They are not interested in political affairs.
4. They are closer to their parents as compared to previous generations.
5. They increasingly use and are very familiar with communication, media, and digital technologies.
6. Prefer communications through e-mail and text messaging over face to face interaction. They also prefer cyber training, webinars, and telecommuting.

7. Excellent multitaskers. They can manage multiple streams of information across time zones and multitask with ease.
8. Prefers workplaces in an urbanized location with good public infrastructure.
9. They value flexibility, attractive salary package, and flexible working hours and schedules. They also prefer additional vacation days to cash bonuses.
10. They are future-oriented, ready to contribute now, opportunity driven and prefer opportunity over job security.
11. They can be best described as self-confident and self-dependent, connected, optimistic, entrepreneurial and tech-savvy.
12. They aim high and do not think themselves limited by background. They think it is what you are that counts. They are believed to have high Internal Locus of Control.
13. They are self-expressive and unrestrained in self-expression. They write openly about themselves and friends online.
14. They are team players and like to work in teams and groups. They prefer a collaborative approach and interaction in the workplace.
15. They despise traditional command and control type of management still popular in much of today's workforce. They are not fond of the top-down leadership style that has until now dominated the professional world, preferring instead to collaborate in teams.
16. They attach great importance to diversity in our workplaces and are "tolerant" of different opinions, sexualities, ethnicities, and cultures than previous generations.
17. They view the office as an extension of their home life.
18. They are more literate and informed as compared to previous generations.
19. They crave instant feedback at work. They desire constant feedback from their superiors and seek knowledge from older generations in the workplace.
20. They want to be trusted and respected by their boss. Their ideal manager is a coach and mentor, or a friend, rather than someone who directs or examines and audits.
21. Meetings for them is pointless, redundant or huge time wasters.
22. They require continuing education, responsibility, flexibility, and personal goals from their employer.

Source: (Meier, J., Austin, S.F., & Crocker, M., 2010)

#### 4 ESTABLISHING BALANCE BETWEEN PROFESSIONAL LIFE AND PRIVATE LIFE

Considering different generational characteristics, reported that Boomers: live to work; respect authority and hierarchy, and enjoy being in charge. Whereas in contrast, Xers: work to live; desire instant gratification; and • are self-reliant. (Gursoy, Maier, & Chi, 2008). At the beginning work-life balance has been conceptualized in terms of work-family conflict (Carlson, et al., 2009). Changing the approach traditional family life has caused the rise of interest in these aspects of organizational life. The labor market and developments in family life such as the movement of women to the workforce and the increasing dual-earner households, work-life balance became an actual topic (Allen, et al., 2000).

Juggling competing demands is tiring if not stressful and brings lower productivity, sickness, and absenteeism, so work/life balance is an issue for all employees and all organizations (Swift, 2002). Work-life balance from the employee viewpoint concerns the dilemma of managing work obligations and personal/family responsibilities (Lockwood, 2003). Friedman and Greenhaus (2000) in their pioneering study included 800 business professionals indicating that work and family, are the dominant life roles for most employed women and men in contemporary society and at the same time they can either help or hurt each other (Friedman, & Greenhaus, 2000). In real life, there is a high degree of duality. Organizations try to find ways to accommodate their employees in finding the right balance by offering successful work-life practices, while still aiming for high performance and economic success (White, et al., 2003). This duality is especially emphasized in ensuring a balance between professional and private life. It expresses in the existence of so-called "Parallel worlds", i.e. the division of existence into two independent parts. This approach requires, first, sorting people into categories. People who belong to our inner circle (family, friends, relatives) and people who belong to our outer circle (associates, customers, etc.).

People are distinguished accordingly in relation to how they set up their priorities in life, and ultimately value, success in their careers and lives.

The values associated with the four life role priorities vary from group to group. There can't be a happy career if there is not a happy personal life and vice versa. An active role in ensuring the balance between professional and personal life provides great results for the organization where the individual is employed. Life role priority influences the decisions shaped by family structure, personal values, work experiences, and other factors. For setting priorities, in practice, there are several possible strategies, including:

- Finding the courage to refuse demands that are beyond achieving a balance between professional and private life;
- Requesting not to quit on ourselves when planning the balance between the professional and private life;
- Self-management (recognizing the paradigm considering the "limitations of time and the inability to store and return back" );

- Time management (determining priorities, separating the important from the not important) ;
- Stress management;
- Change management

Additionally, the organization has to ensure the following:

- The support to ensure a balance of professional and private life;
- Determining the appropriate priorities for work;
- Identifying the signs of exhaustion and monotony;
- Seminars for balancing between professional and private life;
- Encourage programs for recreation and relaxation;

*Table 2. Generational difference in the approach toward work-life balance*

Baby boom	Generation X	Generation Y
Hard workers Loyal to the organization Eager for extrinsic work values such as salary, benefits, and status Increasingly family-oriented due to change in roles' Do not set such high expectations with regard to their work-life balance(workaholics)	Shift away from traditional family roles Seek for more family time Less loyal to the organization Less fixated in titles and status The increasing set value on achieving a work-life balance Work should not be the most important part of one's life	Used to the differences in family households Continue to search for balance Meaningful life everywhere, at work and home Prefer flexible work arrangements High expectations and actively seek to find a balance
Were hesitant of taking too much time off work for fear of losing their place on the corporate team. As a result, there is an imbalance between work and family	Because of parents who are Boomer workaholics, they focus on the clearer balance between work and family. Do not worry about losing their place on the corporate team; they take time off	Not only balance with work and life but the balance between work, life and community involvement, and self-development. Flex time, job sharing, and sabbaticals will be requested more by this generation

*Adapted according to Van de Ven, A. (2011) and Crampton, S.M. & Hodge, J.W. (2007).*

Researchers have been interested in how different generations approach this issue of work-life balance. It has been widely discussed that there have been a clear shift and so how generations value and approach their work is an important question nowadays (Levenson, 2010). Since we are more and more witnessing a multigenerational working environment where many different

generations meet, in order to facilitate their coexistence, the organization needs to be aware of their approach towards this issue. Hence in table 2 below are presented some of the main facets of different most active generations within the working labor force.

## 5 CONCLUSION

Employees are of no use to the organization if stressed and torn between family and profession. The key to making any organization successful lies in the satisfaction, commitment and deliberate involvement of the employees. Considering the different aspects of work-life balance the decision process is mainly related to the individuals basic set of values. It has been discussed widely that the attainment to specific generations predefines certain behavior. Therefore, in our observation the fact that the individual belonging to the so-called Y-generation or Millennials gives an implication that these person puts great emphasis on personal and professional balance, devoting high ranking in their priorities on personal issues. Work-life balance is a tool that has been adopted by the

most successful organizations so both sides the individual and the organization itself should make an effort in order to achieve the best result. Hence work-life balance initiatives are the win-win situational tools for the employers and the employees as the organization's goals are accomplished and fulfilled successfully along with the personal needs of the employees. Based on the issues mentioned above it becomes clear that work-life balance is not only an individual issue but also an organizational issue. Putting this into perspective provides additional information valuable for both the individual and the organization. It sets the ground lines for handling certain aspects of organizational life which are important for using human resources in the most efficient manner, minimizing fluctuations and absenteeism.

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Received for publication: 16.12.2017

Revision received: 11.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

#### **Style – APA Sixth Edition:**

Iliev, A. J., Postolov, K., & Sopova, M. M. (2019, January 15). Generational Differences in Achieving Work-Life Balance. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 7-15. doi:10.12709/mest.07.07.01.02

#### **Style – Chicago Sixteenth Edition:**

Iliev, Aleksandra Janeska, Kiril Postolov, and Marija Magdinceva Sopova. 2019. "Generational Differences in Achieving Work-Life Balance." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 7-15. doi:10.12709/mest.07.07.01.02.

#### **Style – GOST Name Sort:**

**Iliev Aleksandra Janeska, Postolov Kiril and Sopova Marija Magdinceva** Generational Differences in Achieving Work-Life Balance [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 7-15.

#### **Style – Harvard Anglia:**

Iliev, A. J., Postolov, K. & Sopova, M. M., 2019. Generational Differences in Achieving Work-Life Balance. *MEST Journal*, 15 January, 7(1), pp. 7-15.

#### **Style – ISO 690 Numerical Reference:**

*Generational Differences in Achieving Work-Life Balance*. **Iliev, Aleksandra Janeska, Postolov, Kiril and Sopova, Marija Magdinceva**. [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 7-15.



# PROJECT FINANCE AS A FORM OF FINANCIAL MANAGEMENT IN RUSSIAN AGRICULTURE

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JEL Category: **P34, Q14**

## **Abstract**

*Now there is a need of use of new instruments of financing of agro-industrial production as the existing mechanisms of crediting and subsidizing of interest rates are represented insufficiently effective. The agriculture is characterized by the low profitability which isn't allowing producers to use effectively borrowed funds as their cost during the last time grows the advancing rates. As a result of the use of the bank credits the financial condition of the agricultural enterprises worsens, the need of development of new financial instruments for simplification of access for producers of agricultural production to financing is a consequence of that. In this regard, we offer use of mechanisms of a project financing. Also, we recommend improving a technique of an assessment of projects with the purpose of implementation of the most effective financial support of agro-industrial production. Implementation of the specified offers will allow improving mechanisms of support of producers of agrarian production.*

**Keywords:** import substitution, state support, credits, agro-industrial production.

## **1 INTRODUCTION**

During being of sanctions, Russia needs to increase the volume of agricultural production. It is necessary to use for achieving this increase the following resource groups: financial, land and labor. In our view, the issue of financing of creation and to a lesser extent the expansion of agricultural production is the most difficult. This is due to the specifics of agricultural production and the difficulty of using the data for the purposes of own resources of manufacturers, including because of the relatively high debt load of the agricultural sector.

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In terms of sanctions is necessary to revise and update the priorities of macroeconomic policy tools, primarily monetary. In recent years the Bank of Russia practically all monetary policy drove to a lower level of inflation. To this end, the bulk of oil and gas revenues to "freeze" in the accounts of the Central Bank; significantly reduced the refinancing of banks; increasing the standard of emergency (Ayvazov, 2013).

Because of this policy, there was underfunding investment in infrastructure, high technology, real sectors of the economy. The continuation of this policy calls into question the possibility of transition to innovation and investment development path of the Russian economy in general and the agricultural economy in particular.

Russian Government has to use the tools of monetary politics' order to achieve

macroeconomic balance. To coordinate fiscal and monetary policy of the Central Bank and the Government of the Russian Federation should not be put before mutually exclusive goals. Therefore, in our view, the primary objective of monetary policy in Russia is now looking for ways to increase the budget and bank financing for investment in socio-economic and technological development without a sharp increase in inflation. For this purpose, it is advisable to: consider a significant reduction of the refinancing rate, so that the banks were able to lend to the real sector of the economy; increase investment spending budget; exempt from compulsory redundancy term deposits of citizens to be insured to avoid double burdens; reduce the cost of banks to reduce bank margins, for it to consider the payment of interest on commercial banks' mandatory reserve in the fund, and on correspondent accounts with the Central Bank of Russia.

All these measures will enhance the ability of bank lending and investment budget, which will lead to a further increase in the volume of gross domestic product, increased demand for cash resources, revitalize the real economy and thus will contribute to the return of the majority of government spending in the budget in taxes (Maslova, 2009).

## 2 ANALYSIS

The main problem of the Russian agrarian economy is a drawback of finances which were provided by the State program and the empowerment of medium- and long-term lending. Along with the tools enabling discretionary monetary policy is necessary to provide the use of discretionary fiscal policy measures stimulating (increasing subsidies and grants).

The effectiveness of any kind of economic policy is determined by the ratio of the results (effects) to the cost of its implementation. The greatest effect can be reached only by combining the tools of fiscal and monetary policy. If we compare the effectiveness of fiscal and monetary policy, then, from our point of view, in terms of decline in production efficiency of the instruments of fiscal policy will be higher than from the use of monetary, especially if you can reduce the sensitivity of investment to interest rate changes. We should

actively use the financial leverage due to their high mobility.

In this regard, we consider it appropriate to consider the possibility of applying such a mechanism of investment resources as project financing. The method is not traditional for the Russian banking system, but we suppose that it will be quite perspective. Financing is defined as "to provide the necessary financial resources of the entire economy of the country, regions, businesses, entrepreneurs, and citizens, as well as the various economic programs and economic activities" (Raizberg, Lozovskiy, & Starodubtseva, 2006).

Accordingly, project financing in the broadest sense can be defined as "a method of attracting long-term debt financing for large projects through the "financial engineering" (Raizberg, Lozovskiy, & Starodubtseva, 2006), based on the loan under the cash flow generated only by the project; it depends on the creation of a detailed assessment of the project, operational risks and the risks of income and their distribution among investors, creditors, and other stakeholders on the basis of contracts and other contractual arrangements " (Yescombe, 2013). In this aspect of project finance is a global process involving many participants and all aspects of project development and implementation, the contractual relationship into a single system. Such financing is usually aimed at the implementation of major projects, often with a large public importance: related to the extraction of natural resources, the financing of independent power projects, public infrastructure (roads, transport, public buildings), etc.

The narrow understanding of project financing with the direct participation of credit institutions is the placement of attracted funds for the implementation of certain projects. Unlike conventional loan in which the source of repayment of borrowed funds is the whole economic activity of the client, with project financing source of repayment of credit debt is the cash inflows resulting from the implementation of a specific project.

The legal basis for this type of funding is still the same loan agreement concluded, usually in the form of a credit line. This form of cooperation is most convenient for the bank, as it allows to keep

records of target use of funds by the borrower, the borrower's financial condition, as well as compliance with the stages of the project. This loan agreements often provide an opportunity for the bank to interest rate unilaterally, or a list of grounds for denial of the current tranche of the loan, either reason to demand early repayment of the loan amount together with interest. For example, a bank may provide in the loan agreement the right to increase the interest rate in case of delay in repayment by the borrower of this loan or absence of a stipulated term documentary evidence of registration with the relevant authorities of the Federal Registration Service of Russia for state registration of mortgage (mortgage) facility under construction, the pledgee for which the bank acts (Alekseyeva, 2008).

In the case of the need to finance large-scale projects really, banks tend to combine their efforts in order to issue a syndicated loan to the borrower. This is due not so much the desire of banks to minimize their credit, foreign exchange, interest and legal risks, as the need to comply with the reserve policy of the Bank of Russia.

In accordance with the provisions of the Bank of Russia № 254-P, the credit institution is obliged to classify loans issued in one of five categories of quality (to the extent that collateral for granted loans), and to create reserves for portfolios of homogeneous loans to the amount of principal (which are not included: due to the law, business practice or the provision of loan payments in the form of interest for the use of the loan, fees, penalties and other payments in favor of the credit institution resulting from the agreement on the loan) (Bank of Russia, 2004).

The requirements of the Bank of Russia said part pretty tough. Thus, to include a loan for the second to the fifth category of quality, the bank is required to obtain certain software. Under the provision of the loan is meant to provide a collateral, bank guarantees, the guarantee deposit (deposit), divided into one of two categories of quality software, installed above Regulations № 254-P. For example, to ensure I category of quality may include: a pledge of listed securities of countries having an investment grade rating not lower than "BBB" by classification rating agency S & P (Standard & Poor's) or the rating not lower than the classifications "Fitch Ratings", Moody's as well

as securities of the central banks of these countries or the Bank of Russia bonds, securities issued by the Ministry of Finance, etc.

Typically, banks make out collateral relating to the II category of quality: liquid collateral objects listed in the Regulation № 254-P, guarantees (bank guarantees), guarantees, etc. The higher the loan amount, the more significant shall be supplied to the loan fell within at least a third category of quality at which banks are obliged to create reserves in the amount of 21 to 50% based on the amount of principal. On the lower quality categories (4<sup>th</sup> and 5<sup>th</sup>), the bank must create reserves to 100% of the principal amount.

Project financing provides the customer a number of advantages: the possibility of expanding existing businesses, attract additional funds, separation of financial flows on current and project business, attracting financial resources for long-term, individual approach on the part of the bank, the possibility of a phased investment of own funds in the project and use as collateral assets acquired during the project, as well as comprehensive banking services (including consulting in the preparation of business projects).

This type of funding also features purpose - the creation or implementation of major projects, the funds for which is difficult to accumulate a narrow circle of participants.

Funds in project financing may be directed to:

- The purchase of a non-residential real estate in the secondary market or the real estate objects of unfinished construction;
- Purchase of land for an investment project;
- Construction work on new construction, as well as reconstruction, restoration or capital construction;
- The acquisition of fixed assets for the modernization and reconstruction of production;
- The creation of new production capacity, etc.

This type of lending is relevant for use in metallurgy, electric power, food, wood, and petroleum industries.

The main criteria for making an investment decision about the use of public funding in the implementation of regional investment projects are indicators of economic efficiency of the project (part of the total for all years of the regional

investment project produced gross regional product in the region of the Russian Federation, which can be provided as a result of the implementation of this investment project) and indicators of financial performance of the project (net present value and internal rate of return of the project) (Prikaz N117, 2008)

In this regard, we consider relevant to build a model that allows to carry out an initial evaluation of the feasibility of project financing based on indicators of financial leverage. The model is based on the following assumptions:

1. Tax corrector is assumed to be 0.94 in all cases. For enterprises, the agricultural taxpayers of the single tax rate is 6 percent for companies applying the common system of taxation, income tax rate of 0 percent, so the assumption used in the model will provide some slack performance differential gearing.
2. The level of the average interest rate on the loan is taken as 17%, taking into account possible fluctuations in the financial market in terms of sanctions. The average settlement rate on loans to businesses in 2016 amounted to 15 % (n.d., 2017) (CBRF, 2018).
3. The minimum rate of return on assets was assumed to be 16%, as at a smaller index value of financial leverage effect will be negative, therefore, the project cannot be accepted for implementation.
4. The maximum value of the lever arm may not exceed 5, as in this case, the borrower will not be able to provide effective security for repayment of borrowings.

5. Fees due to the specifics of agricultural production are carried out once a year.
6. Project payback period is rounded to the nearest whole number.

Table 1 The main indicators for deciding on a project financing

Name	Indicator value				
The lever arm	1	2	3	4	5
The differential lever	1	1	1	1	1
The level of financial leverage effect	0.94	1.88	2.82	3.76	4.7

Without discounting the cash income, the maximum payback period for which the project can be recommended for adoption at a given level of profitability is 7 years. Present value of cash flow of the project will be  $-IC$  (invested capital)  $+CF$  (cash flow) / 2,826.

### 3 CONCLUSIONS

Despite the fact that project finance is now able to be very popular tool lending, its practical application is not very developed due to the incompleteness and conflicts of law. In particular, adjusted the legal framework of project finance in various sectors of the market: the granting of concessions and guarantees, insurance, syndicated right, the stock market, trust, leasing operations, and others. At the same time, this mechanism potentially allowing through the creation of new agricultural producers how to ensure implementation import substitution programs and facilitate the creation of new jobs in the agricultural sector.

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Received for publication: 16.12.2017

Revision received: 07.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

#### **Style – APA Sixth Edition:**

Ivanov, M. A. (2019, January 15). Project Finance as a Form of Financial Management in Russian Agriculture. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 16-20. doi:10.12709/mest.07.07.01.03

#### **Style – Chicago Sixteenth Edition:**

Ivanov, Maxim Aleksandrovich. 2019. "Project Finance as a Form of Financial Management in Russian Agriculture." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 16-20. doi:10.12709/mest.07.07.01.03.

#### **Style – GOST Name Sort:**

Ivanov, Maxim Aleksandrovich. 2019. "Project Finance as a Form of Financial Management in Russian Agriculture." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 16-20. doi:10.12709/mest.07.07.01.03.

#### **Style – Harvard Anglia:**

Ivanov, M. A., 2019. Project Finance as a Form of Financial Management in Russian Agriculture. *MEST Journal*, 15 January, 7(1), pp. 16-20.

#### **Style – ISO 690 Numerical Reference:**

*Project Finance as a Form of Financial Management in Russian Agriculture*. **Ivanov, Maxim Aleksandrovich**. [ed.] Zoran Čekerevac. 1, Belgrade - Toronto : MESTE, January 15, 2019, MEST Journal, Vol. 7, pp. 16-20.



# ECONOMIC ACTIVITIES INFLUENCE MODELS ON THE TRAFFIC FLOWS IN BULGARIAN SEAPORTS

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JEL Category: L92, O18, R41

## **Abstract**

*The article presents analysis, assessment, and simple linear regression models of the basic economic activities impact on the volume of the cargo traffic processed in maritime ports of national importance in the Republic of Bulgaria. Dependencies between the industrial development trends and the turnover of the ports Varna and Burgas per main freight groups and directions (import, export and transit) are considered based on correlation and regression analysis. The trends of industry development are represented by industrial production indices by economic activities, classified according to the Statistical Classification of Economic Activities in the European Community (NACE). Trends in cargo turnover changes in ports are represented by indices of the physical volume of processed goods in the ports of Varna and Burgas. An assessment of the strength and directions influence of industry on the maritime cargo turnover of the seaports is made by defining the coefficients of a simple (one-factor) linear correlation between the industrial output indices by economic activity and port turnover load indexes. Verification of the statistical significance of the results and the determination of the linear models applicable for the predicted purposes was made by the F-test.*

**Keywords:** national maritime ports, freight transport, basic economic activities, correlations between the industrial development trends and the turnover of the ports

## **1 INTRODUCTION**

The national ports of Varna and Burgas are of great importance for Bulgaria. Around 75% of the import and over 70% of the export volumes of goods are handled at these two ports. For the period 2007 - 2015 the average annual freight

turnover of both ports amounts at more than 26 million tons, with a slight tendency towards increasing (Table 1).

The freight turnover at the ports is highly influenced by a number of economic, social and political factors. The industrial development is considered the basic factor influencing the generation of freight flows at ports, but the influence of different economic activities is not equal in terms of strength and direction.

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*Table 1. Annual freight turnover at sea ports*

Year	Total for the ports in Varna port area	Total for the ports in Burgas port area	Total for the sea ports
	(tonnes)	(tonnes)	(tonnes)
2007	9 314 444	16 179 168	25 493 613
2008	11 070 385	16 065 294	27 135 679
2009	8 871 575	13 400 229	22 271 803
2010	10 558 008	12 873 257	23 431 265
2011	12 061 074	13 595 515	25 656 589
2012	11 690 991	14 971 965	26 662 955
2013	13 592 082	15 953 432	29 545 514
2014	12 178 285	15 792 103	27 970 389
2015	11 691 898	16 220 651	27 912 548

*Source: "Integrated Transport Strategy for the period until 2030"*

The presented analysis identifies economic activities with considerable influence over the freight turnover in the ports of Varna and Burgas from statistical point of view. Adequate uni-factor regression models of their influence over the port freight turnover are established, applicable to the forecasting purposes.

## 2 OBJECTIVES

The main objectives of the analysis are as follows:

- determination of the existence of correlation between the economic activities and the freight turnover in the ports of Varna and Burgas;
- evaluation of the strength, ranging and determining the direction of influencing the port freight turnover by the economic activities;
- determination of regression equations of statistically significant dependencies and construction of their single-factor regression models.

## 3 METHODOLOGY

The dependencies between the industrial development tendencies per economic activities and the freight turnover of Port Varna and Port Burgas have been traced by the options import, export and transit during the period 2007-2015.

The industrial development tendencies are presented by statistical data quoted by the

Bulgarian National Statistical Institute concerning the industrial indexes per economic activities classified according to the Statistical Classification of Economic Activities in the European Community (NACE).

The tendencies of changing the ports' freight turnover are presented by indexes, determined according to the data of the physical volume of the import, export and transit goods handled at the ports.

*Table 2. Factor variables*

X	Industry total
<b>XB</b>	<b>Mining and quarrying</b>
XB5	Mining of coal and lignite
XB7	Mining of metal ores
XB8	Other mining and quarrying
<b>XC</b>	<b>Manufacturing</b>
XC10	Manufacture of food products
XC11	Manufacture of beverages
XC12	Manufacture of tobacco products
XC13	Manufacture of textiles
XC14	Manufacture of wearing apparel
XC15	Manufacture of leather and related products
XC16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
XC18	Printing and reproduction of recorded media
XC19	Manufacture of coke and refined petroleum products
XC20	Manufacture of chemicals and chemical products
XC21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
XC22	Manufacture of rubber and plastic products
XC23	Manufacture of other non-metallic mineral products
XC24	Manufacture of basic metals
XC25	Manufacture of fabricated metal products, except machinery and equipment
XC26	Manufacture of computer, electronic and optical products
XC27	Manufacture of electrical equipment
XC28	Manufacture of machinery and equipment n.e.c.
XC29	Manufacture of motor vehicles, trailers and semi-trailers
XC30	Manufacture of other transport equipment
XC31	Manufacture of furniture
XC32	Other manufacturing
XC33	Repair and installation of machinery and equipment

The estimation of the industrial influence over the ports' freight turnover is worked out through determining co-efficients of simple (uni-factor) linear correlation between the indexes of change of traffic and the indexes of freight turnover change.

The correlations between the *Factor variables* are studies (economic activities), listed in Table 2 and *Dependent variables* (directions of traffic flows), shown in Table 3 are studied.

Table 3. Dependent variables

Dependent variables					
Port Varna			Port Burgas		
import	export	transit	import	export	transit
Y1	Y2	Y3	Y4	Y5	Y6

The degree of determination of the variables dependent on the factor variables is determined by the coefficients of determination (R-squared).

To assess the strength of influence and the degree of determination of the variables, the scales shown in Table 4 have been applied.

Table 4. Rating scales

Correlation strength	Determination degree
0.3 < R < 0.5 – moderate	0.1 < R <sup>2</sup> < 0.25 – moderate
0,5 < R < 0,7 – considerable	0.25 < R <sup>2</sup> < 0.49 – considerable
0.7 < R < 0,9 – high	0.49 < R <sup>2</sup> < 0.81 – high
0.9 < R < 1.0 - very high	0.81 < R <sup>2</sup> < 1 – very high

The verification of results has been tested through F-test (Fisher's criterion) at a confidence interval  $\alpha=0.05$ . The calculated value of Fcr (Critical Value of the F Distribution) is 5.987.

Statistically significant are considered the dependencies, for which the statistical tests show values bigger than the critical ( $F > F_{cr}$ ). The null hypothesis, defined as accidental is rejected for these dependencies.

For the dependencies selected as statistically significant, the parameters of the linear regression equations are determined, and one-factor regression models are constructed.

The algorithm for estimating and determining statistically significant and adequate for the purposes of forecasting single factor linear regression models of the industrial influence on port freight turnover are presented on Figure 1.

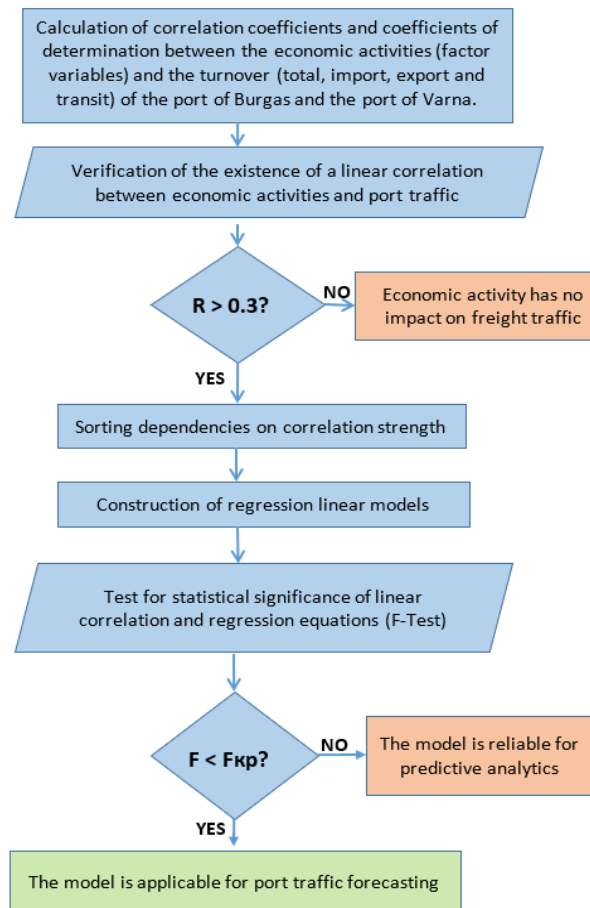


Fig. 1 Algorithm for evaluation and determination of statistically significant linear regression models

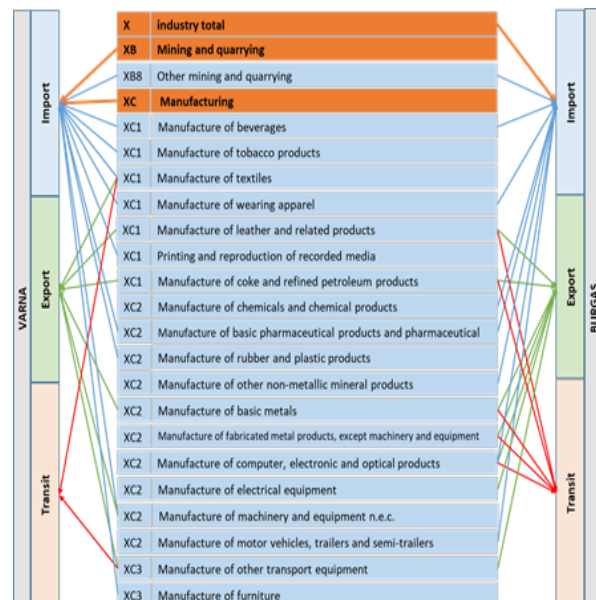


Fig. 2 Statistically significant dependencies

## 4 RESULTS AND DISCUSSIONS

Figure 2 represents schematically the identified statistically significant correlations between

economic activities and the import, export and transit freight turnover of ports.

The linear one-factor regression models of statistically significant dependencies are applicable for the purposes of forecasting.

The imports in the Port of Varna is influenced by 12 of the studied economic activities, while the imports in the port of Burgas is influenced by 9 of them (Figures 3 and 4).



Fig. 3 Statistically significant dependencies for the import of the port of Varna

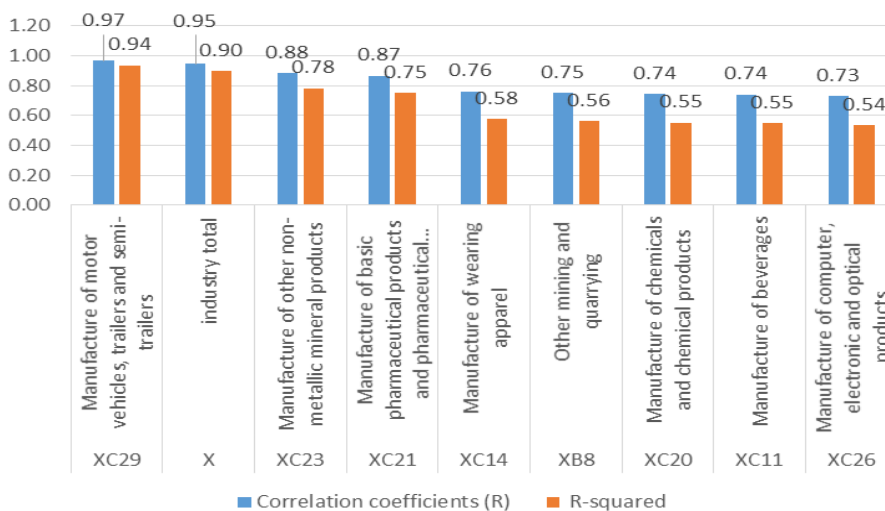


Fig. 4 Statistically significant dependencies for the import of the port Burgas

industry total Burgas import

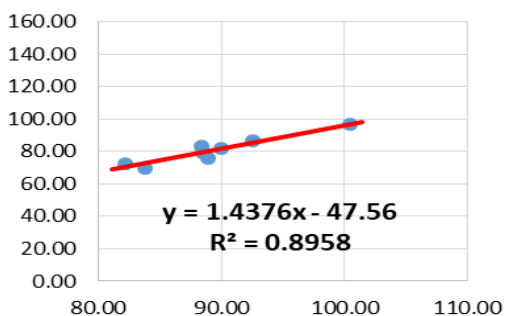


Fig. 5 Regression model of the industrial influence over the imports at the Port of Burgas

The influence of the industry as a whole over the imports through the Port of Burgas can be represented by the linear one-factor model on Figure 5.

Through linear one-factor models the dependencies between the imports through the port of Varna on one hand and the mining and processing industries on the other hand can also be presented (Figure 6)

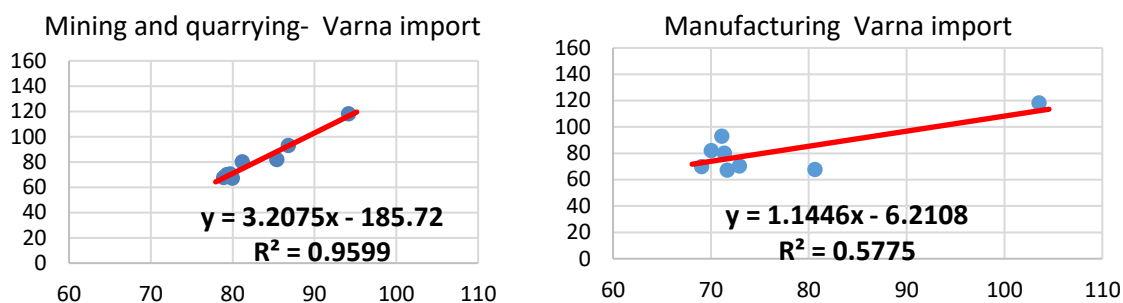


Fig. 6 Regression models of the imports through the Port of Varna

The imports in both ports are influenced by the economic activities “Other mining and quarrying”, “Manufacture of beverages”, “Manufacture of wearing apparel” and “Manufacture of basic

pharmaceutical products and pharmaceutical preparations”. The regression models of those dependencies are presented on Figure 7.

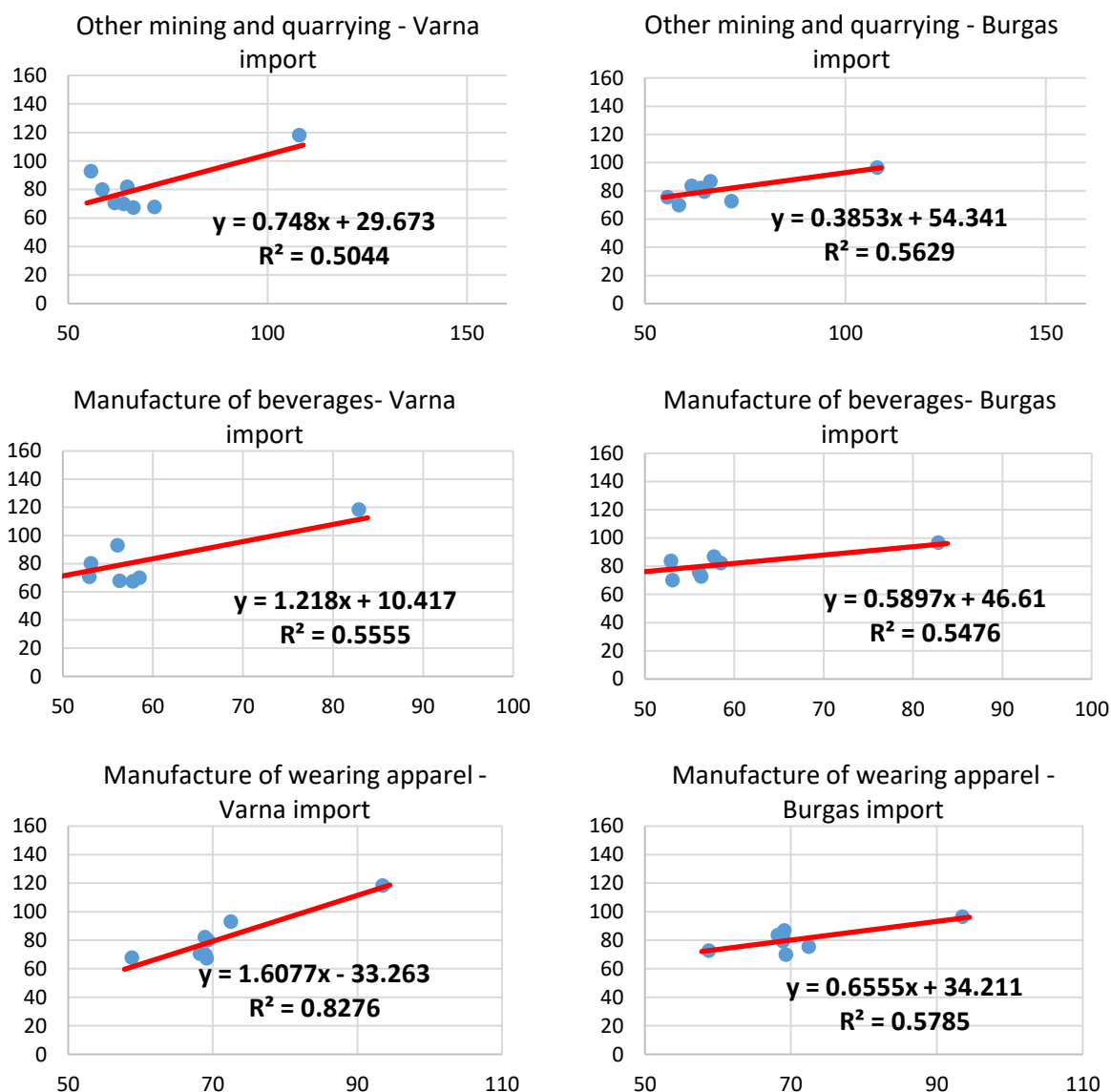


Fig. 7 Regresson models of dependencies of the imports in the Port of Varna and Port of Burgas on the basic factors (Continuation on the next page)

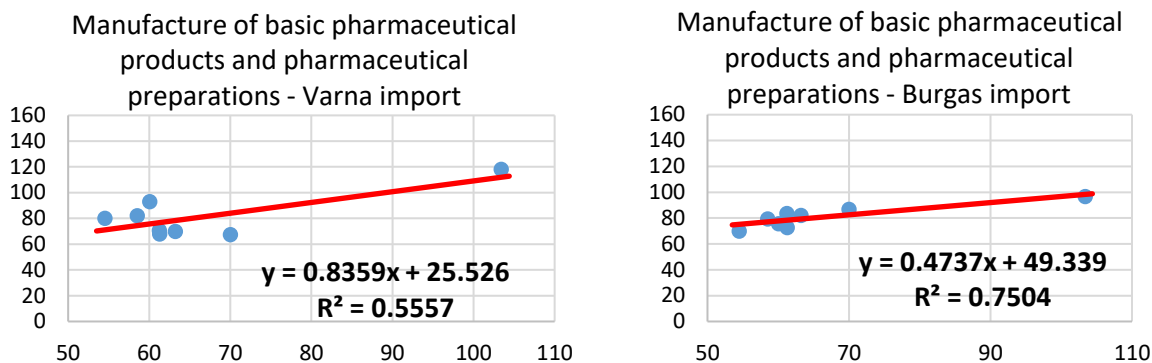


Fig. 8 Regression models of dependencies of the imports in the Port of Varna and Port of Burgas on the basic factors

Specific factors influencing the imports of the Port of Varna are the following economic activities:

- Manufacture of tobacco products;
- Manufacture of textiles;
- Printing and reproduction of recorded media;

- Manufacture of rubber and plastic products;
- Manufacture of machinery and equipment n.e.c.;
- Manufacture of furniture.

The regression models of those dependencies and their equations are presented on Figure 8.

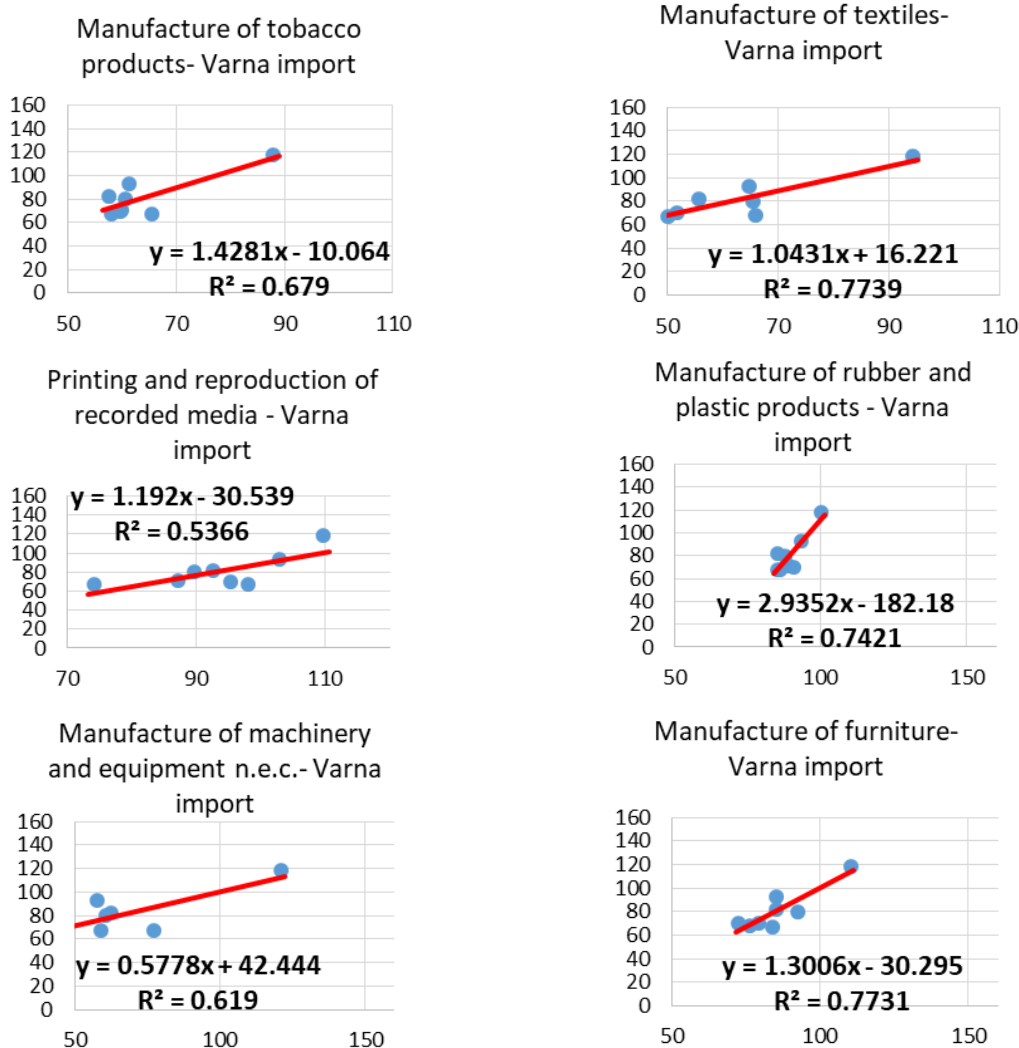


Fig. 9 Regression models of the dependencies between the imports in the Port of Varna and specific factors

Specific factors, influencing the imports in the Port of Burgas are:

- Manufacture of chemicals and chemical products;
- Manufacture of other non-metallic mineral products;

- Manufacture of computer, electronic and optical products;
- Manufacture of motor vehicles, trailers and semi-trailers.

The regression models of those dependencies and their equations are presented on Figure 9.

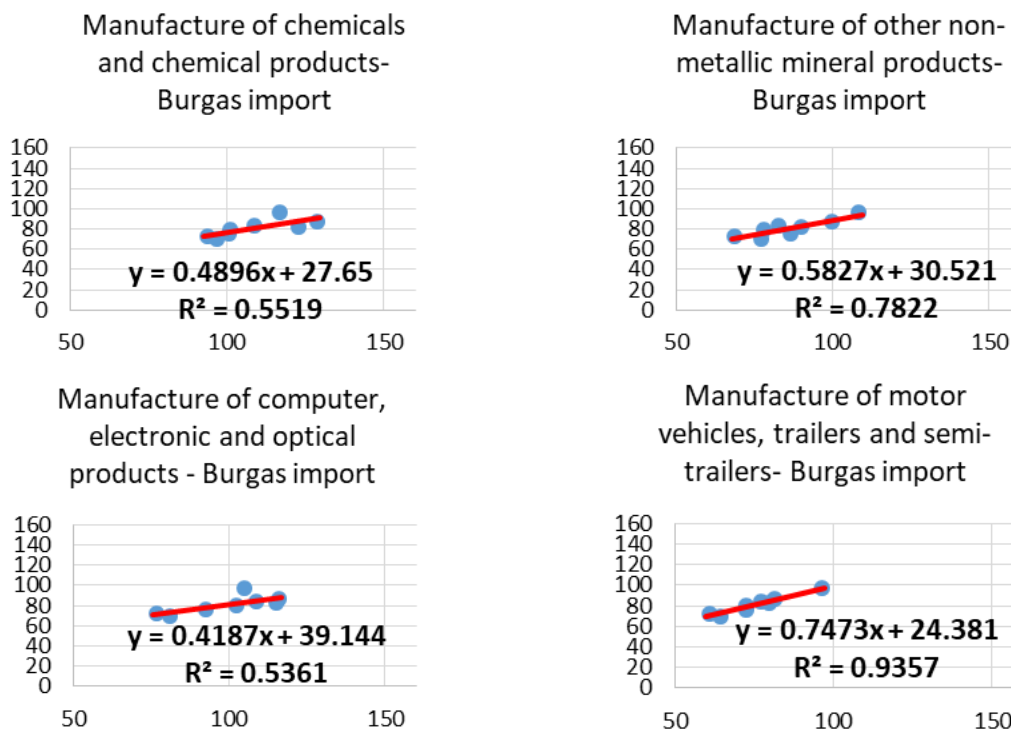


Fig. 10 Regression models of the dependencies between the imports in the Port of Burgas and specific factors

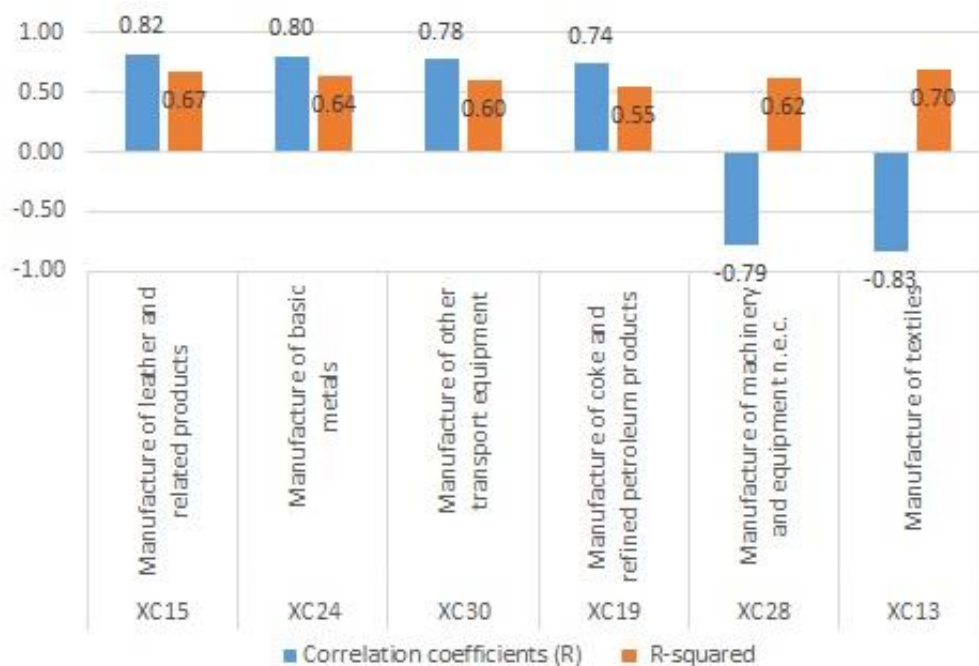


Fig. 11 Statistically significant dependencies for the export of the port of Varna

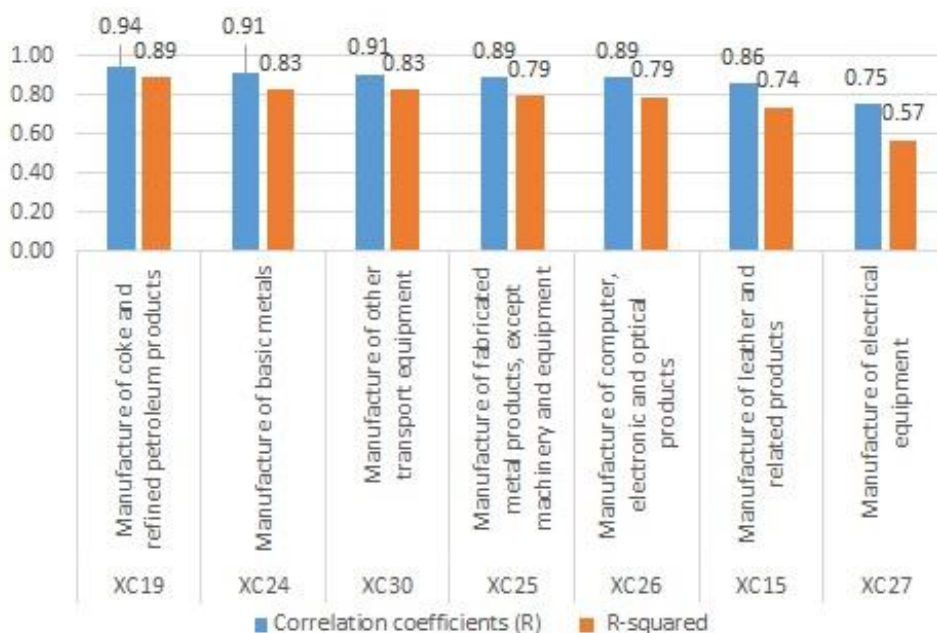


Fig. 12 Statistically significant dependencies for the export of port Burgas

The freight turnover for exports through the Port Varna and the Port of Burgas is highly influenced by 8 economic activities (Figures 10 and 11).

The freight turnover for exports in both ports is positively influenced by the following economic activities:

- Manufacture of leather and related products;

- Manufacture of coke and refined petroleum products;
- Manufacture of basic metals;
- Manufacture of other transport equipment.

The regression models of those dependencies and their equations are presented on Figure 12.

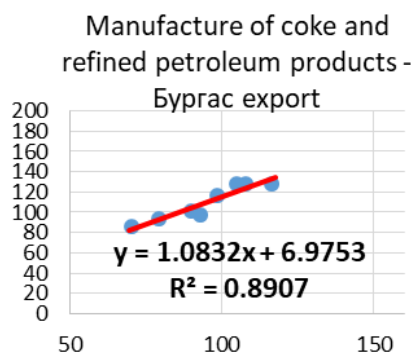
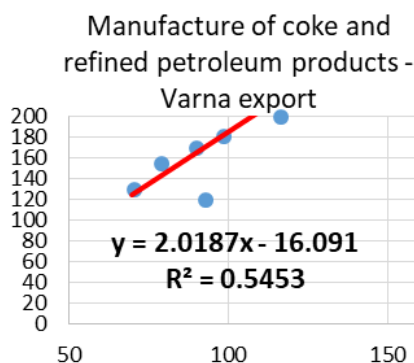
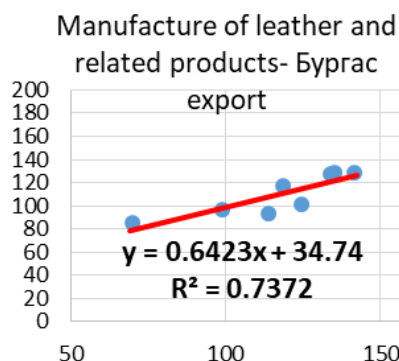
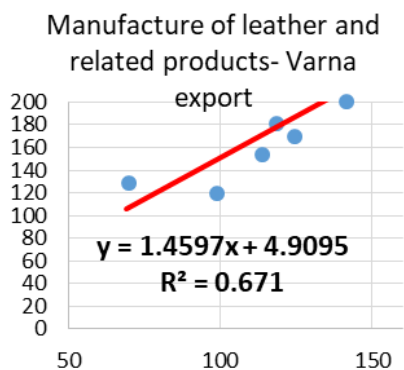


Fig. 13 Regression models of the exports through the Port of Burgas and the Port of Varna and the influence of common factors (Continuation on the next page)

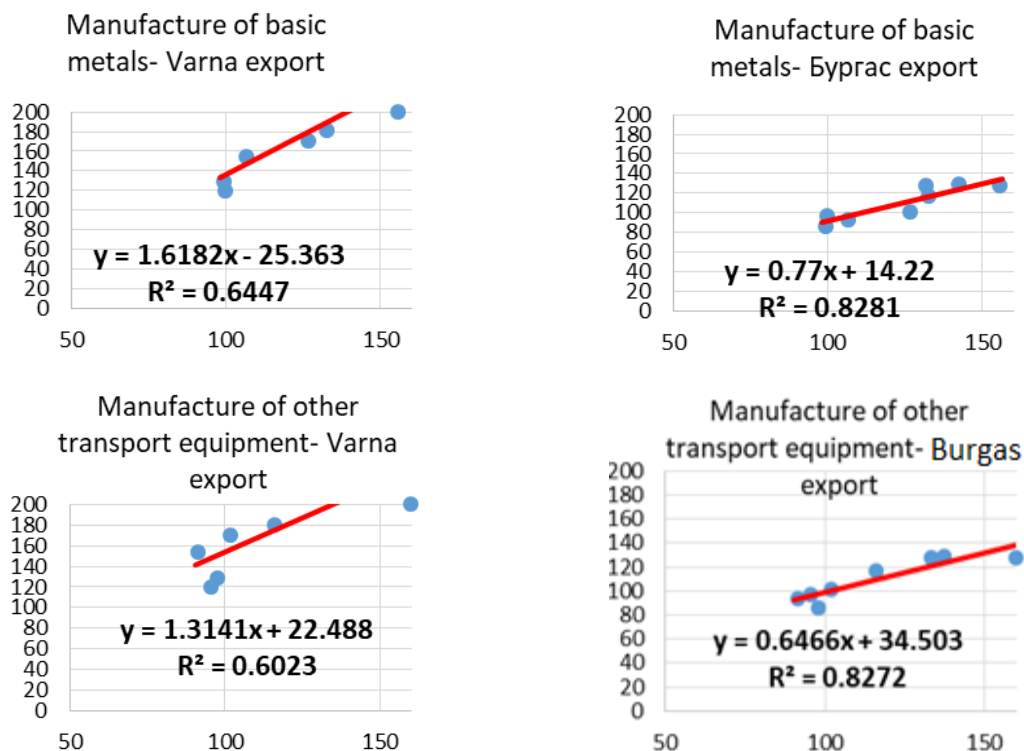


Fig. 14 Regression models of the exports through the Port of Bugas and the Port of Varna and the influence of common factors

Two economic activities with negative influence over the exports freight turnover in the Port of Varna are the following:  
- Manufacture of textiles;

- Manufacture of machinery and equipment n.e.c.  
The regression models of those dependencies and their equations are presented on Figure 13.

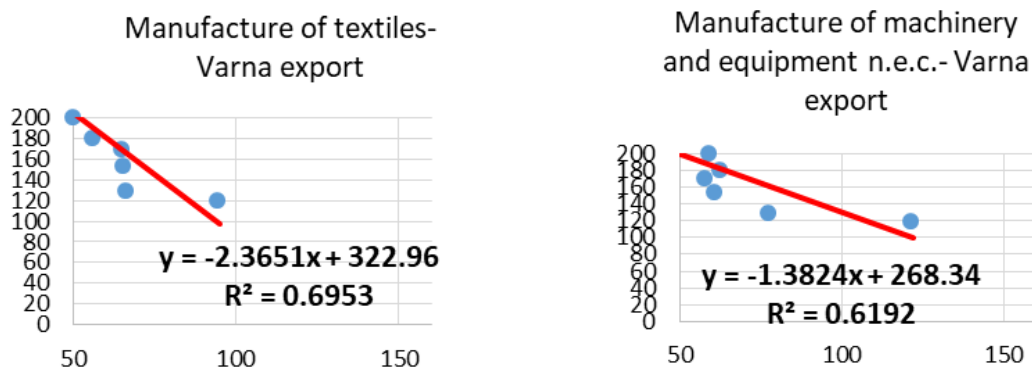


Fig. 15 Regression models of the dependencies between the exports and the significant factor variables for the Port of Varna

The specific factors for the Port of Burgas, influencing the exports freight turnover are presented by three economic activities:

- Manufacture of fabricated metal products, except machinery and equipment;

- Manufacture of computer, electronic and optical products;
- Manufacture of electrical equipment.

The regression equations and the models of those dependencies are represented on Figure 14.

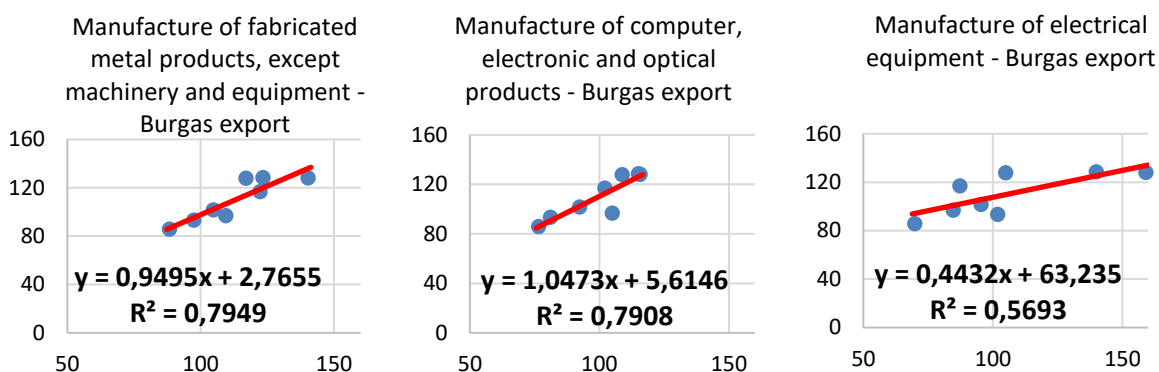


Fig. 16 Regression models of the dependencies between the exports and the significant factor variables for the Port of Burgas

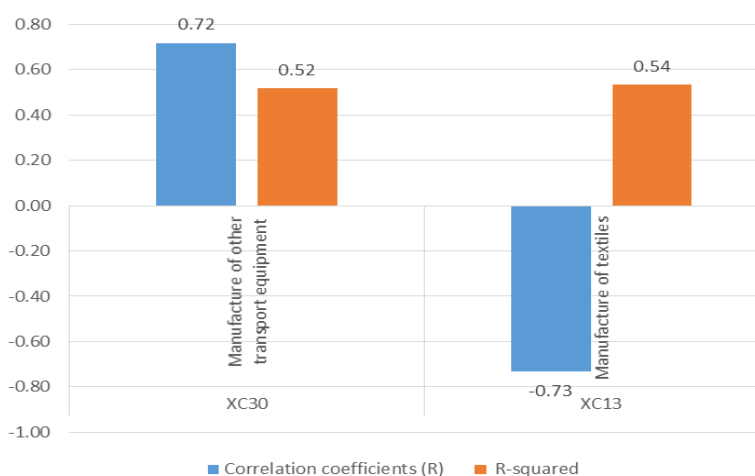


Fig. 17 Statistically significant dependencies for the transit of the Port of Varna

The transit freight turnover through the Port of Varna is highly influenced by two economic activities (Figure 15).

The economic activity “Manufacture of other transport equipment” has a positive influence over the transit freight turnover of the Port of Varna.

The economic activity “Manufacture of textiles”, with positive influence over the imports in the Port of Varna has approximately the same but negative influence on the transit freight turnover of the port.

There are 5 economic activities, significantly influencing the level of the transit freight turnover of the Port of Burgas in negative point of view (Figure 16).

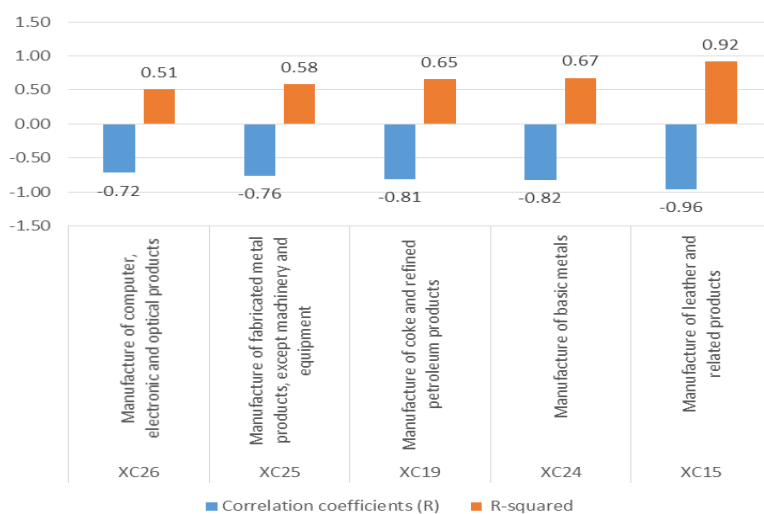


Fig. 18 Statistically significant dependencies for the transit of the Burgas port

The same factors show positive correlation with the export freight turnover of the Port of Burgas, while the economic activity “Manufacture of computer, electronic and optical products” is influencing positively the levels of imports through the port.

The following three activities are influencing positively the levels of exports through the Port of Varna:

- Manufacture of leather and related products;
- Manufacture of coke and refined petroleum products;
- Manufacture of basic metals.

Summarized by type of freight turnover and direction of the influences of the different economic activities the results are presented in Table 5.

*Table 5. Direction of economic activity influence on port freight turnover for imports, exports and transit*

Factor variables (Economic Activities)		Dependent variables					
		Port Varna			Port Burgas		
		import	export	transit	import	export	transit
X	Industry total	...	...	...	+++	...	...
XB	Mining and quarrying	+++	...	...	...	...	...
XB5	Mining of coal and lignite	...	...	...	...	...	...
XB7	Mining of metal ores	...	...	...	...	...	...
XB8	Other mining and quarrying	+++	...	...	+++	...	...
XC	Manufacturing	+++	...	...	...	...	...
XC10	Manufacture of food products	...	...	...	...	...	...
XC11	Manufacture of beverages	+++	...	...	+++	...	...
XC12	Manufacture of tobacco products	+++	...	...	...	...	...
XC13	Manufacture of textiles	+++	---	---	...	...	...
XC14	Manufacture of wearing apparel	+++	...	...	+++	...	...
XC15	Manufacture of leather and related products	...	+++	...	...	+++	---
XC16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	...	...	...	...	...	...
XC18	Printing and reproduction of recorded media	+++	...	...	...	...	...
XC19	Manufacture of coke and refined petroleum products	...	+++	...	...	+++	---
XC20	Manufacture of chemicals and chemical products	...	...	...	+++	...	...
XC21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	+++	...	...	+++	...	...
XC22	Manufacture of rubber and plastic products	+++	...	...	...	...	...
XC23	Manufacture of other non-metallic mineral products	...	...	...	+++	...	...
XC24	Manufacture of basic metals	...	+++	...	...	+++	---
XC25	Manufacture of fabricated metal products, except machinery and equipment	...	...	...	...	+++	---
XC26	Manufacture of computer, electronic and optical products	...	...	...	+++	+++	---
XC27	Manufacture of electrical equipment	...	...	...	...	+++	...
XC28	Manufacture of machinery and equipment n.e.c.	+++	---	...	...	...	...
XC29	Manufacture of motor vehicles, trailers and semi-trailers	...	...	...	+++	...	...
XC30	Manufacture of other transport equipment	...	+++	+++	...	+++	...
XC31	Manufacture of furniture	+++	...	...	...	...	...
XC32	Other manufacturing	...	...	...	...	...	...
XC33	Repair and installation of machinery and equipment	...	...	...	...	...	...

## 5 CONCLUSIONS

The results indicate, that all the dependencies between economic activities and the freight turnover of the selected ports, defined as statistically significant have correlation coefficient  $R > |0.7|$  and  $R^2 > 0.5$ .

The research shows, that 23 among the reviewed 29 economic activities have got a statistically significant influence over the freight turnover of the ports and the mutual relations could be adequately represented for the purposes of forecasting by means of uni-factor linear models.

There are no established significant linear links to the freight turnover of the ports for six among the researched economic activities (Mining of coal and lignite; Mining of metal ores; Manufacture of food products; Manufacture of wood and of products of wood and cork, except furniture; Manufacture of articles of straw and plaiting materials; Other manufacturing; Repair and installation of machinery and equipment).

The significant correlations for the imports and exports through the ports are positive, while for the levels of the transit freight turnover the observed correlations with the factor variables are mostly negative.

Eight of the researched economic activities turn to be common factors for both ports. Four of them are influencing the import levels of both ports (Other mining and quarrying; Manufacture of beverages; Manufacture of wearing apparel; Manufacture of basic pharmaceutical products and pharmaceutical preparations) and another four are influencing the export levels (Manufacture of leather and related products, Manufacture of

coke and refined petroleum products, Manufacture of basic metals, Manufacture of other transport equipment).

Certain part of the economic activities are negatively or reciprocally influencing the levels of the port freight turnover.

Significant negative influence over the exports levels through the Port of Varna have two economic activities (Manufacture of textiles и Manufacture of machinery and equipment n.e.c.).

The economic activity "Manufacture of textiles" has also a significant negative influence over the transit freight turnover of the Port of Varna.

Significant negative influence over the transit freight turnover of the Port of Burgas have economic activities (Manufacture of leather and related products; Manufacture of coke and refined petroleum products; Manufacture of basic metals; Manufacture of fabricated metal products, except machinery and equipment; Manufacture of computer, electronic and optical products). Simultaneously, these activities have a considerable positive influence over the exports through the Port of Burgas, and the first three are also influencing positively the exports through the Port of Varna.

For both ports, none of the observed economic activities has a significant negative influence over the imports.

For the Port of Burgas, no significant negative influence over the exports is observed on the side of the researched economic activities.

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Received for publication: 10.01.2018

Revision received: 09.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

#### **Style – APA Sixth Edition:**

Jelezov, E., & Kirilova, G. (2019, January 15). Economic Activities Influence Models on The Traffic Flows in Bulgarian Seaports. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 21-33. doi:10.12709/mest.07.07.01.04

#### **Style – Chicago Sixteenth Edition:**

Jelezov, Emil, and Gergana Kirilova. 2019. "Economic Activities Influence Models on The Traffic Flows in Bulgarian Seaports." Edited by Zoran Čekerevac. *MEST Journal (MESTE)* 7 (1): 21-33. doi:10.12709/mest.07.07.01.04.

#### **Style – GOST Name Sort:**

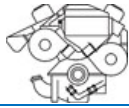
Jelezov, Emil, and Gergana Kirilova. 2019. "Economic Activities Influence Models on The Traffic Flows in Bulgarian Seaports." Edited by Zoran Čekerevac. *MEST Journal (MESTE)* 7 (1): 21-33. doi:10.12709/mest.07.07.01.04.

#### **Style – Harvard Anglia:**

Jelezov, E. & Kirilova, G., 2019. Economic Activities Influence Models on The Traffic Flows in Bulgarian Seaports. *MEST Journal*, 15 January, 7(1), pp. 21-33.

#### **Style – ISO 690 Numerical Reference:**

*Economic Activities Influence Models on The Traffic Flows in Bulgarian Seaports. Jelezov, Emil and Kirilova, Gergana.* [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, MEST Journal, Vol. 7, pp. 21-33



# FIELD STUDIES ON FEMALE IMMIGRANTS IN THEIR HOST COUNTRIES: CHALLENGES AND PROSPECTS

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JEL Category: F2, F22, J6, J61, R2, R23

## **Abstract**

*This paper presents the results of field studies concerning female immigration in Turkey, mainly Istanbul, conducted in Turkey in the 2014-2015 academic year. Objectives of field studies were: identification of female immigrants' reasons for coming to Turkey in recent years; determination of the differences and similarities for their migration, estimation of their issues, prospects, and challenges in Turkey and the consequences of their migration. The results of these field studies showed similarities in their reasons for migration to Turkey. The main reason was their desire to start a new life in that country. The immigrants came to Turkey for various reasons - to marry, to study, to find a business and for other reasons. In these cases, their former life has finished, and they start a new page in their life in the new country. Differences in the migration to Turkey were their characters, the manner of their migration and their level of culture and education. The results of the field studies show the main prospects for them may be marriage using this as a "social elevator", which "refers to moving from the very bottom of a society to its top". The biggest challenges for female migrants in Turkey may be unemployment; access to quality health services and retirement pension provision; language barrier; violence and abuse in families and in the society; and gender inequality in the country.*

**Keywords:** *field studies, female immigration, host country, direct observation, face-to-face interviews, surveys, issues, prospects, challenges, and consequences*

## **1 INTRODUCTION**

The research presents the results of field studies on female immigration in Turkey, mainly in Istanbul, conducted in Turkey in the 2014-2015

academic year, thanks to the financial support of the Scientific & Technological Research Council of Turkey (TUBITAK).

Data presented in the article was collected mainly in Istanbul using face-to-face interviews, surveys, and direct observation among female immigrants from various countries. Objectives of field studies were to identify the various reasons for female migrants coming to Turkey in recent years; to

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determine differences and similarities in their migration to the country; and to estimate their issues, prospects, challenges, and consequences from the process of migration.

## **2 METHODOLOGY AND STRATEGY OF FIELD STUDIES**

According to data of Chevette Alston (2018), "field studies involve collecting data outside of an experimental or lab setting.

This type of data collection is most often done in natural settings or environments and can be done in a variety of ways for various disciplines. Field studies are known to be expensive and timely; however, the amount and diversity of the data collected can be invaluable.

Field studies collect original or unconventional data via face-to-face interviews, surveys, or direct observation. This research technique is usually treated as an initial form of research because the data collected is specific only to the purpose for which it was gathered. Therefore, it is not applicable to the general public."

According to data from Chevette Alston (2018), "field studies should be carefully planned and prepared to ensure that the data collected is accurate, valid, and collected efficiently. The equipment needed will depend on the type of study being conducted.

The process first starts by clearly stating the problem and defining the area of study. From there, a hypothesis, or a theory of explanation, is set forth to explain any occurrences expected for the specified group."

The field studies in Turkey, mainly in Istanbul, consisted of face-to-face interviews, surveys, and direct observation.

The snowball sampling method was very useful and using this method some female immigrants helped to find other immigrants for the interviews and surveys in Turkey.

The strategy of the research consisted of the following stages: collecting data through surveys and semi-structured interviews among female immigrants in Turkey; creating a database using the responses; the statistical and numerical analysis of received data.

## **3 OBJECTIVES OF FIELD STUDIES**

Objectives of Field Studies were:

- To identify the various reasons why female immigrants have come to Turkey in recent years;
- To determine differences and similarities in the processes of migration of women to Turkey;
- To estimate issues, prospects, challenges, and consequences of female migrants coming to Turkey.

## **4 PREVIOUS RESEARCH IN THE AREA**

This subject is a very topical and many scientists worldwide have studied Female Migration, among them Ibrahim Sirkeci and Jeffrey H. Cohen (2016), Kalervo Oberg (1960), Rachel Irwin (2007), Nicola Piper and Amber French (2011), and many others.

This paper is the continuation of a series of publications concerning Labor, International, and Female immigration abroad in recent years and among these publications are the papers "Human capital depreciation of female immigrants and ways to restore lost human capital"; "Children of female immigrants in Turkey: numerical analysis of data"; "Research into the dilemmas concerning the employment of immigrants in their professions abroad and the depreciation or restoration of their human capital"; "Slavic women in Turkey: from past to present"; Challenges of Ukrainian female immigrants and their children in host countries"; Women from North move to South: Contemporary migration from the Former Soviet Union countries to Turkey; Discourse about Women-Immigrants from Former Soviet Union Countries as a Special Social Group in Turkey"; "The role of Ukrainians in the economic growth of Poland"; "Gender inequality as one of the largest problems of Slavic women in Islamic world"; "Reflections on the features of accumulation of the Human Capital of representatives of female and male genders"; "Ukrainians in the Light of Migration Crisis in Europe"; "Exploring of the Human Capital Depreciation of Ukrainian Labor Migrants Abroad: Results of a Survey"; "Issues in countries of the former Soviet Union as the driving force for female migration to Turkey"; "The "Value of Life and Labor" of Ukrainian Migrants Abroad"; "The

positive and negative aspects of Ukrainian labor migration for Ukraine and Receiving Countries” (Koshulko, 2015-2018).

## **5 FIELD STUDIES OF DIFFERENCES FOR FEMALE IMMIGRANTS**

The results of the research show that the differences in the processes of migration of female immigrants to Turkey were in the characters of these immigrants, in their reasons for migrating and in their level of culture and education.

This process is very personal because each person views the process of migration differently. Some intend to marry and have children, which for them is enough. For others, the most important factor was their career, or business, in their new country.

There are also differences in the causes of female migration to Turkey. Some are escaping the poverty and employment in their own country. The second group of female migrants came to Turkey to escape the wars and revolutions in their own countries and, the third group is escaping difficult relationships within families at home.

There are also differences in the nationalities and ethnic groups of female immigrants. Participants of this study were female migrants of 27 nationalities and ethnic groups, coming from 15 countries. Ten, or 37%, of these nationalities and ethnic groups, belong to the Turkic people and, of course, female migrants, belonging to the Turkic people, may adopt more easily in Turkey than female immigrants of other nationalities and ethnic groups.

Another difference is an unwillingness to convert to another religion. Some female immigrants feel able to convert to Islam, which brings them benefits in Turkish families and the wider society. However, some female immigrants feel unable to convert into any situation and some have even become apostates after having once converted to Islam.

These differences are obstacles to be overcome by female immigrants to Turkey. Some of the immigrants study the Turkish language and culture at universities and take courses in Turkish with the aim of going to Turkey, staying there

officially and working as professionals. Others go to Turkey to improve their lives in other ways.

There are differences between female migrants in the areas of lifestyle, behavior in their home country and the different types of lives they wish to lead in Turkey.

## **6 FIELD STUDIES OF SIMILARITIES OF FEMALE IMMIGRANTS IN THE PROCESSES OF MIGRATION**

Similarities among the immigrants to Turkey are in their desire to start a new life there. The immigrants came to Turkey for many reasons - to marry, to study, to start a business and for other reasons. In all these cases, their former life has finished, and they are starting a new page in the story of their life.

All of them pass through the stages of adaptation in the new country. According to data from Kalervo Oberg in his book “Culture Shock: Adjustment to New Cultural Environments” (1960), all the immigrants go through distinct phases: Honeymoon, Crisis, Recovery, and Adjustment.

According to data from Rachel Irwin in her article ‘Culture shock: negotiating feelings in the field’, “...Culture shock is the depression and anxiety experienced by many people when they travel or move to a new social and cultural setting” (Irwin, 2007). Therefore, culture shock is an experience shared by all the immigrants in their new country and it is very important for them to receive support and help from their husbands and other relatives.

The next similarity among immigrants is the necessity of accepting some general rules in Islamic Sharia if they decide to marry Turkish men. In this case, the immigrants, who are non-Muslim women, need to accept the following rules of Islamic Sharia (Sawma, 2013):

- Women need to accept the fact that children born from marriages with Muslim men are always considered Muslims;
- Women need to accept that under the rules of Islamic Sharia; male children must be circumcised, which is standard practice among Muslims;
- Women need to know that in the event of divorce or death of the husband Islamic Sharia decrees that in mixed marriages where the

husband is Muslim, and the wife is not, the wife will lose custody of the children;

- Women need to accept that wives of Muslim men cannot travel with their children without the permission of their husbands;
- Women need to know that in a situation of inheritance, under the general rule in Islamic Sharia, women inherit only half the amount that men who have the same degree of relation to the deceased.

## **7 FIELD STUDIES OF ISSUES OF WOMEN FROM DIFFERENT COUNTRIES, ARISING FROM MIGRATION**

The areas that may be affected by issues arising from migration from different countries are issues for the women themselves returning their home countries after a period of time spent in another country (return migration); and issues for these home countries, which affected by the outflows of female emigrants.

Each of these issues may arise for women migrating from their countries of origin to Turkey: issues for female immigrants in Turkey may be manifested in different forms of discrimination in the host society. Nicola Piper and Amber French (2011) wrote that female migrants in their host country face dual discriminations because they are women and they are non-citizens there: "Indeed, gender-based inequalities, injustice, discrimination, and outright violence continue to permeate all societies to a certain extent, in some form or another. Such outcomes are often brought to the surface through or are the result of, the migrant experience which, for women, typically means dual discrimination on the basis of being female and a non-citizen or absent citizen. Yet migration may allow women to turn these negative outcomes around by gaining greater control of their lives, whether through escape from traditional gender roles, improved knowledge, and awareness about their rights, or newfound financial independence. Whether they migrate between two societies with opposing or comparable human development situations, women may find that they are liberated simply by having taken on a new role because of the move" (Piper, 2011).

Issues, arising for the female migrants if they are unhappy with their husbands and/or their Turkish relatives may be manifested by negative reactions if they find they cannot change their lives or return to their home country. If they do not have opportunities and second changes in their lives, they may lose all motivation to live.

## **8 FIELD STUDIES OF PROSPECTS AND CHALLENGES OF FEMALE IMMIGRANTS IN TURKEY**

According to the results of field studies on female immigration in Turkey, the main prospect for female immigrants in Turkey is to marry good Turkish men using the "social elevator". Pitirim Sorokin has explained in his book "Social mobility" that "social elevator" 'refers to moving from the very bottom of a society to its top' (Sorokin, 1998). The results of field studies on female immigration in Turkey show that many female immigrants have high expectations that a "social elevator," brought about by marriage, will change their lives for the better in their new country.

The biggest challenges for female immigrants in Turkey may be unemployment; access to quality health services and retirement pension provision; the language barrier; violence and abuse within families and in Turkish society; and gender inequality in the country.

There is little chance for the women to would like to stay in their professions in the host country, or at least they have a long and a difficult road to travel to achieve this. First, they must have the consent of their husbands to work but the majority of men do not want to see their wives employed. Second, they need to study Turkish and become fluent. Third, they need to follow the procedure to gain recognition of their academic diplomas in Turkey. This procedure may take years and only a few women are able to complete it successfully.

Consequences of migration to Turkey may arise for the immigrants returning to their countries of origin after failed migration as well as for the countries of origin of the immigrants.

Consequences for the immigrants in Turkey may be manifested by various forms of discrimination; by alcoholism or other negative reactions if the immigrants cannot change their lives or return to their home countries; or by consequences for the

children and grandchildren of the immigrants. The migrants may return to their countries of origin after being away for various reasons, divorces, deportation etc. These situations can be complicated when the immigrants are forced to leave their children in Turkey.

Consequences for the home countries of the migrants may result in an increase in an aging population and negative population growth for many of the countries of origin of the immigrants.

## 9 CONCLUSIONS

The results of field studies on female immigration in Turkey show that female migration to that country may arise due to poverty, unemployment, low standards of living, lack of prospects in their home countries.

The majority of the immigrants think that migration and marriage to foreigners they can solve all or the majority of their material and financial problems but in fact they face many problems abroad, such as discrimination, violence, lack of understanding and respect, language barrier, lack of opportunities to work and to build a career, etc.

Most of the immigrants, who would like to stay permanently in Turkey, need to start learning how to survive in a different culture, with different traditions and religion, because international couples who have married are two different people and, if they do not speak a common language, they may very well find that they have different views on their future life.

Female immigrants may have similar issues in Turkey with difficulties in learning Turkish, adapting to a different culture and traditions and achieving integration.

It is very hard for those who would like to stay in their professions in Turkey as they have to undergo a long and difficult process to achieve this. First, they must have the consent of their husbands to work but the majority of men do not want to see their wives employed. Second, they need to study Turkish and become fluent. Third, they need to undergo the procedure of gaining recognition for their academic diplomas in Turkey. This procedure may take years and very few women complete it successfully.

The results of field studies on female immigration in Turkey show that the main prospect for female immigrants in Turkey may be to get married to some good Turkish men and using the “social elevator” that “refers to moving from the very bottom of a society to its top”.

The biggest challenges for female immigrants in Turkey may be unemployment; access to quality health services and retirement pension provision; the language barrier; violence and abuse within their families and in Turkish society; and gender inequality in the country.

Consequences for the immigrants in the host country manifest themselves by various forms of discrimination in the host society; in alcoholism or other negative reactions if the women cannot change their lives or return to their home countries; or in consequences for their children and grandchildren. Consequences for the immigrants returning to their home countries after being away might be divorces, deportation etc. These situations may be more complicated when the women are forced to leave their children in Turkey.

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Received for publication: 04.03.2018

Revision received: 28.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

#### **Style – APA Sixth Edition:**

Koshulko, O. (2019, January 15). Field Studies on Female Immigrants in Their Host Countries: Challenges and Prospects. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 34-40. doi:10.12709/mest.07.07.01.05

#### **Style – Chicago Sixteenth Edition:**

Koshulko, Oksana. 2019. "Field Studies on Female Immigrants in Their Host Countries: Challenges and Prospects." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 34-40. doi:10.12709/mest.07.07.01.05.

#### **Style – GOST Name Sort:**

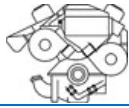
**Koshulko Oksana** Field Studies on Female Immigrants in Their Host Countries: Challenges and Prospects [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 34-40. doi:10.12709/mest.07.07.01.05

#### **Style – Harvard Anglia:**

Koshulko, O., 2019. Field Studies on Female Immigrants in Their Host Countries: Challenges and Prospects. *MEST Journal*, 15 January, 7(1), pp. 34-40.

#### **Style – ISO 690 Numerical Reference:**

*Field Studies on Female Immigrants in Their Host Countries: Challenges and Prospects*. **Koshulko, Oksana**. [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 34-40.



# MODERN TRENDS IN DEMOGRAPHIC DEVELOPMENT OF SOCIETY: FINANCIAL ASPECT

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JEL Category: J11

## **Abstract**

*The article considers modern demographic trends, analyzes the forecast scenarios of the development of the world community, taking into account the aging of the population, and justifies the need to search for new tools and sources of pension provision for citizens. A developed pension system is evidence of a high level of development of society. The maximum coverage and a decent replacement rate are evidence of the socialization of social institutions, the enhancement of the value of a citizen's life, carry humanistic ideas of ensuring a decent standard of living for the least protected social strata. However, from the economic point of view, the ideas of humanism and universal prosperity have a high price. The effectiveness of pension savings depends on many factors and the dynamics of the development of pension systems are not always unambiguous. Modern pension systems are in a disequilibrium state: most developed and developing countries are already experiencing problems with balancing the pension system or will experience pension budget deficit in the mid-term. The problems of forming pension savings are objective. The world passes through the stage of population transition, which is expressed in the reduction of population growth with the simultaneous lengthening of life expectancy. This increases the burden on pension funds, increases the age-dependent ratio of financial systems. The research hypothesis is that it is impossible to achieve a balance of the pension system while maintaining a sufficient level of pension provision through parametric reform – a paradigmatic restructuring of the pension accumulation architecture with the use of advanced financial tools is necessary. The tool-methodical apparatus, which allows achieving the reliability of conclusions and recommendations, is provided by wide application of general scientific theoretical (comparative analysis, induction, deduction, generalization, synthesis) and practical (graphical and tabular interpretation) methods of cognition. Elements of econometrics and socioeconomic modeling were used to determine demographic trends. The institutional analysis was used in the study of parametric characteristics of pension systems. To study the investment paradigm the approaches of neoclassical and modern portfolio theories and long-range forecasting were used.*

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**Keywords:** society aging, budget expenditures, pension payments, demographic situation, the age structure of society.

## 1. INTRODUCTION

Demographic indicators are important for the development of a socio-economic strategy of any state. Analysis of the demographic situation in developed countries in recent years indicates a demographic crisis caused by the negative dynamics of natural reproduction of the indigenous population. The result of this trend is the problem of aging of the able-bodied population, which makes states to work out an optimal demographic policy aimed, first, at increasing the birth rate.

Russia belongs to the group of countries with a type of population reproduction that is characterized by low birth rates, high death rates, and negative natural growth. One of the main reasons for this situation is the dysfunctional consequences of social transformations in post-Soviet countries. It should be noted that over the past 18 years, during the period from 2000 to 2018, positive changes have taken place in the country - birth rate is gradually beginning to increase, and the death rate is falling. But, in general, the death rate remains high in most regions with negative rates of natural increase.

As a result of demographic problems, low social security of people of the third age is observed. A developed pension system is evidence of a high level of development of society. The maximum coverage and a decent replacement rate are evidence of the socialization of the institutions of society, the enhancement of the value of a citizen's life, carry humanistic ideas of ensuring a decent standard of living for the least protected social strata.

However, from the economic point of view, the ideas of humanism and universal prosperity have a high price. The effectiveness of pension savings

depends on a number of factors and the dynamics of the development of pension systems are not always unambiguous. Modern pension systems are in a disequilibrium state: most developed and developing countries are already experiencing problems with balancing the pension system or will experience a pension budget deficit in the mid-term.

The current imbalance in the pension system of the Russian Federation is of an objective nature, consisting in universal demographic trends in the development of society, including population transition, changing behavioral patterns replacing the principle of solidarity of generations with social individualism, and reducing formal corporate employment. The situation is exacerbated by opportunistic decisions to increase the expenses of the Pension Fund of Russia (PFR), unbalancing the distribution component. The combination of these factors hinders the possibility of preserving the pension system of the Russian Federation in an unchanged form, and parametric changes have limited effectiveness and are not able to prevent the default of the distribution component, which implies a shift in emphasis to a contributory principle.

## 2. ANALYSIS

The aging of society is the main reason for the negative trends in pension provision of the population (Figure 1). Budget expenditures for an elderly person are 8 times higher than those for a working-age citizen and 25 times than that for a child. Accordingly, the movement of 10% of the population from the able-bodied category to the senior age increases public spending by 4.7% of GDP, taking into account that other conditions are equal. (Gokhale & Smetters, 2006)

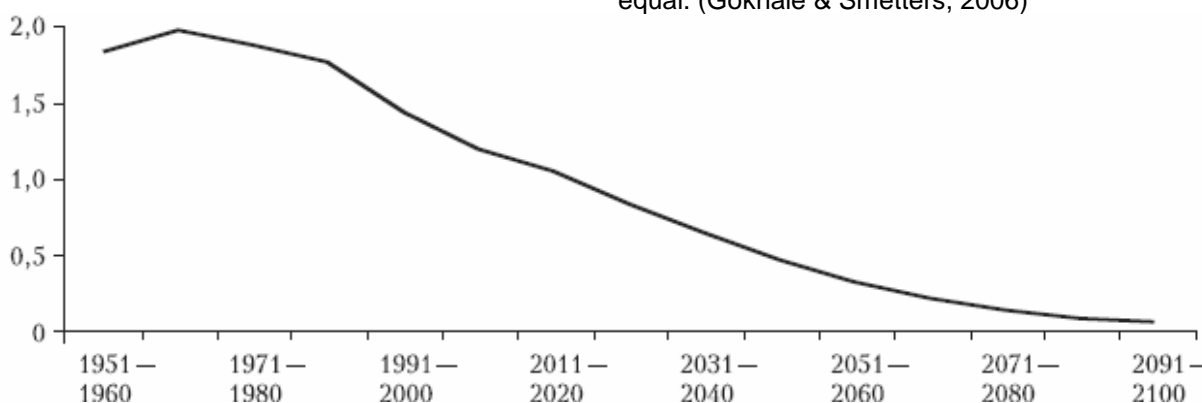


Fig. 1 – Population growth in the world according to the UNO prognosis (%)

Source: (Gokhale & Smetters, 2006)

There is some agreement on the prospects and trends in the development of the demographic situation. Thus, according to the “benchmark scenario of the Working Group on Aging” (a cautious scenario that takes into account the combined impact of aging, potential improvements in health status and the impact of changes in

national income), in the EU countries, on average, public health expenditure is forecasted to increase by 1,5% of GDP (from 6.7% in 2007 to 8.2% in 2060), while for some countries this growth ranges from less than 1% of GDP for Cyprus, Bulgaria and Sweden to more than 3% of GDP for Malta (European Commission, 2015).

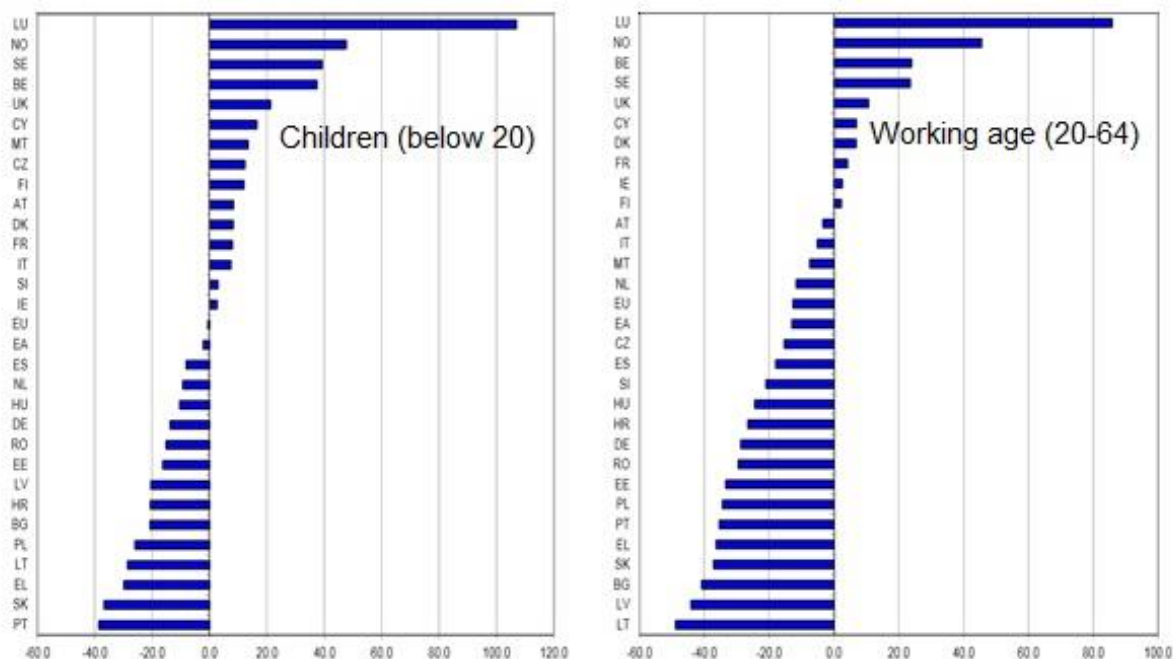


Fig. 2 – Projected change of main population groups (in % change over the period 2013-2060)

Source: (European Commission, 2015)

Despite the clear prospects for the development of world demography (Figure 2), there is a fundamental difference in assessing the state and prospects of the Russian pension segment between the international community and the Russian government represented by the Ministry of Labor and the Ministry of Economy. The reason lies in different estimates of life expectancy, and, accordingly, the structure of the population.

Even domestic short-term forecasts are rather pessimistic: “gradual increase in the expected period of labor pension payment used to calculate the insurance part of the labor pension from 19 years (228 months) in 2013 to 21 years (252 months) in 2015, from an increase in the average life expectancy of a labor pension recipient”. At the same time, there is no obvious way out of the situation, as evidenced by the vague wording: “It is proposed to determine the duration of the expected payment period annually according to the order stated by the Government of the Russian Federation” (Mintrud Rossii, 2012), that is,

mechanisms and tools are not available yet, and it is still not clear what they will be like.

According to international estimates, the number of younger age groups in the Russian Federation will remain almost unchanged, while the number of the older one will grow in the next 50 years with the decrease in the working-age population. Between 2050 and 2060 the number of the senior group will reach a maximum of 39 million people (compared with the current 25 million), and the working-age group, on the contrary, will reach a minimum: 64 million versus current 96 million.

The growth of the total number of pensioners aggravates the problem. Demographers promise that by 2030 the number of workers and pensioners (if the current retirement age is preserved) in Russia will be approximately equal - then it will be possible to forget not only about funded but about ordinary insurance pensions. Russia is already on the list of the ten countries with the biggest risks due to population aging, compiled by Bloomberg agency (Figure 3).



Fig. 3 – Rating of the countries with the largest share of the aging population  
 Source: (opensii.info, 2010)

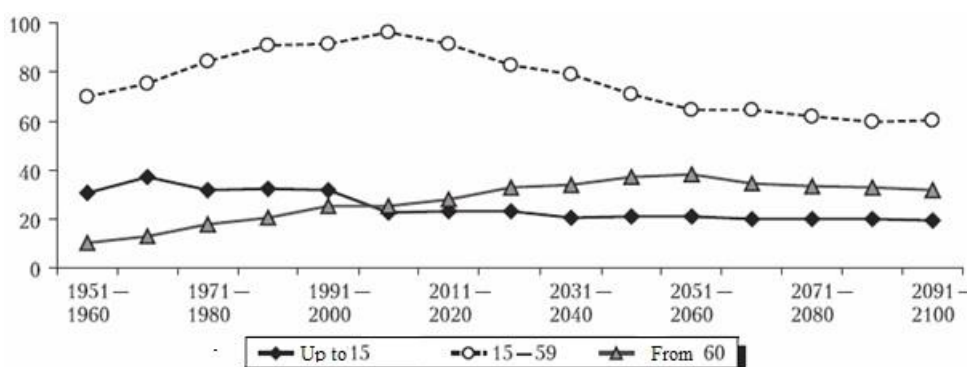


Fig 4 – Age structure of the RF population (in millions)  
 Source: (UN, 2011)

The expert council under the president points out that: “The emerging trends in the decline in death rate allow to suggest that Russia may enter the second stage of population aging – “aging from above”, when the number of older age groups is growing not only due to narrowing the base of the age pyramid but due to expanding its top as a result of the growth of life expectancy in elderly age groups and the increase in the period of

receiving a pension (Figure 4). This stage of aging is characterized by a significant change in the age structure of the “third” age population, its own aging. As a result, the priorities of the policy of securing the life of pensioners can change significantly due to a change in the structure of their needs as a result of the “elderly population” aging.

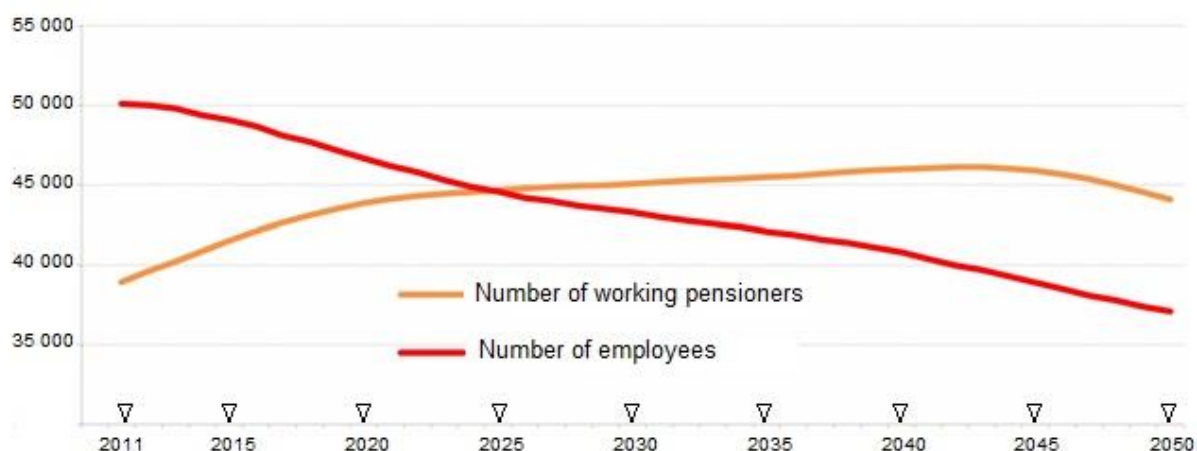


Fig 5 – Demographic and labor trends of the RF  
 Source: (Yakushev, 2012)

In addition, the expected reduction in the death rate in men in senior working age groups will lead to an additional increase in the number of pensioners. According to the forecasts of the Pension Fund of the Russian Federation, a number of pensioners will exceed the number of employees in 2030-s (Figure 5). If the conditions and norms of the pension legislation are unchanged, maintaining the replacement rate at the present level will be impossible. At the same time, the number of pensioners in the Russian Federation will be growing drastically until the 2040s.

This indicates that the prospects for the domestic pension system are more likely to be negative and seem to imbalance the entire financial system, but domestic government estimates are overly optimistic. (Prigoda, 2015, p. 286)

The RF pension system requires the development of special tools for investing in pension savings, while inflation-neutral pension infrastructure bonds can become the most promising ones. Their profitability is self-balancing as a function of inflation expectations and the targeted zone on the stock market line (market risk) where the target zone is secured by infrastructure project risks and partial state guarantees. Development of such a tool will allow preserving and expanding the window of opportunities the RF government to solve common economic problems by monetary methods and at the same time to protect pension contributions of citizens.

Already in the first decade of 2000, at the dawn of the formation of the RF contributory pension system, the key problem of pension reserves became obvious: lack of effective tools for their formation. The existing public debt does not meet the requirements of the moment. It is not quite profitable, because it does not cover the inflation, but at the same time the uses of the funds placed in it, such as coverage of the budget deficit, financing social, defense and other programs, smoothing fluctuations in the receipt of tax payments to the budget, form an additional debt, while the use of government bonds should be aimed at attracting and forming funds of a contributory pension system that ensure the growth of the Gross Domestic Product. The issue of government securities should generate financial resources directed toward financing the so-called

“development budget”. We need state-owned securities of an innovative nature, but not state debts. Unfortunately, up to the present time, there are no government securities that solve this problem.

In our opinion, one of the most promising tools is an infrastructure bond. This tool has been wide, although quite recently, introduced in the business practice of foreign countries and in some cases it is actively used in the framework of pension systems.

Thus, aggregate estimates show that the share of infrastructure projects in the portfolio of Western pension funds is 10-23% of the value of assets and there is a steady increase in the share of funds invested by pension funds in infrastructure projects. At the same time, the volume of investments has increased by 30 times for five years.

In Australia, the main issuer of infrastructure bonds is the government. The turnover of infrastructural bonds is legally limited by a clearly marked list of objects that are considered infrastructural.

In India, there are two classes of bonds, one of which is tax-saving, as an investor in infrastructure bonds receives a tax credit on income tax. Savings are up to 20% of the investment amount.

The Chinese government has a great experience in shaping supply and demand in the bond market in the construction of railways through infrastructure bonds issued by the Construction Bank of China. Up to 70% of the railway infrastructure was financed by this tool.

In general, there are the following features compared to traditional corporate bonds in the international practice of issuing and trading infrastructure bonds:

- targeted use of funds obtained from the placement to implement long-term investment infrastructure projects (roads and railways, ports, airports, power lines, pipelines and oil, and gas pipelines);
- the issue of infrastructure bonds, mainly within the framework of the implementation of concession agreements between the state or local authorities and the concessionaire company that acts as the issuer of the bonds;

- the main investors in infrastructure bonds are institutional (pension funds, insurance companies) and other conservative investors;
- a long-term period of circulation of infrastructure bonds, tied to the period of construction (reconstruction) of an infrastructure facility and to the period of its operation (on average 15-25 years);
- providing the bond issue with government guarantees, risk insurance, bank guarantees, and guarantees, as well as other security guarantees.

Thus, infrastructure bonds are one of the most dynamic instruments of the stock market and they are increasingly finding the application. All this combined with the underdevelopment of the domestic debt segment, the lack of credit and investment tools will serve as a stimulus for the development of the domestic market of infrastructure bonds.

### 3. CONCLUSION

Modern society is aging, and that leads to an increased burden on pension systems. Culturological changes occur implicitly, automatically and spontaneously - the value of an atomic family is reducing, the value of children is becoming higher than the value of adults. The

institutions of marriage, inheritance, and even religion deteriorate and are adapted.

At the same time, the more rigid framework of economic models should be reconsidered in a directional way - spontaneous development of economic processes is dangerous, as was proved by the great American Depression. Thus, there is already a consensus that the economic world community needs to review many basic economic models, modernize institutions, especially pension ones since it is the latter that ensure the existence of a rapidly expanding class of pensioners and are at the center of global demographic shift processes.

In turn, the Russian pension system needs a change in the investment paradigm for achieving qualitatively new levels of efficiency in the use of accumulated resources, which consists in overcoming equalizing tendencies in the pension system, increasing its motivational potential, individualizing pension provision, and increasing profitability while reducing risks. These directions can be achieved with simultaneous expansion of the market investment capacity, allocation of specialized tools for the pension assets formation and changing approaches to the formation of long-term investment portfolios.

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Received for publication: 26.03.2018

Revision received: 11.09.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

#### **Style – APA Sixth Edition:**

Kuizheva, S., & Prigoda, L. (2019, January 15). Modern Trends in Demographic Development of Society: Financial Aspect. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 41-47. doi:10.12709/mest.07.07.01.06

#### **Style – Chicago Sixteenth Edition:**

Kuizheva, Saida, and Lyudmila Prigoda. 2019. "Modern Trends in Demographic Development of Society: Financial Aspect." Edited by Zoran Čekerevac. *MEST Journal (MESTE)* 7 (1): 41-47. doi:10.12709/mest.07.07.01.06.

#### **Style – GOST Name Sort:**

**Kuizheva Saida and Prigoda Lyudmila** Modern Trends in Demographic Development of Society: Financial Aspect [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 41-47. doi:10.12709/mest.07.07.01.06

#### **Style – Harvard Anglia:**

Kuizheva, S. & Prigoda, L., 2019. Modern Trends in Demographic Development of Society: Financial Aspect. *MEST Journal*, 15 January, 7(1), pp. 41-47.

#### **Style – ISO 690 Numerical Reference:**

*Modern Trends in Demographic Development of Society: Financial Aspect.* **Kuizheva, Saida and Prigoda, Lyudmila.** [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 41-47.



# IMPORTANCE OF FORENSICS OF MOBILE PHONES AS A TYPE OF DIGITAL FORENSICS IN THE PROCESS OF EVIDENCE

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JEL Category: **L86, M15**

## **Abstract**

*The fact is that mobile phones are increasingly replacing computers with features such as Internet access, emailing, access to social networks. With the advent of smartphones, the role of computers in information communication networks is reduced. Modern phones take on the role of participants in the cyberspace, both the potential victim and the object of protection, and the possible means of cyber-attacks. With these facts, the field of evidence moves from tangible things into an intangible and hard-to-prove field. Mobile phones become a source of data storage, which in addition to pointing to the commission of a criminal offense, performing and detecting communications and location of the phone users. With the help of them, we obtain a further complete picture of the planning and the place where the crime was committed. Since the data in the phone's memory is not completely erased with their dedicated removal, their obtaining is possible with the help of forensic tools specifically for this purpose. Digital Forensics that relates to computer forensics is necessary to complete with specialized forensic tools for smartphones. Therefore, the tendency is to apply and improve the forensics of mobile devices as a type of digital forensics and the development of forensic tools that will be specialized for these devices.*

**Keywords:** digital forensics, forensic, mobile, cybercrime, cyberspace

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## **1 DETERMINATION AND CLASSIFICATION OF DIGITAL FORENSICS**

To take the most out of digital evidence, forensic experts must understand and properly use

scientific methods. Scientific methods together with digital forensic methods and techniques enable adaptability to various events and demands and ensure that conclusions are based on facts. Knowing the limits of forensic analysis of digital evidence will help the investigators to arrest criminals and release the innocent.

Computer or digital forensics denotes application of scientific methods with the aim of identification, gathering and analyzing data with preservation of the integrity of the original evidence and chain of jurisdiction with the aim of establishing potential digital evidence. Computer forensics can also be defined as the process of gathering, preservation, analysis, and presentation of digital evidence. *Forensic tools* enable recovery and analysis of deleted, hidden and temporary files which cannot be accessed in the usual way. A complete system for gathering, analyzing and making reports about the evidence acceptable to the court as well as recovery of the lost data.

During the 1980s, most of the digital forensic examination consisted of "live analyses", examination of digital media directly by using unspecialized tools. During the 90s some free and other owner tools (hardware and software) were created to enable investigation without modifying media. This first set of tools was mainly focused on computer forensics (Casey, 2004).

Digital forensics is the application of methods of examination and techniques of analysis with the aim of finding computer evidence acceptable to the court. It is the application of computer science and mathematics for reliable and objective gathering, analysis, interpretation and presentation of digital evidence. It is the use of scientifically developed and tested methods of saving, gathering, validation, identification, analysis, interpretation, documenting and presentation of digital evidence obtained from digital sources for the need of reconstruction of the event characterized as a crime or as a help to predict unauthorized actions which threaten to interrupt planned operations.

Briefly, computer Forensics can also be defined as the process of collecting, preserving, analyzing and presenting digital evidence. Therefore, the goal of digital forensics is not only identifying, collecting and analyzing data but also preserving the integrity of original evidence to identify

potential digital evidence. Digital forensics is based on the use and improvement of forensic tools. Forensic tools allow reimbursement and analysis of deleted, hidden and temporary files that cannot be accessed in the usual way. Digital tools are a method for collecting, analyzing, and producing evidence-based evidence and recovering lost data.

Based on the specificities of techniques, tools, and methods of examination in the forensic practice the following main areas in the field of digital forensics have been differentiated:

1. Computer forensics (acquisition and analysis of HD and other portable media)
2. Network forensics (intrusion into the network, abuse and so on)
3. Software forensics (examination of malware)
4. Active (live) forensics of systems (exposed host-servers, abuse of systems and so on).

## 2 FORENSICS OF MOBILE DEVICES AS A TYPE OF DIGITAL FORENSICS

As mobile technology progresses, the amount and type of data that can be found on the mobile device are constantly increasing. This fact is supported by the increasing use of mobile phones for storing and transferring personal and corporate information and using mobile phones in online transactions.

Mobile Forensics is a branch of digital forensics that relates to the recovery of digital evidence or data from a mobile device.

The term "mobile device" usually refers to mobile phones. However, this term should be comprehensively understood. By the term "mobile device" we can include any digital device with two characteristics:

1. internal memory
2. the ability to communicate.

So, under the term "mobile device" we can include PDAs, GPS devices, and tablets in addition to mobile phones.

The subject of mobile forensics can be:

- SMS received and sent (with date and time)

- MMS messages received and sent (with date and time)
- Listing of incoming and outgoing calls (with date and time)
- Phonebook
- Photos, audio and video files
- Conversations from social applications (Viber, WhatsApp, Facebook Messenger, Skype)
- The location of the mobile phone at a certain time
- Records from calendars, notes, planner ...
- files of various formats (PDF, Excel, Word ...)

The unavailability of these data can occur for a number of reasons: random or deliberate deletion, factory reset of the phone, physical damage to the mobile phone, software errors, the result of a virus or malware program, and so on.

These data, potentially recoverable from a mobile phone, come from a variety of sources:

1. the memory of the phone,
2. SIM card and
3. memory cards such as SD cards.

In this regard, we can classify forensics that relates to mobile devices to the Forensics of internal and external memory. Under internal memory is a flash memory that consists of NAND or NOR types. External memory includes sim cards, SD cards (usually found in GPS devices as well as mobile phones), MMC cards, CF cards, and Memory Stick.

Although technically not part of the form of mobile devices, call details (and occasionally text messages) from providers often serve as "backup" evidence obtained after the mobile phone is confiscated. The European Union requires the Member States to retain certain telecommunications data for use in investigations.

### 3 SHORT OVERVIEW OF THE FORENSICS PROCESS OF MOBILE DEVICES

The first testing of mobile devices was used to analyze the contents of the phone directly over the screen and capture important content. However, it turned out to be a long-term process, and as the number of mobile devices began to grow,

investigators were using more efficient means of data extraction. This process is one of the most demanding investigation procedures, due to rapid changes in the hardware and software structure and a large number of non-standard devices present on the market.

The whole process was facilitated by software or PDA software for synchronizing device data to a forensic computer for recording or sometimes simply performing computer forensics on the hard disk of a suspicious computer in which the data is synchronized. As well as that deleted data is obtained using a "flasher" or "twister" box, tools that were produced by OEMs to flash the phone's error correction or update.

The preparatory phase of the forensic process of mobile devices includes:

1. determining the network in which the phone works
2. identification of features and capabilities of the mobile device (manufacturer, model, serial number, wireless connectivity methods)
3. selection of the most suitable forensic treatment tool.

Mobile forensics tools are divided into two groups: GSM and CDMA types for acquisition.

In other words, some forensic tools only work on device analysis, while some devices and SIM cards work.

The most famous and commonly used, although not one tool for handling mobile devices and SIM cards are (Nolan, et al., 2005):

1. Paraben,
2. Logicube,
3. CellDEK kit,
4. Crownhill,
5. Inside Out Forensics and
6. Xygen software.

The choice of the type of forensic device to be used for mobile forensics is quite different from the standard forensic computer equipment, due to the variety of devices. When the most suitable forensic tool is selected, the isolation of the device is the next step. During the investigation of the mobile device, it must be isolated not only from

other mobile phones but also from any communication using Bluetooth, Wi-Fi or infrared communication.

Isolation can be achieved by:

1. Faraday cage- prevents the communication of mobile devices with external wireless devices, prevents the receiving and sending of data and isolates the device.
2. Turning off the device and
3. By placing the device in a plane mode that excludes all wireless communication modes. (Volonino & Anzaldua, 2008)

The next step after isolating the phone is that the battery is maintained, whilst avoiding the risk of losing data stored in the working memory (ROM).

This is followed by finding the required information. Regardless of whether these are GSM or CDMA devices, the data extraction procedures are slightly different. If it works through SIM cards, they are first cloned, or a data image is created using a card reader. Then make sure that any writing on the original medium is disabled. After extracting data for analysis, forensic tools

perform "find and retrieve" automated software functions. (Nolan, et al., 2005)

## 4 CONCLUSION

As mobile technology progresses, the amount and type of data that can be found on the mobile device are constantly increasing. This fact is reinforced by the growing use of mobile phones for the storage and transfer of personal and corporate information, and the use of mobile phones in online transactions. On the one hand, the use of mobile phones has many benefits, and on the other hand in the last decade, there is also a numerous form of abuse of smartphones. Namely, mobile phones appear as a warehouse of information related to the commission of criminal offenses, whether it's about discovering or proving. These devices contain important information that will reveal the details of the commission of crimes. We can rightly expect that the evidence will be obtained by forensic analysis of mobile devices using effective forensic tools will replace classical evidence. Thereby achieving not only saving time and money, but also reducing the length of the evidence process and thus the burden of investigative and judicial authorities.

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Received for publication: 08.03.2018

Revision received: 02.09.2018

Accepted for publication: 27.12.2018

### How to cite this article?

Style – **APA Sixth Edition:**

Miladinovic Bogavac, Z., & Spasojevic, D. (2019, January 15). Importance of Forensics of Mobile Phones as a Type of Digital Forensics in the Process of Evidence. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 48-52. doi:10.12709/mest.07.07.07

Style – **Chicago Sixteenth Edition:**

Miladinovic Bogavac, Zivanka, and Djordje Spasojevic. 2019. "Importance of Forensics of Mobile Phones as a Type of Digital Forensics in the Process of Evidence." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 48-52. doi:10.12709/mest.07.07.07.

Style – **GOST Name Sort:**

**Miladinovic Bogavac Zivanka and Spasojevic Djordje** Importance of Forensics of Mobile Phones as a Type of Digital Forensics in the Process of Evidence [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 48-52. doi:10.12709/mest.07.07.01.07

Style – **Harvard Anglia:**

Miladinovic Bogavac, Z. & Spasojevic, D., 2019. Importance of Forensics of Mobile Phones as a Type of Digital Forensics in the Process of Evidence. *MEST Journal*, 15 January, 7(1), pp. 48-52.

Style – **ISO 690 Numerical Reference:**

*Importance of Forensics of Mobile Phones as a Type of Digital Forensics in the Process of Evidence.*  
**Miladinovic Bogavac, Zivanka and Spasojevic, Djordje.** [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 48-52.



# DEVELOPMENT TRENDS OF THE EURASIAN CARGO TRANSPORT

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JEL Category: **F17, F23, R41**

## **Abstract**

*The issues of the development of the world economy and world trade in connection with freight traffic in the Eurasian direction are considered in the article. The volumes of cargo transportation within the EU, between the EU and China, Russia and the Republic of Belarus have been investigated. The results of the study showed that the volumes of freight transported by road are declining, while rail and sea transport is growing, and the volumes of transport by sea are growing at a faster rate. This trend corresponds to the transport policy of the European Union. Land transport cannot compete with maritime transport, either in terms of traffic or in value. Therefore, it is economically expedient to transport expensive goods with a relatively small weight and volume. The analysis of the volumes of both transit traffic through Belarus and the export-import cargo of the Republic of Belarus shows a significant decrease in the last few years. Recommendations, for increasing the flow of goods through the territory of Belarus, are proposed to realize its transit potential*

**Keywords:** *Flow of cargo; cargo turnover; freightage; carrier; transportation; International Economics; Global Trade; transport corridor; exports; imports.*

## **1 INTRODUCTION**

The analytical forecast for the development of the international economics confirmed that in 2017 the world community faced structural and cyclical changes while retaining its not always stable

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balance. This state of the global economy is caused by a slowdown in GDP growth of developed and developing countries. Despite the fact that the GDP of Europe grew by 2.0% in 2015 after monetary stimulation and low oil prices the growth was only 1.8% by the results of 2016 (Molokovitch, 2017). Extremely slight economic growth resumed in all EU countries, except Greece. It is expected that economic growth in the EU countries will drop to 1.4% in 2017 (Verbitsky,

2017). The reason for the decline in economic indicators is likely to be the decision of the UK to withdraw from the EU.

There is a decrease in GDP of USA as well. According to forecasts, it will have recovered by 2018 and the rate of GDP growth will amount 2.5%. Japan's GDP growth has almost stopped. The growth of the largest emerging economy

[China] is also continuing to slow. In 2016 this indicator was 6.7%, but it is expected that in 2017 it will be even lower - 6.5%. The Indian economy is moving ahead with the projected growth of 7.4% in 2017 (Drozdov, 2017).

At this time world trade will gain momentum, slightly outstripping the growth of world GDP (Table 1).

Table 1 – Dynamics of GDP and World Trade, % according to the IMF forecast

Growth to the previous year, %	Actual value	Estimated value	Forecast of January 2017	
	2015	2016	2017	2018
World GDP	3.2	3.1	3.4	3.6
Developed countries	2.1	1.6	1.9	2.0
USA	2.6	1.6	2.3	2.5
Eurozone	2.0	1.7	1.6	1.6
Japan	1.2	0.9	0.8	0.5
United Kingdom	2.2	2.0	1.5	1.4
Developing countries	4.1	4.1	4.5	4.8
Russia	-3.7	-0.6	1.1	1.2
China	6.9	6.7	6.5	6.0
India	7.6	6.6	7.2	7.7
Vietnam	6.7	6.7	-	-
World trade (goods and services)	2.7	1,9	3.8	4.1
Developed countries	4.0	2.0	3.6	3.8
Developing countries	0.3	1.9	4.0	4.7

Source: Molokovitch (2017)

Thus, the growing economies of China, Vietnam, India, as well as developed European countries, require more raw materials, and European countries that produce modern high-tech engineering products will ensure the needs of the developing economies of China, Russia, Kazakhstan, Belarus, and other post-Soviet republics. Consequently, the volume of cargo transportation will continue to grow.

## 2 ANALYSIS OF THE CARGO TRANSPORTATION BETWEEN EUROPE AND THE ASIAN-PACIFIC REGION

The Study of trends in the development of the economy of Europe and its particular countries, as well as the volume of trade between Europe and the Asian Economic Region, allows us to assess the volume of freight flows following towards the EU - the Asia-Pacific region and vice versa, as well as the prospects for the development of transport

and logistics, in the region as a whole, and in the Republic of Belarus.

It should be noted that there is a growth of cargo transportation in this direction. In 2016, the EU countries increased the volume of transportation of export goods by 3.8% in comparison with the previous year. 70% of that volume fell to the countries of the Asia-Pacific region, in the USA only 9.5% of the total cargo was transported, Brazil 6.2%, Latin America nearly 2%, and Eastern Europe only 1%.

The bulk of trade between the EU and the Asia-Pacific region was in China. In 2016, it amounted to about \$ 538 billion, having increased by 3.5% over the previous year.

Traditionally, the main shipping route between Europe and China was the South Sea Route. Over 85% of all foreign trade cargo passed through it (Kozlov, 2017).

Over 9% of cargoes were transported by land through the Balkans, and slightly more than 6% through Belarus - Ukraine - Russia - Kazakhstan.

The largest growth in traffic carried on international multimodal transport corridor

'TRACECA' (Figure 1). The growth of traffic on this land transportation route through Central Asia, Turkey, and the Balkans is determined by the growing interest of business and transport operators in the UNECE project 'Trans-Eurasian transport links'.

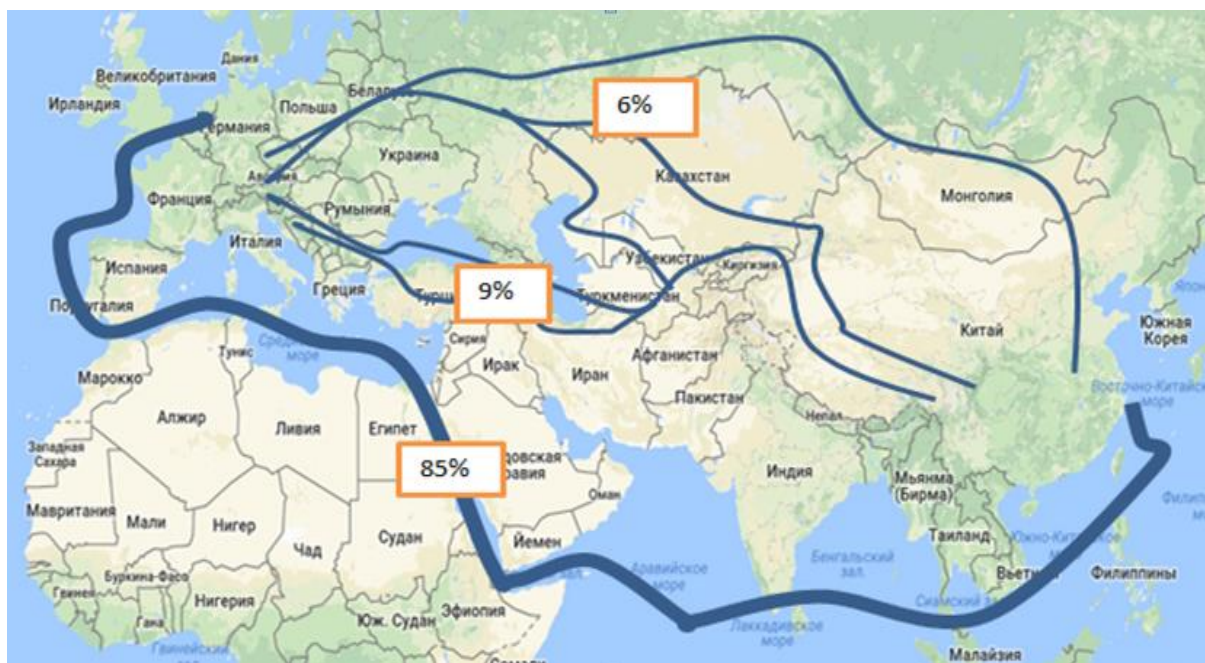


Figure 1 - Routes of the main trade areas between the EU and China in 2016.

Source: Kozlov V.V. (2017)

Long periods of transportation of expensive cargo by sea cause the need to redistribute cargo flows from sea to land transport and, first of all, to rail. Long-term transportation of valuable cargoes by sea transport necessitate redistribution of cargo flows from the sea to land transport and, above all, to railway transport. To this end, the UNECE has adopted a number of directives to transfer freight from road to rail. According to these documents, it is planned to switch a third of long-distance road transport to rail transport by 2030, and to reduce by 50% the main road transport of goods transported over a distance of more than 300 km and switch them to rail and water transport by 2050.

This concept is being successfully implemented in practice. So, beginning in 2014, there is a clear tendency to reorient the export of EU countries from road transport to rail and water transport. The transportation of goods by sea transport is growing at a faster rate, as evidenced by the data in Table 2.

Table 2 - The share of export goods of the EU by different modes of transport

Mode of transport	Distribution of cargo transportation by mode of transport, %		
	2014	2015	2016
Automotive	1.5	1.3	1.2
Railway	19.7	20.4	21.4
Water	56.1	58.8	60.2
Other	22.7	19.5	17.2

Source: Kozlov B.B.(2017)

This is because manufacturers and logistics operators of the EU prefer to use cheaper and more environmentally friendly modes of transport to increase the competitiveness of European products in world markets by reducing the transportation of goods by road. Such a trend will take place over several decades in accordance with the concept of the White Paper.

According to Eurostat data the total volume of transported EU goods by all modes of transport, except for pipeline, amounted to about 8.7 million TEU in 2016. At the same time, the volume of transport within the EU amounted to 56% of the total volume of cargo transported.

Estimating the volume of transport within the EU, it should be noted that in 2016 the largest volumes of traffic were carried to Italy. The rest of the corridors were much lower.

### 3 TRANSPORTATION OF GOODS WITHIN THE EUROPEAN UNION

Experts from the analytical agency KombiConsult (Germany) found that goods inside the EU were

transported among almost 100 transport corridors, with 30 of them accounting for almost 56% of the total volume of cargo transportation and 73% of cargo turnover (Publication of the EU Analysis Committee on EU Combined Transport by the EU KombiConsult analytical agency. No. FV355 / 2012 / MOVE / D1 / ETU / SI2.659386. Electronic resource). The most intensive transport corridor in the EU in 2016 was the Germany-Italy corridor through Austria, which accounted for 14% of the total TEU or 18% of tonnage transported. The most important transport corridors are the corridors Germany – Italy, and Belgium – Italy through Switzerland, as well as the Trans-Balkan routes (Figure 2).

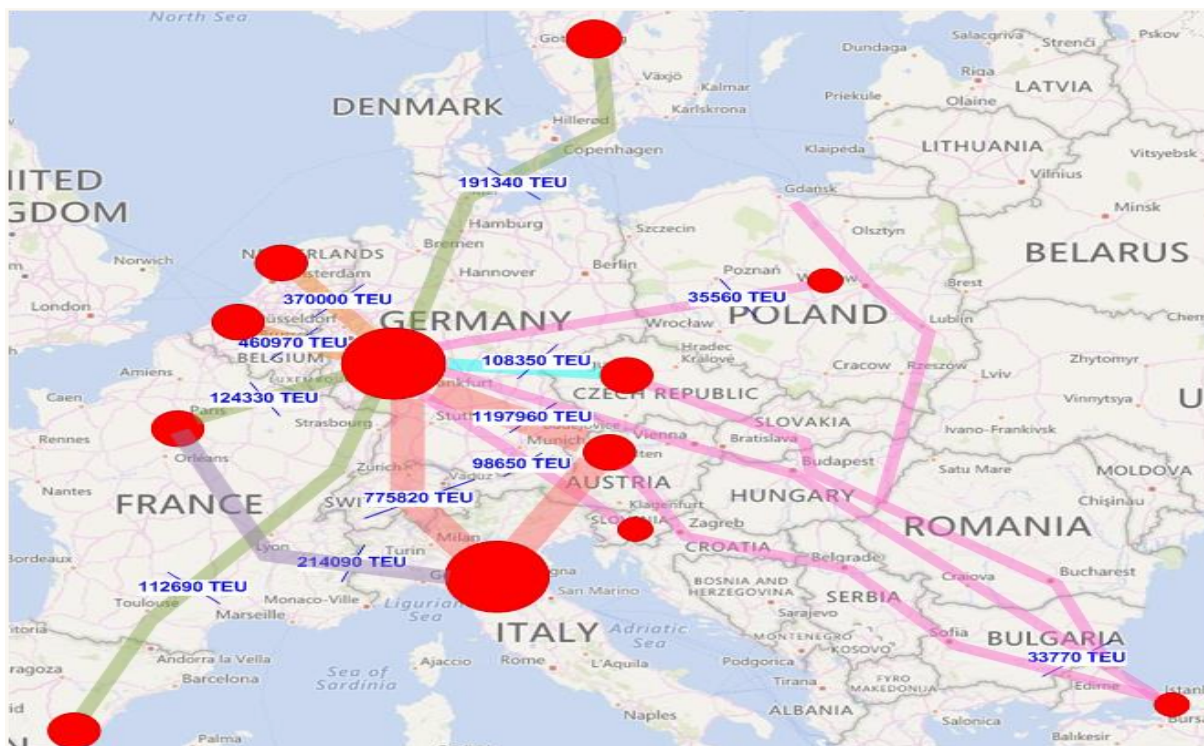


Figure 2 - Volume of goods transported by road and rail transport within the EU by main transport corridors in 2016.

Source: Kozlov B.B.(2017)

Table 3 - Distribution of cargo flows through the EU transport corridors in 2014-2016

Directions of cargo flows	The volume of transport, in thousand tons			Freight turnover, billion t-km		
	2014	2015	2016	2014	2015	2016
Transport corridors of the EU	450361	450889	451418	29.1	29.6	30.1
Domestic transportations	87335	86772	86209	26.7	25.9	25.5
Other corridors	896	9343	11676	10.6	11.6	12.2
Total	538592	547004	549303	66.4	67.1	67.8

The distribution of freight flows among the EU transport corridors in 2014-2016 is shown in Table 3.

These trends indicate an increase in traffic volumes by transport corridors on average by 1.5-2% per year. This is primarily due to the EU policy of the European program 'Connecting Europe Facility' (CEF) on investment in transport infrastructure projects: HORIZONT 2020, TEN-T, MARCO POLO.

#### **4 INVESTIGATION OF CARGO TRANSPORTATION BETWEEN THE EU, RUSSIAN FEDERATION, AND KAZAKHSTAN**

The main economic partner of the EU in 2016, as before, was the Russian Federation, despite the decline in foreign trade. So, according to Eurostat in 2016, exports of goods from the EU to Russia fell to 72.5 billion euros. The fall compared to 2015 was more than 2%. Import to the EU from Russia also fell to 116.5 billion euros - a drop of 16%. It should be noted that in 2015, the decrease in exports from the EU to Russia amounted to 29% compared with 2014, and from Russia to the EU - 26%. The figures indicate that the pace of the fall of trade between the EU and Russia is slowing down. In 2016, they amounted to an average of 0.2% per month. Nevertheless, there is the growth of trade between individual countries, such as Portugal (almost 49%), Bulgaria (7%), France (15%), Cyprus (14%).

In general, the volume of transportation of goods by road between the EU and Russia in 2016 in both directions amounted to more than 19.3 million tons.

International cargo transportation by rail between the EU and Russia in 2016 amounted to 821 million tons from the EU to Russia and 27 billion tons from Russia to the EU. The significant excess of Russian exports over imports is due to the large volume of hydrocarbons supplied to the EU, ore, and coal, and from Europe - mainly goods of industrial and agricultural production. In the past year, there has been a drop in the transport of goods by rail between the EU and Russia by more than 20%. At the same time, the greatest reduction in cargo flows was from France, Finland, Lithuania, Latvia, which, traditionally carried out

the transportation of transit goods through the Republic of Belarus. The study of trends in road transport of goods between the EU and Kazakhstan showed that in 2016 the total volume of traffic decreased by more than 3%, Kazakhstan reduced import of goods from such European countries as Lithuania, Germany, Spain, Czech Republic, Slovakia, and Denmark. At the same time, the volume of traffic from Kazakhstan significantly increased to Latvia, Slovenia and Luxembourg. When importing to the EU from Kazakhstan, the main partners were countries such as Spain, Poland, and Italy. The volume of imports from Kazakhstan to the Scandinavian countries has significantly increased, especially to Sweden and Norway. The total cargo flow between the EU and Kazakhstan through the Republic of Belarus in transit in 2016 was about 650 thousand tons. At the same time, 507 thousand tons of goods were delivered from the EU to Kazakhstan and 142 thousand tons from Kazakhstan to the EU.

#### **5 DYNAMICS OF FREIGHT TRAFFIC THROUGH THE REPUBLIC OF BELARUS**

The location of the Republic of Belarus in the center of the European continent allows to become a link between the countries of Europe and Asia and ensure unimpeded movement of transit freight traffic along the main transport corridors passing through Belarus. In the pre-crisis period, quite stable transit cargo flows were formed across the territory of the Republic of Belarus. However, after 2008, during the two crisis years, there was a decline in the volume of transit freight by road and rail. From 2011 to 2014, the volumes of transit traffic fluctuated in insignificant limits. The situation has changed significantly with the country's entry into a protracted crisis period. The dynamics of freight flows from/to the countries of the European Union was reflected on the turnover of goods and the volume of transport of goods by road and rail across the territory of the Republic of Belarus.

Despite the positive dynamics of cargo flows within the EU, the transport complex of Belarus in 2016 reduced the volume indicators of its work as in previous years. According to the National Statistical Committee of the Republic of Belarus,

in 2016 the volume of cargo transportation by all types of transport decreased by 3.8% compared to 2015.

The decrease in traffic volumes occurred on land and water transport, at the same time there was the growth of 146.0% on air transport (table 4).

The data in Table 4 show that in 2016 the rate of decrease in the volumes of freight transportations by rail and road transport slowed down considerably. As for freight turnover, it increased in relation to 2015 by all modes of transport. The growth of cargo turnover was due to the development of non-traditional remote markets, such as Morocco, Georgia, Iran, and Scandinavian countries.

It should be noted that the volume of cargo transportation on imports between the EU and the

Republic of Belarus to the EU decreased by 12.9% compared to 2015, while exports from the EU increased by 22.2%. The positive balance was 9.3%.

The study of the volume of transit through the Republic of Belarus in 2016 showed that more than 32 million tons of transit cargo were transported by rail or 84% by 2015. The total volume of transit cargo transported in comparison with 2011 decreased by more than 36%. The main transit cargo through Belarus in 2016 was Russian exports - more than 88%. In this case, the volume of transit cargo shipments towards Latvia decreased by 27% compared to 2015, Lithuania by 28%, and Poland and EU countries - increased by 15%. However, this growth was not enough to compensate for the decrease in the volume of cargo transportation to Latvia and Lithuania.

Table 4 - Transportation of goods in the Republic of Belarus

Types of transport	2014	2016	2016 in % by 2015	2015 in % by 2014
Transportation of goods, million tons				
All types of transport, including	467.5	430.4	96.2	95.7
Rail	141.4	126.8	96.5	92.9
Automotive	191.7	175.3	97.4	94.0
Water	3.8	2.1	72.4	78.9
Air	0.04	0.06	146.0	100.0
Freight turnover, million t-km				
All types of transport, including	131402	125263	99.4	95.9
Rail	44997	41107	100.8	90.6
Automotive	26587	24683	100.6	92.2
Water	49	21	100.0	42.8
Air	65	108	140.2	118.5

Source: Belarus in figures (2017)

According to the data of the State Customs Committee of the Republic of Belarus in 2016, foreign carriers implemented almost 745,000 transit automobile trips through the territory of Belarus, which is slightly less than in 2015. The largest number of transit trips was performed by carriers of the Russian Federation -56.3%, Poland - 20.8%, Lithuania - 9.1% and Ukraine - 2.7%, which is more than 91% of all trips.

In 2016 foreign carriers transported 11.39 million tons of cargo through Belarus via road, while Belarusian carriers - only 1.84 million tons. However, the share of Belarusian carriers in the total volume of transit traffic through the territory of the Republic Belarus increased from 12.9% in 2015 to 13.9% in 2016 (Figure 3).

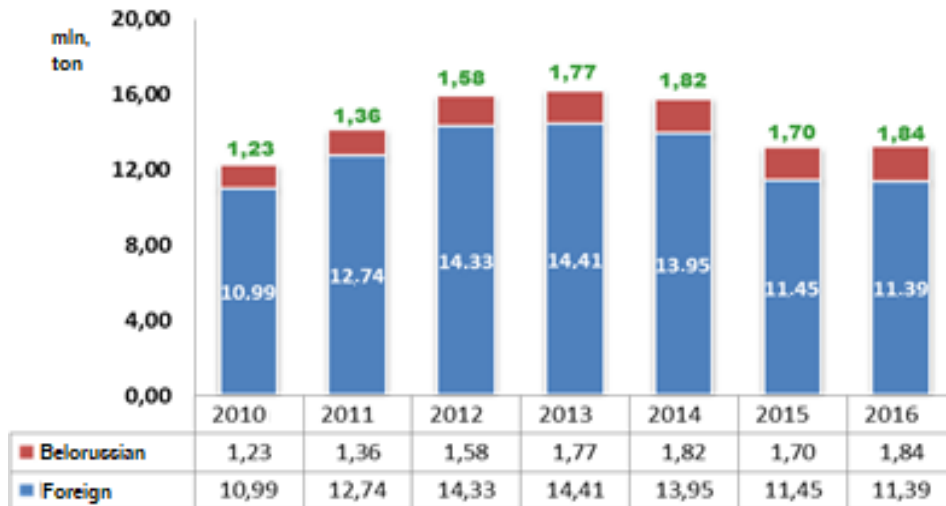


Figure 3 - The volume of transit road transport of goods through the territory of the Republic of Belarus in 2010 - 2016. Source: Belarus in figures (2017)

According to the statistical data of 2016, the income of Belarusian carriers from transit traffic increased by 4.0% compared to 2015. At the same time, the average profitability of one transit trip in 2016 was about 2.8 thousand US dollars, which is the lowest indicator in 2011 - 2016 (Figure 4).

The largest part of the transit road transport of goods passing through Belarus in 2016 traditionally goes to/from the Russian Federation -

more than 90%, while to/ from other areas is about 10%. Basically, that is the cargo that follows between Ukraine and the Baltic countries. The volume of transit to and from the Russian Federation bypassing the Republic of Belarus in 2016 is 8 times less than through the territory of the Republic of Belarus, and through the territory of Ukraine - 3.3 times less than through the territory of the Republic of Belarus.

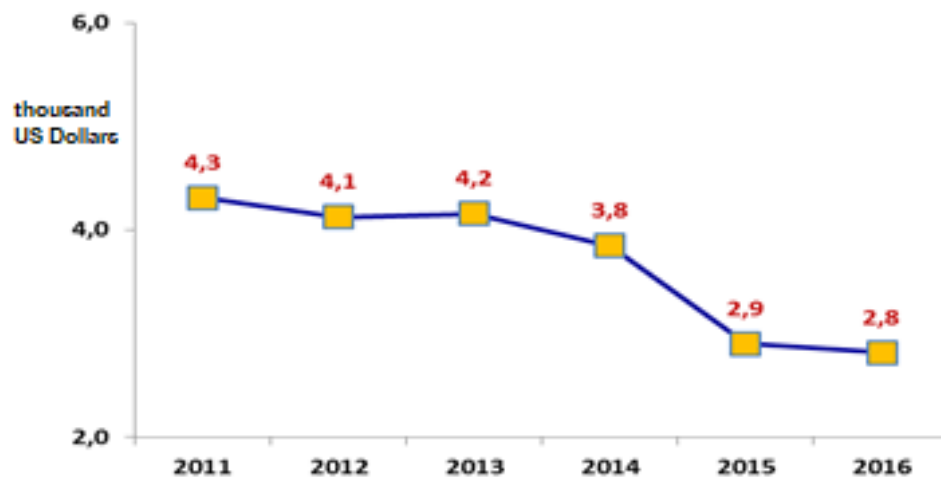


Figure 4 - Average profitability of one transit trip of Belarusian carriers in 2011 - 2016. Source: Molokovitch & Luksha (2017)

In 2016 the main truck traffic passed through the Belarusian-Polish and Belarusian-Lithuanian sections of the state border.

The World Bank's Doing Business 2017 research showed that in 2016, with the import of goods to the Republic of Belarus by road through the Kozlovichi checkpoint, the average time for all

border formalities was 240 minutes (waiting time in the queue was not taken into account), while costs were 108 US dollars, and through the Kamenny Log checkpoint - 260 minutes and 145 US dollars, respectively. Compared to 2015, the average time for border formalities decreased by 1 hour, but costs increased by 28 US dollars. The increase in financial costs is mainly due to an

increase in the cost of issuing electronic preliminary information to customs authorities and prices for services at checkpoints.

The analysis of the freight flows in the Euro-Asian direction shows the huge unrealized potential of the land transport corridors. So, according to the UN Economic and Social Commission for Asia and the Pacific in 2016, 17.7 million TEU were transported from Asia to Europe, and only 10 million TEU were transported from Europe to Asia. Consequently, 7.7 million TEU are empty containers that return to the country of origin. In 2016, only 3,762 container trains were sent from China to the EU countries, a total tonnage equaled to 451 thousand TEU (9.6 million tonnes), and from Europe to China - 1004 container trains, or more than 120 thousand TEU (2, 6 million tons). The main nomenclature of goods: from Germany - machine building, machine tools and equipment, food products; from France - electrical appliances, steel products, agricultural products, and wines. At the same time, the Southern Sea Route through the Suez Canal is the dominant traffic, which will reach its maximum capacity by 2020.

Estimating the potentialities of railway routes, it should be noted that the main traffic flows are carried through the border point Dostyk-Alashankou (Eastern Kazakhstan-Western China). In 2016, the daily throughput of this border crossing point was 520-550 cars. According to the estimates of Kaztransservice JSC, the capacity of the Dostyk-Alashankou crossing point can reach 730 thousand TEU.

There are several options for the transit from China to the EU, passing through the northern Eurasian railway corridors, including the Republic of Belarus. At the same time, it should be taken into account that rail transportation can provide such a competitive advantage as a shorter time of delivery of cargo at relatively competitive tariffs. Thus, the delivery of one ton of cargo by sea from Germany (Essen) through the port of Hamburg to the port of Shanghai is an average of 108 US dollars and takes about 35 days. Container transportation of one ton by rail on the route Essen - Warsawa - Brest - Dostyk costs an average of 168 US dollars and takes 15 days. Comparative tariffs for sea and rail transport in the direction of the EU - China are given in Table 5.

Table 5 - Tariffs for sea and rail container transportations in the direction of the EU - China

Route Shanghai	US dollars per container			Time of delivery, days
	20', 33 m <sup>3</sup>	40', 67 m <sup>3</sup>	40', 76 m <sup>3</sup>	
Shipping				
1	2	3	4	5
Hamburg - Shanghai	2300	2400	2550	35
Kotka- Shanghai	2950	3950	4100	39
Tallinn-Shanghai	2735	3900	4220	38
Riga - Shanghai	2450	3800	4000	38
Klaipeda-Shanghai	2420	3300	3700	35
Novorossiysk-Shanghai	2550	3000	3400	22
Chernomorsk-Shanghai	1500	2800	3000	20
St. Petersburg - Shanghai	2750	4350	5150	40
Railway transportation				
Essen - Brest - Dostyk	3585	6510	6510	15

The data show that sea freight is 50% cheaper than rail, but at the same time, sea transport has significantly longer delivery times. In addition, maritime transport has a number of competitive

advantages compared to rail transport in the delivery of goods between Europe and China, including transit through the Republic of Belarus:

- lower tariffs due to the fact that large international shipping companies, when transporting large vessels, may charge a lower fee for port operations and cargo transportation than railway operators, which reduces the cost of delivery for shippers;
  - a minimum of physical and non-physical barriers. Physical barriers are an amortization and shortage of wagons, containers, locomotives, and vehicles; inadequacy of infrastructure and technology to international standards; insufficiently developed communication networks; different track width. Non-physical barriers are long terms of customs procedures at border crossing points; selective inspections requiring the opening of transit containers; uncoordinated transit tariffs in different CIS countries, confiscation of goods and vehicles, non-harmonized legislation and others.
1. The corridor 'Europe - East Asia' (Austria / Hungary / Italy - Bulgaria - Turkey - Turkmenistan - Uzbekistan - East Kazakhstan).
  2. Corridor 'East Asia - the Mediterranean'. Road and rail routes from China through Kyrgyzstan, Uzbekistan and Turkmenistan, the Caspian Sea, the South Caucasus to the Black Sea, and then to Europe.
  3. Corridor 'Northern Europe - Middle East - South Asia'. Road and rail routes from the Baltic region towards the countries of the Persian Gulf, the Middle East, and India.

It is necessary to note several problems related to the operation of the Pan-European transport corridors, which may influence the growth of transit cargo flows through the Republic of Belarus: an insufficiently developed network of border checkpoints and infrastructure that does not meet modern requirements of digital technology, a difference in electrification systems, low speed of transportation by rail and road message paths, etc.

Despite the attractiveness of the transit transport infrastructure of the Republic of Belarus, there is a number of land transport corridors that are competitors of the 2<sup>nd</sup> Pan-European Transport Corridor passing through Belarus: (Figure 5).

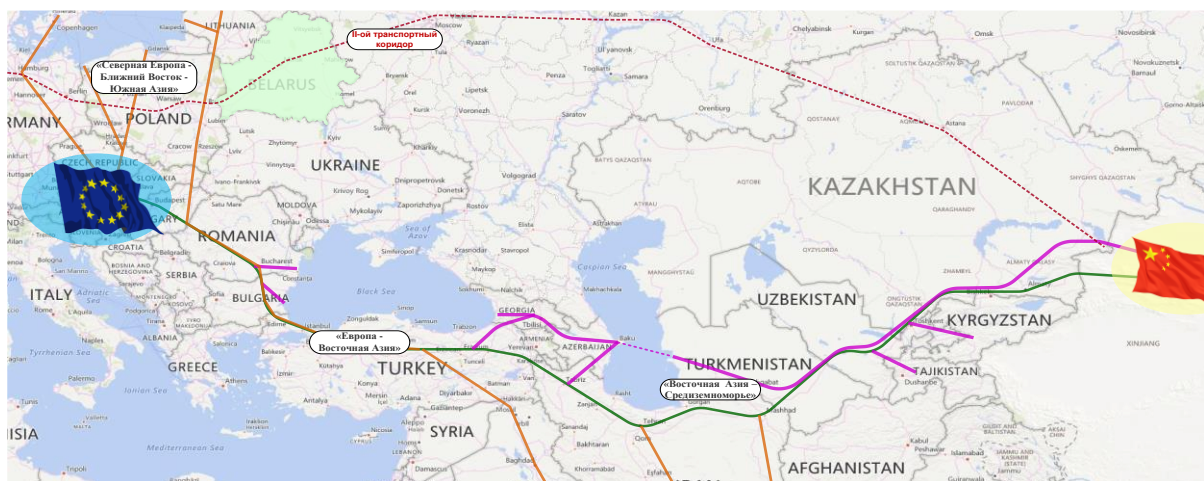


Figure 5 - Transport corridors between Europe and Asia that are competitive to the Republic of Belarus.

Source: Molokovitch & Luksha (2017)

In order to increase transit cargo flows through the Republic of Belarus it is necessary:

- to develop programs for the unification and adaptation of the transport system of the Republic of Belarus with the EU system that is aimed at creating favorable conditions for the growth of transit transport of goods and passengers;

- to create transnational companies with the participation of Belarusian transport and freight forwarding organizations in order to attract transit cargo traffic, including Belarusian transportation and logistics centers;
- to continue the development of the border infrastructure, including cooperation with neighboring countries in the construction and

- reconstruction of border and border infrastructure facilities;
- to develop an automated system for risk analysis at the stage of preliminary electronic information that integrates all types of control;
- to develop and to approve a through a tariff for container transportation with administrations and operators of foreign railways by accelerated container trains, with differentiation in directions to seaports;
- introduce non-contact, paperless and remote methods of detection, identification, and control when moving cargo and vehicles across the border.

## 6 CONCLUSION

The transport complex of the Republic of Belarus in 2016 reduced the volume of cargo transportation by all modes of transport by 3.2% compared to 2015.

The conducted studies showed that the Eurasian land transport corridors will not be able to compete in volume and cost with sea routes when delivering cargo to/from China and other countries of the Asia-Pacific region. Nevertheless, transcontinental transportation along the Eurasian land corridors may be attractive for the transportation of goods with high cost and relatively small weight and volume by rail. At the same time, operators should offer competitive tariffs and shortest delivery times.

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The most optimal route from the economic point of view is the route between Europe and the Asian region using the 2<sup>nd</sup> Pan-European Transport Corridor through the Republic of Belarus with the exit through Russia and Kazakhstan to the western part of China. However, the intensive use of this route is hampered by risks associated with certain negative relations between Russia and China, as well as between the EU countries, which have an impact on the transit through the Republic of Belarus.

The development of cargo flows in the Euro-Asian direction through the Republic of Belarus is hampered by factors such as undeveloped infrastructure, long terms of customs procedures at border crossings; frequent random checks of goods and vehicles, which fines are not always fair in the degree of violation of law, sanctions applied, uncoordinated transit tariffs, long downtime at the border, etc.

The growth of cargo flows can be achieved through the creation of attractive transit conditions for foreign cargo owners, the expansion of cooperation within the framework of the initiative of the People's Republic of China "Economic belt of the Silk Road" by negotiating with the main shippers, railway administrations, forwarding and stevedoring companies for establishment the optimal tariffs through the provision of discounts and special tariffs for the carriage of certain groups of goods.

Received for publication: 16.12.2017  
Revision received: 07.08.2018  
Accepted for publication: 27.12.2018

### **How to cite this article?**

#### **Style – APA Sixth Edition:**

Molokovitch, A., Bozhanov, P., & Luksha, V. (2019, January 15). Development Trends of The Eurasian Cargo Transport. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 53-63. doi:10.12709/mest.07.07.01.08

#### **Style – Chicago Sixteenth Edition:**

Molokovitch, Anatoli, Pavel Bozhanov, and Vladislav Luksha. 2019. "Development Trends of The Eurasian Cargo Transport." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 53-63. doi:10.12709/mest.07.07.01.08.

#### **Style – GOST Name Sort:**

**Molokovitch Anatoli, Bozhanov Pavel and Luksha Vladislav** Development Trends of The Eurasian Cargo Transport [Journal] // MEST Journal / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 53-63. doi:10.12709/mest.07.07.01.08

#### **Style – Harvard Anglia:**

Molokovitch, A., Bozhanov, P. & Luksha, V., 2019. Development Trends of The Eurasian Cargo Transport. *MEST Journal*, 15 January, 7(1), pp. 53-63.

#### **Style – ISO 690 Numerical Reference:**

*Development Trends of The Eurasian Cargo Transport. Molokovitch, Anatoli, Bozhanov, Pavel and Luksha, Vladislav.* [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, MEST Journal, Vol. 7, pp. 53-63.



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# ADJUSTING GENERAL ELECTRIC MULTIFACTOR PORTFOLIO MODEL FOR FUZZY ANALYSIS OF SBUS PERFORMANCES

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JEL Category: **C51, C53**

### **Abstract**

*Traditional General Electric Multifactor portfolio model is designed to serve as a strategic tool for analyzing strategic business units (SBUs) in diversified organizations and it can be used for optimally allocating resources among those various SBUs. Some of the limitations related to the implementation of this model refer to the difficulties in identifying and assessing critical internal and external criteria required for the matrix construction and in its inability to precisely determine the numerical value for the certain criteria. Since Fuzzy sets theory represents a strict mathematical framework for dealing with the problems of imprecision and making decisions under ambiguous conditions, the aim of this paper is to introduce an alternative approach to the quantification of the General Electric Multifactor portfolio model which includes the utilization of fuzzy logic. In that sense, specific characteristics of fuzzy triangular numbers are applied to the standardized GE/McKinsey matrix in order to extract the optimal strategy solutions and adequately handle the uncertainty and imprecision associated with the subjective assessment of Strategic Business Unit (SBU) performances based on two dimensions: industry attractiveness and internal business strength.*

**Keywords:** Portfolio analysis, GE/McKinsey matrix, Strategic Business Unit (SBU), Fuzzy triangular numbers, Fuzzy logic.

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## 1 INTRODUCTION

Managing multi-business in diversified organizations can be a source of various difficulties because each of these businesses in the organization portfolio has different growth potentials and operate in the different competitive environment. When answering the problem of allocation of time and material and human and financial resources, managers in such organizations could use some models of business portfolio analysis (Udo-Imeh, Edet & Anani, 2012).

During the previous decades, a number of portfolio models have been introduced and implemented to assist managers in decision making (Wang & Hwang, 2007). Examples of such standardized portfolio models are Boston consulting growth-share portfolio concept, General Electric/McKinsey portfolio model, Arthur D. Little strategic condition matrix and Shell directional policy matrix. However, in this paper, we focus only on the General Electric/McKinsey portfolio model jointly developed by General Electric and management consultant agency McKinsey & Co.

The General Electric/McKinsey matrix emerged as a method for evaluating the plans of General Electric different business units with the aim to fund the plans with the greatest potential for success, but it was also inspired by the need to overcome the limitations and problems associated with Boston Consulting Group (BCG) matrix model.

In comparison to the BCG matrix which includes only relative market share and market growth rates, the GE/McKinsey matrix includes a wide variety of internal and external factors. Nevertheless, some criticisms concerning the practical usage of the GE/McKinsey matrix are derived exactly from that trait, primarily because of difficulties in identifying and assessing critical internal and external factors. Generally, this portfolio model helps managers to understand the position of SBUs based on industry attractiveness and business strength. Each of these two dimensions represents a composite of various factors (i.e. industry attractiveness is a subjective assessment based on external factors that are uncontrollable by the organization while business strength is a subjective assessment based on the internal factors that are largely controllable by the organization) (Lin & Hsieh, 2004).

However, there is no standard list of critical factors to be used by all SBUs and dealing with multi-attributes may also lead to high ambiguity in measuring product or business strength and industry attractiveness (Mikkola, 2001).

Many researchers agreed that such decision-making situations characterized by ambiguity and uncertain circumstances could be viewed as a very suitable area to use fuzzy set theory. Moreover, Lin and Hsieh (2004), argued that strategic management is an especially appropriate field for the application of the fuzzy set theory because the main concepts and context of strategic management belong to the realm of uncertainty and vagueness.

Fuzzy logic as a relatively new mathematical paradigm was first presented by L. Zadeh with the aim to formalize a mathematical approach suitable to deal with complex or ill-defined systems (Pesic, Pesic & Tepavcevic, 2012).

As opposed to the conventional set theory where the object is either a member of a set or it is not a member, in fuzzy logic, there is no crisp boundary between the sets. Instead, those boundaries between sets are blurred, which implies the overlap between the fuzzy values. In other words, in the overlap region, an object at an instant time can be a partial member of each of the overlapping sets (Hayward & Davidson, 2003).

It stems that fuzzy logic rests on the assumption that all things belong to a set at a certain degree and enables us to formalize various linguistic attributes through fuzzy numbers (Malagoli, Magni & Mastroleo, 2007).

In recent years, a growing body of evidence suggests that fuzzy approaches represent an effective alternative to previous, traditional quantitative methods when overcoming real problems (Ross, 2004).

Accordingly, in this paper, we incorporated a framework based on the characteristic traits of fuzzy logic and fuzzy triangular numbers into the standardized strategic management matrix - General Electric/McKinsey multifactor portfolio matrix.

The organization of this paper is as follows: Section 2 provides a literature review for General Electric portfolio model and fuzzy portfolio methodologies. Section 3 explains the process of fuzzification of the criteria used for determining

industry attractiveness and SBUs business strength. Following this, the fuzzy model of the GE/McKinsey matrix is presented in Section 4. Finally, the concluding remarks are given in Section 5.

## 2 LITERATURE REVIEW

A literature review in portfolio management reveals that standardized matrices are still considered more popular in marketing and management practice than newer variants of portfolio matrices. However, when examined the concept of portfolio analysis Udo-Imeh, Edet and Anani (2012) concluded that traditional GE/McKinsey matrix (as well as other standardized matrices) has its own merits and demerits and indicated some weaknesses in the premises behind portfolio methods.

Similarly, Mikkola (2001) pointed out that the “popularity of traditional portfolio matrices was matched with equally outspoken criticisms”.

Since “portfolio analysis recommends a strategy for each business unit based on its position in the company’s overall portfolio of businesses according to known and accepted rules”, Pap, Bosnjak and Bosnjak (2000) considered that this could result in formulating different strategy propositions for business units placed on the opposite sides of delimiters in matrices regardless of the situation that they may be located very close to one another. Furthermore, the exact position of business or product in the matrix is not taken into account because using this approach implies determining the same strategy options for each business or product placed in the same quadrant of the matrix.

The main problem with the usage of the traditional portfolio matrices is in their inability to precisely determine the numerical value for the certain criteria. For example, the vague nature of human judgment and preferences cannot be effectively estimated with an exact numerical value.

To solve this problem, we could use linguistic assessments instead of numerical indicators. In that way, the ratings and weights of the criteria in the problem are presented through linguistic variables which are then replaced by suitable fuzzy triangular numbers used for arithmetic operations.

According to Lin and Hsieh (2004), several authors (Dong and Wong, 1987; Lee and Park, 1997; Liou and Wang, 1992) used a fuzzy weighted average for the calculation to obtain the weighted sum of the criteria that was evaluated by fuzzy numbers in terms of ratings and importance. In their interpretation of portfolio matrices, the same authors proposed an integrated framework with fuzzy weighted average and fuzzy linear programming for improving the strategic project portfolio selection. Other authors also used Fuzzy set theory to adequately handle imprecision associated with portfolio analysis. Thus, Pap et al. (2000) applied fuzzy sets with different t-norms. Ghazinoory, Zadeh, and Kheirkhah (2010) used the fuzzy methodology to extract strategies in portfolio analysis matrices.

Drawing on the literature and our previous studies we developed a specific fuzzy approach to the quantification of the traditional General Electric/McKinsey portfolio model.

## 3 FUZZIFICATION OF THE CRITERIA USED FOR DETERMINING INDUSTRY ATTRACTIVENESS AND SBUS BUSINESS STRENGTH

Standardized GE/McKinsey portfolio model includes two dimensions: industry attractiveness on the vertical axis and business strength on the horizontal axes.

Based on the analysis of the industry attractiveness and business strength, various business units are placed in a 9 cells matrix.

Methodology for assessing industry attractiveness could be described in the following way: Firstly, weights are assigned to relevant criteria. Secondly, the organization rates the attractiveness of each industry in its portfolio according to the criteria. Finally, each weighting is multiplied by the corresponding rating and then summed. Overall attractiveness of the industry is indicated by a total score. The same procedure is used to get the overall competitive position (except that, this time relevant internal factors are manipulated).

Strategic choices can be made to grow, hold or harvest SBU’s depending on their location in different cells. Prescribed strategies are shown in table 1.

Table 1. Strategic choices

Industry attractiveness	Business strength		
	Low	Medium	Strong
Low	Divest	Manage for earning	Protect and refocus
Medium	Limited expansion or harvest	Selectivity/manage for growth	Build selectively
High	Build selectively	Invest to build	Protect position

Criteria that determine industry attractiveness are signified as:  $IAC_l, l=1, \dots, k$ , and criteria that affect the business strength of the Strategic Business Units are signified as:  $BSC_j, j=1, \dots, m$ .

For every relative criterion  $C_i$ ,  $C_i \in \{IAC_l, BSC_j\}, i=1, \dots, k+m$ , the following information is obtained.

- $[C_i^{mn}, C_i^{mx}]$  - estimation of the interval which contains the value of the criterion  $C_i$
- $C_i^n \in [C_i^{mn}, C_i^{mx}]$  - most probable estimation of the criterion  $C_i$

In this way, every criterion is presented as a fuzzy triangular number  $\bar{C}_i = (C_i^{mn}, C_i^n, C_i^{mx})$ .

The membership function of the obtained fuzzy triangular numbers is defined as follows:

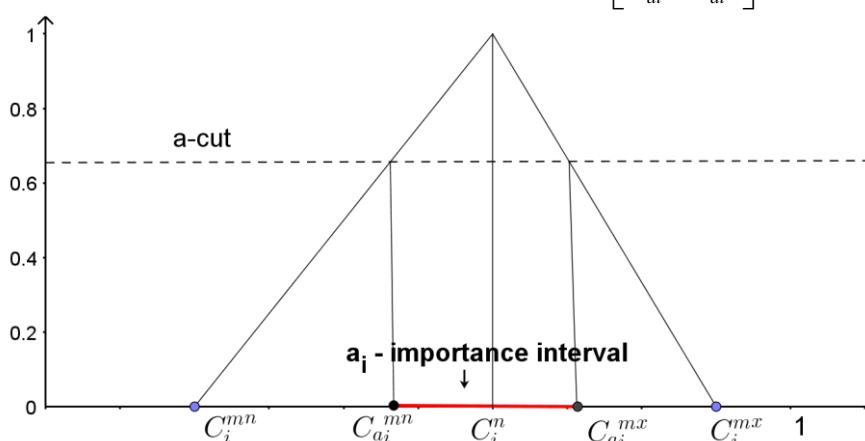


Figure 1.  $a_i$  - importance interval for the criterion  $C_i$

An estimation of the value of each relevant criterion and the level of importance involves using the interval  $[0,1]$ .

$$\bar{C}_i = \begin{cases} 0 & \text{for } C_i \leq C_i^{mn} \\ \frac{C_i - C_i^{mn}}{C_i^n - C_i^{mn}} & \text{for } C_i^{mn} < C_i \leq C_i^n \\ \frac{C_i^{mx} - C_i}{C_i^{mx} - C_i^n} & \text{for } C_i^n < C_i < C_i^{mx} \\ 0 & \text{for } C_i \geq C_i^{mx} \end{cases}$$

Furthermore, the importance weight  $a_i$  of the criterion  $C_i$  is also assessed.

Calculating the abscissas of the point of intersection of the line  $y = a_i$  and the membership function of the fuzzy triangular number  $\bar{C}_i$ , we obtain the limits of  $a_i$  - importance interval for the criterion  $C_i$ .

$$C_{a_i}^{mn} = a_i \cdot C_i^n + (1 - a_i) \cdot C_i^{mn}$$

$$C_{a_i}^{mx} = -a_i \cdot C_i^n + (1 + a_i) \cdot C_i^{mx}$$

The importance interval for the criterion  $C_i$  is denoted with  $[C_{a_i}^{mn}, C_{a_i}^{mx}]$ .

In order to get a fuzzy number for business strength, the following formula is used:

$$SBU_{BSC} = \left( \sum_{j=1}^m \frac{BSC^{mn}_j}{m}, \sum_{j=1}^m \frac{BSC^n_j}{m}, \sum_{j=1}^m \frac{BSC^{mx}_j}{m} \right)$$

Analogously, the assessment of industry attractiveness is calculated as follows:

$$SBU_{IAC} = \left( \sum_{l=1}^k \frac{IAC^{mn}_l}{k}, \sum_{l=1}^k \frac{IAC^n_l}{k}, \sum_{l=1}^k \frac{IAC^{mx}_l}{k} \right)$$

Calculated fuzzy numbers belong to the interval [0,1]

#### 4 FUZZY MODEL OF GE/MCKINSEY MATRIX

On each axis of GE/McKinsey Matrix fuzzy triangular numbers are presented. By projecting the intersection of the fuzzy triangular numbers on to the GE/McKinsey matrix, a rectangle is obtained.

Appropriate fuzzy GE/McKinsey matrix is presented in figure 2.

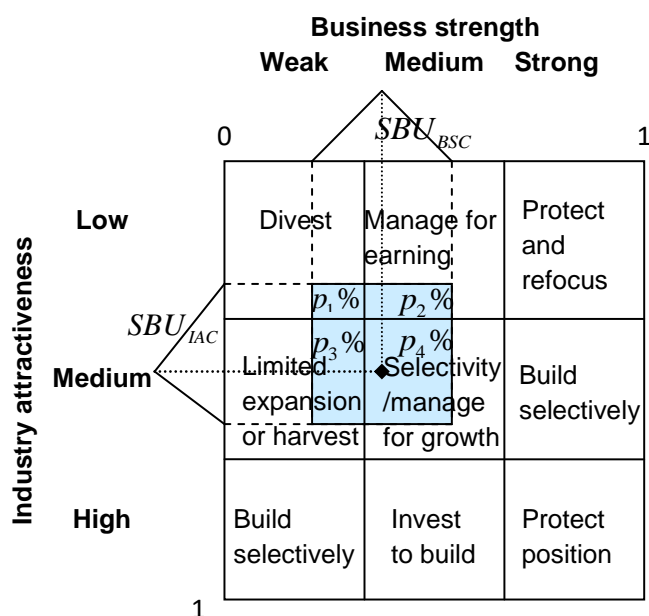


Figure2. Fuzzy GE/McKinsey matrix – Position of the Strategic Business Unit (SBU)

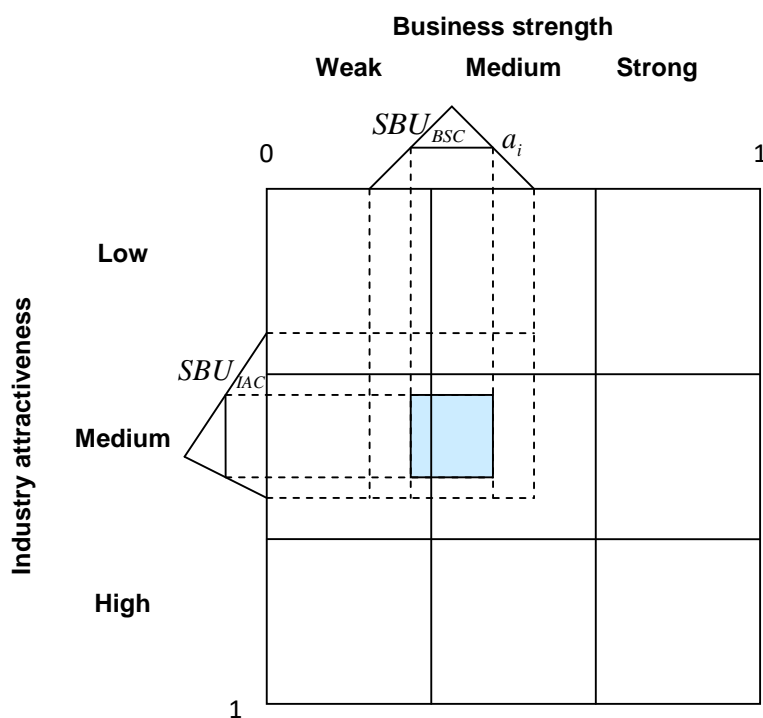


Figure3. Fuzzy GE/McKinsey matrix with  $\alpha$  -importance level for the criteria assessment

Instead of the circle which represents SBU in the case of traditional GE/McKinsey matrix, in the fuzzy model, SBUs are presented as rectangles which appertain to each of the nine matrix cells in different percentages.

To identify the relative priority of strategic zones, the percentage of the rectangle in each zone is calculated. The zone containing the maximum percentage of the rectangle determines the strategy to be adopted. For example (fig. 2), the prioritization of areas (with  $p_4\%$ ) sets out a strategy of the middle cell: Selectivity/manage for growth.

If we introduce  $a_i$ -importance level into the estimation of criteria, we can make  $a$ -cuts of the resulting fuzzy triangular numbers. The percentage of the rectangle in each zone and the size of the rectangle depending on the value of  $a_i$

The higher the importance level we wish to achieve, the smaller is the area of the rectangle and its position is readjusted, which increases the accuracy of the estimation. (fig. 3).

## 5 CONCLUSION

The General Electric/McKinsey portfolio model assists corporate managers in ensuring balanced portfolio by optimally allocating resources among manageable parts of an organization known as Strategic Business Units (SBUs) which, although have distinct strategic objectives, have to be integral to the overall performance of the organization. Thus, GE/McKinsey matrix represents a systematic way of analyzing the businesses that make up an organization portfolio (Udo-Imeh, Edet & Anani, 2012).

Since the implementation of GE/McKinsey matrix implies a subjective assessment of various criteria that comprise two dimensions of the matrix and

making strict strategic choices regarding the precise location of SBU in different cells of the matrix, some problematic decisions may arise.

With a view to overcoming this possible weakness, we suggest quantification of GE/McKinsey matrix based on fuzzy sets theory. Namely, while the crisp sets (i.e., conventional Boolean sets) establish distinctions among cases that are wholly qualitative in nature (e.g., membership versus non-membership), fuzzy sets extend crisp sets by permitting membership scores in the interval between 0 and 1, and thus allow partial membership. In that sense, fuzzy sets offer a middle path between quantitative and qualitative measurement, indicating that fuzzy sets have many of the virtues of conventional interval-scale variables, especially their ability to make fine-grained distinctions, but at the same time they permit set-theoretic operations that are outside the scope of conventional variable oriented analysis (Ragin, 2008).

Specifically, in this paper, we fuzzified the criteria used for determining market attractiveness and SBUs business strength and include estimation of the interval which contains the values of the criteria. To increase the accuracy of the estimation, we also assess the importance weight of criteria to obtain the limits of importance interval for the criteria. The basic idea behind the fuzzification is to provide an alternate way of strategy selection that is well adapted for situations in which fuzzy relations and criteria exist. In comparison with standardized GE/McKinsey matrix, in a proposed fuzzy model of the matrix SBUs are presented as rectangles which appertain to each of the nine matrix cells in different percentages. Thereby, selection of the optimal strategy is determined by the zone containing the maximum percentage of the rectangle.

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Received for publication: 16.12.2017

Revision received: 15.08.2018

Accepted for publication: 27.12.2018

#### **How to cite this article?**

##### **Style – APA Sixth Edition:**

Pesic, A., Pesic, D., & Ivkovic, S. (2019, January 15). Adjusting General Electric Multifactor Portfolio Model for Fuzzy Analysis of SBUs Performances. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 64-70. doi:10.12709/mest.07.07.01.09

##### **Style – Chicago Sixteenth Edition:**

Pesic, Aleksandar, Duska Pesic, and Slavko Ivkovic. 2019. "Adjusting General Electric Multifactor Portfolio Model for Fuzzy Analysis of SBUs Performances." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 64-70. doi:10.12709/mest.07.07.01.09.

##### **Style – GOST Name Sort:**

**Pesic Aleksandar, Pesic Duska and Ivkovic Slavko** Adjusting General Electric Multifactor Portfolio Model for Fuzzy Analysis of SBUs Performances [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 64-70. doi:10.12709/mest.07.07.01.09.

##### **Style – Harvard Anglia:**

Pesic, A., Pesic, D. & Ivkovic, S., 2019. Adjusting General Electric Multifactor Portfolio Model for Fuzzy Analysis of SBUs Performances. *MEST Journal*, 15 January, 7(1), pp. 64-70.

##### **Style – ISO 690 Numerical Reference:**

*Adjusting General Electric Multifactor Portfolio Model for Fuzzy Analysis of SBUs Performances. Pesic, Aleksandar, Pesic, Duska and Ivkovic, Slavko. [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, MEST Journal, Vol. 7, pp. 64-70.*



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# MANAGING RENEWABLE ENERGY PROJECTS INCLUDING RISK ANALYSIS

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JEL Category: **D81, Q2, Q42**

## **Abstract**

*The paper makes deep insight into project management and risk analysis of renewable energy sources (RES). This approach could be very helpful in the organizational and managerial approach for project success and investments in RES projects. The intent of the paper is to focus primarily on project management techniques for the purpose of achieving project's objectives and second on tools for risk assessment of renewable energy projects in order to define and evaluate risks so that they can be adequately mitigated to attract future investment. Particular energy sources – elevated hydropower used in small hydropower plants, and photovoltaic plants are considered in Section 3, as case studies, to identify and explore risk management approach for planning risk response during project implementation. Section 3.1 provides an overview of the major identified risks which include financial, political and operational risks, risks related to human resources and risks associated with renewable energy developments and markets. Discussion and conclusion are presented at the end of the article.*

**Keywords:** Risk management, Renewable energy, Project implementation

## **1 INTRODUCTION**

The new economy of 21 century and new project environment provoke a need for changes in the

organizational structure and management approaches, skills and tools. The new and undertaken EU policies in the framework of climate changes stimulate the electricity generation from renewable energy resources (REN21, 2017). The possibilities, number, and diversity of such projects depend on the investor's

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expected project success that will ensure a projected profit margin. Since those projects could be very specific depending on a particular energy source and that there is a lack of needed experience in their implementation, managers need to be well educated in risk management and aware of possible known and unknown risks to be planned and treated during project implementation.

Renewable energy projects are projects that include a construction of photovoltaic power system (PVS), small hydroelectric power plant (SHPP), wind power plant (WPP), biogas or biomass thermal power plant etc. Each of them, as a unique and complex project, is a special challenge for energy development and it has certain uncertainties and risks.

According to (Michelez, et al., 2011), a key challenge in obtaining financing at a reasonable cost is the ability to quantify and manage the different elements of risk (i.e. organizational, political, technical, commercial) associated with RES projects. Un-renewable energy projects have been developing methodologies for risk assessment for many years. Using the lessons learned in detail can be understood, what is transferable to RES projects.

## 2 PROJECT RISK MANAGEMENT

Project risk can be defined as:

- the cumulative effect of the chances of uncertain events that negatively affect the project objectives;
- or degree of exposure to negative events and their possible consequences (positive events) affecting the project objectives expressed through the scope, quality, costs and time.

In modern understandings and risk education, the risk is considered to be accompanied by the possibility that may arise from the estimated/predicted risk. This means, when some risk appears in the event, it can be redirected to an opportunity with a little inventiveness and prediction (REN21, 2017).

The objectives of Project Risk Management are to increase the probability and impact of positive events and decrease the probability and impact of negative events in the project.

Risk Management Process consists of five phases: planning, identification, analysis, risk response, monitoring and controlling identified risks. According to (PMI, 2010), risk management planning is defined as a decision-making process on how to approach, plan, and how to implement the risk management activities of an appropriate project. Identification is a process that consists of identifying and determining which risks can affect the confidentiality of an object and document their characteristics. Risk analysis includes a quantitative and qualitative assessment. The response to the risks is the process of developing options and defining actions for improving the opportunities and reducing the losses of the project objectives. Monitor and control risks are the processes of identifying, analyzing and planning new existing risks and monitoring the identified risks.

### 2.1 Types of Project Risk

There are several types of risks that are considered during the identification phase: Financial risk such as investment, financing, profit, etc.; Risks from a legal aspect (Legal risk) such as procedures, laws, alterations and restrictions; Natural and physical risks; Risks related to human resources, knowledge, various relationships between stakeholders; Technical risks; Security risks, etc.

Disassembled risk structure (Risk breakdown structure) is used to divide the project into components such as organizational, financial and technical aspects, external factors and project management. Usually, the financial aspects are devoted the most attention and are well designed, giving the guidelines for consistent management based on the predicted cash flow (Tonchia, 2008) (Wallnerstrom, 2009). So, the analysis of these risks can be included in the general risk package given in the commissioned work prepared by the project team.

Technical risks often reach a high level of specificity as they are affected by the equipment or characteristics of the plant that uses RES and must be well studied by experts and companies that have the specific expertise needed to quantify and accurately represent. These risks have an economic impact on the budget of the commissioned work. Technical risks can be

different and numerous and primarily relate to equipment and plants, and as such (although often with an increased risk of, for example, unproven in practice technologies) are internal risks of the companies and are controllable by the project management (Wallnerstrom, 2009).

External risk factors are caused by external conditions: market economy, politics, etc. and as such are non-controllable. These include socio-economic risks.

Known risks are those that have already been identified and analyzed and management can plan a solution and future efforts to eliminate the consequences of the errors.

The unknown risks cannot be managed proactively and as a response from the management team, might be allocating general conditionality against such risks, as well as against any known risks that may not be worthwhile or cannot develop a proactive response.

Certain individuals have their own views on the risk and courage to accept and deal with it. Attitudes about risk (or risk views) should be explicit wherever possible. Risk responses reflect the organizational balance between taking and avoiding risk. To be a successful project, the project organization must be committed to addressing risk management proactively and consistently through the process.

## 2.2 Risks in Project Life Cycle

A project life cycle is a collection of generally sequential and overlapping project phases. The number of phases is determined by:

- the management and control need of the stakeholders involved in the projects;
- the nature of the project itself;
- and its area of application.

Every project is unique because it has a definite start and a definite end, and definite scope of works. The deliverables and activities that take place in between will vary widely with the project. The project life cycle provides the basic framework for managing the specific work.

According to project size and complexity, the project manager may determine the need for more effective planning and control over certain activities and deliverables. Large and complex

projects, in particular, may require this additional level of control. In such instances, the work carried out to complete the project's objective may benefit from being formally divided into phases.

Every project is composed of 4 phases: concept, development, implementation, and completion of the project, which are specific to each project. The first two phases constitute the planning of the project, while the second two are an integral part of the implementation of the project itself (fig.1) (Wideman, 1992).

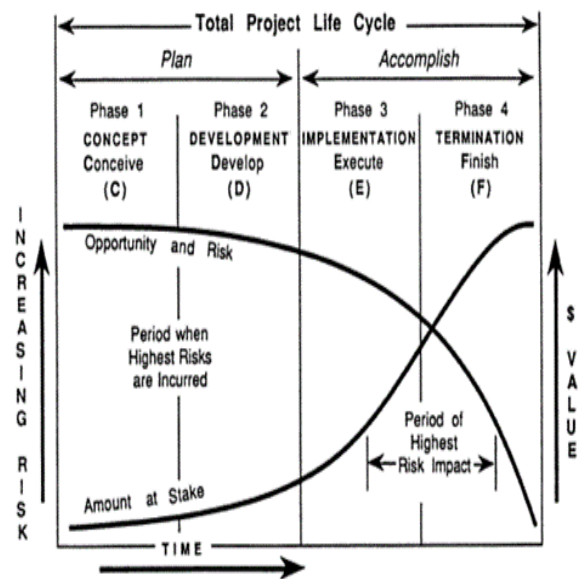


Fig.1. Total Project Life Cycle (Wideman, 1992)

It is important to note that the opportunity and risk remain relatively high during planning, but due to the relatively low level of investment in that period, the amount invested remains small. Contrary to that, during the realization of the project and the opportunity and risk gradually decrease to lower levels because the risk can already be predicted. At the same time, the amount invested is constantly increasing by investing in the necessary resources to complete the project.

This is graphically shown in fig. 1. The figure also shows that the period of highest risk impact occurs during the last two phases. At that point, unfavorable conditions can also be detected as a result of acceptance testing and putting into operation of the project. The purpose of risk management is to influence the planning of the project so that the uncertainty-risk and the amount of stake are reduced to acceptable levels throughout the life cycle of the project.

## 2.3 Techniques for identification, evaluations and risk control in RES

### 2.3.1 Risk Identification

The project manager, project team leaders, project team, risk management team if set, outside experts, customers, end users, and external risk management experts are those who can do the risk identification phase. This phase of identifying all possible risks is an iterative process that involves new detective risks by the progression of the process throughout its life cycle (Kendrick, 2003) (Rausand, 2004).

The most commonly used risk identification techniques are (Michelez, et al., 2011):

- *Brainstorming* is a method of collecting all stakeholders - experts in order to generate and classify ideas of potential project risk.
- *Interviewing experts* and asking them questions to which they give their answers.
- *Cause-effect diagrams* are diagrams that analyze the root of the risk that the strategy for control should react.

In the simplest RES projects, for risk identification most often is used brainstorming. But, if projects became more complex, in that case, is preferred to use the others two techniques. Also, the Delphi method, as a structured approach for adopting a view of a range of experts on a specific issue, is recommended and used in cases, when there is a lack of historical data.

### 2.3.2 Risk assessment

The risk assessment consists of its qualitative and quantitative valuation. The impact is determined (Impact - I), and then probability (Probability - P) for each risk.

Qualitative risk analysis is the process of prioritizing risks for further analysis by assessing and combining their probability of occurrence and impact. The execution of a qualitative risk analysis is usually a quick and cost-effective means of determining the priorities of the risk response plan and sets the basis for carrying out a quantitative risk analysis, if necessary.

Quantitative risk analysis is a process of numerically analyzing the effects of the identified risks on the overall project objectives. Through

quantitative risk analysis is expected to get some numerical results to express the probability of each risk factor and its impact on project objectives, but also the risk of the overall project level.

Risk assessment can be conducted through a management team discussion on each topic. But, if the projects are complex, the application of analysis tools is necessary. Different stakeholders will differ in their assessment of risk. These uncertainties can be combined in Monte Carlo – based simulations resulting in the production of a probability function of budget, timeline, and profitability of the project.

The decision-making process of the management will depend on the severity of the problem  $S = f(P, I)$  and the acceptability of the risks.

Table 1. *Categories of the probability of occurrence and impact of a risk event*

	Probability of occurrence	Impact
High (H)	>70%	can greatly endanger project parameters
Medium (M)	between 30 and 70%	can affect with middle size
Low (L)	<30%	relatively low impact

The most used term for risk assessment or Risk event status (RES) is:

$$\text{Risk (\$/ year)} = \text{Impact (\$)} \times \text{Frequency of occurrence (1 / year)}.$$

Table1 allows us to perform prioritization of risks in preparing the plan in response to such risks. The probability of occurrence of a certain event and the impact of each event on the design parameters can be estimated in three (or more) categories (PMI, 2010).

Based on this categorization (table 1) risks matrix is filled (fig.2). Then the margin of dealing with potential risks is determined. The risks marked with red color are those that require response and handling as they would not endanger the project and its success, according to predefined criteria.

The risk analysis is then followed by a formal corporate control procedure which places a requirement for the analysis on the project promoter and allocates responsibility for action. In practice, this can be conducted through the sequential project stages (e.g. Appraise-Select-Define-Execute-Operate) with an incremental amount of investment/risk in each subsequent phase. The management strategy for each risk normally includes: a risk management plan (e.g. specific objectives, resources, timeline, accountability and reporting indicators, and frequency) and allocation of contingency budget to the project execution through the measurement P50-P80 values in probability functions.

**Risk feedback** - At the end of a given project, the project risk plan is compared to the actual project plan and results.

Key sources of risk and risk response for RES projects are:

- Political risks (often characterized by discrete events and therefore hard to control), country credit default swaps, risk sharing schemes, and insurance are important;
- Economic risks can be managed through mechanisms such as JVs and other arrangements, including insurance, guarantees, derivatives, and risk transfer approaches;
- Social risks can be captured as part of health safety, social and environmental impact assessments and stakeholder engagement plans. Specific mitigation measures are then developed by subject matter experts into a Health, Safety, Social and Environment (HSSE) management plan.
- Technical risks can be managed through guarantees, warranties, insurance, as well as agreements or other organizational arrangements between key parties. Therefore, there is significant overlap with measures to address economic risks.

The project team also identifies a number of general opportunities to develop and refine the methodology further, to engage key players on the methodology and to capture information on key risks associated with renewable energy (ensuring critical lessons are learned).

A number of recommendations organized by the stakeholder group are:

- The public sector should encourage the further development of the methodologies to support its important role in promoting or developing key support measures.
- Developers can benefit from this systematic approach to risk management; they can also benefit from linking this approach to measures to manage project risk.
- Investors can use this methodology to promote and develop support measures.

While many of the techniques and approaches will not be new to banks and others, there is a real need for key players to speak the same language. Once this has been achieved, it is possible to have a meaningful debate on what risks to accept, avoid or transfer. Finally, the approach will allow key players to have a realistic understanding of the risks involved in renewable energy technologies and develop appropriate support measures.

At the same time the development of a structured and rigorous approach to risk assessment and management will allow parties, such as smaller project promoters to engage effectively with less likely to be overlooked; the use of probabilistic modeling allows a discussion of uncertainty – without creating a “black box” where the workings of the underlying model are not visible.

### 3 CASE STUDIES

The first phase of the research implemented in RES projects starts with project scope analyses and risk identification. This phase involves the collection of project documentation; analyses of project goals and scope of works. Risk identification starts by identifying all the potential risk associated with the project's objectives. We use a Delphi method as a most appropriate technique. Project teams, project managers, engineers and other stakeholders involved in the design and construction process, as well as external experts on risk management, have been interviewed. Their experiences in dealing with risks, and work on complex and multidisciplinary projects have been considered.

Main risks identified in the study, during the design and construction phase of a new SHPP and PV plant are presented below:

1. The lack of policy knowledge or the procedure for obtaining a construction permits (number of permits and legislation). If terms and construction conditions are clearly defined to investors in advance, to develop renewable energy projects, investors will be able to reach a final decision based on the existing conditions;
  2. Political involvement in permits obtaining;
  3. Inappropriate obligation and penalty. This kind of problems creates a dilemma for the project developers (Wing & Jin, 2015);
  4. Connection permit from the Distribution Network Operator (DNO). An additional risk associated with DNO is net metering or unfair network conditions, such as high connection fee and high standby charge;
  5. Insufficient addressing of the developer in the problems of network connection. Low connection rate and low dispatch priority further reduce the completeness of renewable energy projects. The point of connection to the transmission line and the variants of solutions too often can be so unfavorable that they can bring the RES project in question;
  6. Inadequate exploration of water potential or unrealistic data can lead to wrong technical characteristics of the equipment designed for SHPP. The amounts of energy generation from SHPP are often unpredictable and it can cause substantial risk to investors (Swider, et al., 2008);
  7. Financial risks. Project investor may face financial and practical issues, such as insufficient funding to achieve the project's targets. This kind of risk/uncertainty results in low-cost renewable energy technologies implementation (Kiteva, Gegovska-Zajkova, & Fustik, 2008);
  8. Ecological project adequacy. Lack of sense of complementary projects of SHPP with other projects (water supply, irrigation, fish farms, sawmills, mountain tourism resorts, etc.).
- which includes two broad categories: photovoltaic (PV) solar cells or concentrating solar thermal plants (CSP);
9. Risks related to human resources. The most common risks are the frequent change of project managers or their inadequate understanding of the complex issues of the SHPP, especially because of the multidisciplinary nature of such a project. Changing Project manager during project planning phase or inappropriate project planning can influence project scope of works. As a result, project time and project cost can be increased, or project quality not satisfied;
  10. Poor communication between the project participants and between the project manager and the participants (landowners, ministries, civic associations, local self-government, etc.)
  11. Supply capacity bottlenecks and price volatility for PV;
  12. Many new PV module manufacturers entrants result in uneven module quality across marketplaces (Michelez, et al., 2011);
  13. Vandalism;
  14. Operation and maintenance. For PV identified risks from historical data, are a failure of mechanical part, dirt builds up on the mirror, efficiency loss, material failure;
  15. Market risk (still in developing stages in the Republic of Macedonia).

The potential environmental impacts associated with solar power — land use and habitat loss, water use, and the use of hazardous materials in manufacturing — can vary greatly depending on the technology,

We can conclude that all the above risks depend on the investment, the distribution operator, the experience of the project manager and the impact of the hydrological and environmental aspects. Risk breakdown structure is used in the second stage, in order to organize and structure previously identified risks.

Table 2 summarize only risks with high/medium impact factor and the probability of occurrence of each individual risk.

Based on these data risks matrix is filled (Fig.2). It can be noted that only those risks that have a high and medium effect and probability of occurrence (numbered in Table 2) are distinguished. Risks colored in red have the greatest impact on the success of the project, they should be promptly reacted and given an answer to deal with them.

Table 2. Identified risks in SHPP and PVS

Identified risks	SHPP	PVS
1. Construction site properties	✓	✗
2. Political involvement and instability;	✓	✓
3. Public policy	✓	✓
4. Grid connection/ delay of a few months	✓	✓
5. New PV module manufacture	✗	✓
6. Operation and maintenance	✓	✓
7. Extreme weather conditions	✓	✓
8. Right to use the land for the construction	✓	✓
9. VAT increase	✓	✓
10. Impact on the local community	✓	✗
11. Financial risk - cost increase	✓	✓
12. Natural hazards (earthquake, flooding, and landslide)	✓	✓
13. Risks related to human resources	✓	✓
14. Access to infrastructure (road, electricity, and water)	✓	✗
15. Revenue (cash flow).	✓	✓
16. Power loss	✓	✓

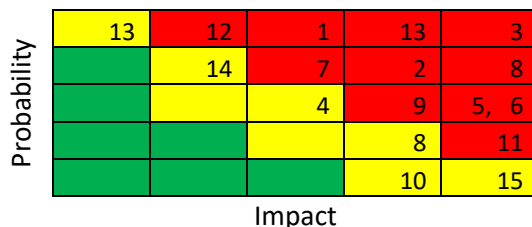


Fig.2. Risks matrix based on table 2

### Risk response, control, and monitoring

Risk handling strategies should consider the main risks evaluated in qualified risk analysis. Four different strategies are considered as risk response and control:

1. Red marked risks should avoid or eliminate in order to protect project objectives from its impact.
2. Early action in designing phase can reduce the impact and/or probability of risk.
3. The negative impact of some risks identified in RES projects can be transferred to an insurance company or
4. Accepted by establishing a contingency reserve (time, money or other resources).

The application of any of these strategies depends on the project manager's decision. This means it depends on his knowledge and experience in dealing with projects of this type.

## 4 CONCLUSIONS

Due to the complexity, the dynamics of RES project during its life cycle, from establishment to its closure, should be directed towards good communication between the project manager and the subordinates for the proper coordination of the three parameters of the project management: time, quality and costs. It should be done in order to timely complete the project and delivery with the specified quality without exceeding the planned budget.

However, based on the research, it can be concluded that most often the risks are ignored or treated in a very arbitrary way, and so many of the possibilities remain unsupervised. In current practice, management is usually not oriented/adjusted to an appropriate risk treatment. Not only for top management but for many project managers, risk management is a new work environment and as such, it is difficult to learn and manage the overall project portfolio of the company. The reason for that situation is insufficient training or lack of experience.

It should be emphasized that the application of risk management in renewable energy projects is an iterative process. This process should begin in the early phase of the project and be implemented throughout the project's economic life. For RES Projects (SHPP and PV) we recommend collecting and organizing risks, experienced in the project, into a risk database. Later, the database can be used for decision making whether a certain risk could occur and on which risks RES project could be exposed to.

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Received for publication: 09.02.2018

Revision received: 09.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

Style – **APA Sixth Edition:**

Petrova, N., Rogleva, N. K., & Fustik, V. (2019, January 15). *Managing Renewable Energy Projects Including Risk Analysis*. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 71-79. doi:10.12709/mest.07.07.01.10

Style – **Chicago Sixteenth Edition:**

Petrova, Natalija, Nevenka Kiteva Rogleva, and Vangel Fustik. 2019. "Managing Renewable Energy Projects Including Risk Analysis." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 71-79. doi:10.12709/mest.07.07.01.10.

Style – **GOST Name Sort:**

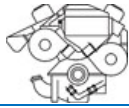
**Petrova Natalija, Rogleva Nevenka Kiteva and Fustik Vangel** Managing Renewable Energy Projects Including Risk Analysis [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 71-79. doi:10.12709/mest.07.07.01.10.

Style – **Harvard Anglia:**

Petrova, N., Rogleva, N. K. & Fustik, V., 2019. Managing Renewable Energy Projects Including Risk Analysis. *MEST Journal*, 15 January, 7(1), pp. 71-79.

Style – **ISO 690 Numerical Reference:**

*Managing Renewable Energy Projects Including Risk Analysis.* **Petrova, Natalija, Rogleva, Nevenka Kiteva and Fustik, Vangel.** [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 71-79.



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# INTEGRATED REPORTING – THE NEW DIRECTION IN THE CORPORATE REPORTING

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JEL Category: **G3**

## **Abstract**

*According to the World Commission on Environment and Development as a result of the enormous scales of poverty, the emerging ecological crisis and the alteration in the balances of the environment and the climate, humanity has entered an era of global uncertainty. The world is facing the elaborate task to encounter a manner to solve these social, environmental, economic and other problems. The alterations in a perspective impose changes in the range and the content of accountability. Each acting enterprise represents an inseparable part of the society. By accomplishing its activity it affects different stakeholders: investors, creditors, employees, customers, suppliers, regulators and the community in general. The enterprises' corporate reporting was primarily connected with the disclosure of the annual financial statements reflecting their financial status. The concern over the impact of the enterprises on the environment and the people, as well as the growing information necessity of the stakeholders, require an alteration in the conventional reporting. The enlarged volume and content of the contemporary corporate reports and the absence of a relation between the incorporated financial and non-financial information presented in separate reports determine the necessity of preparing one single integrated report.*

**Keywords:** *Corporate reporting, non-financial information, integrated reporting, capital*

## **1 INTRODUCTION**

Transport has a crucial role in the development of each country's economics. On the one hand, transport can be considered to be a fundamental element of the reproduction process. On the other hand, transport is an element of the other industries' reproduction process and by serving production, exchange and consumption, creates a connection between them and encompasses all the streams of material and labour (Jelezov, 2010)

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resources converting itself into a factor on which depends the improvement of the other economics industries.

The field of services in Bulgaria generates approximately 65% of the countries' gross (Ministry of Transport) added value whilst the "Transport, storage and mailing" sector ensures direct employment to about 136,000 people.

Roughly 65% of the proportion of goods carried in Bulgaria occupies the road freight transport. The augmentation of the road freight (passenger as well) transports volume during the last decade and the related pollution of the environment as well as

the enlargement of the number of road accidents, obstruct the achievement of one of Bulgaria's transport policy's most fundamental purposes – achieving sustainable development in transport (the goods carried from the road transport in 2016 have increased by 13.17 % to 2010).

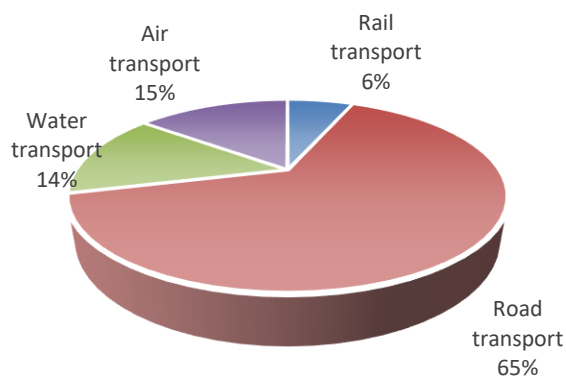


Figure 1 Relative share of road freight transport based on goods carried in thousand tonnes in 2016 (NSI, 2016)

Table 1 Goods carried – road transport in thousand tonnes during 2010 – 2016

Years	2010	2012	2014	2016
For payment	48,053	65,282	75,734	82,543
For own account in general	130,013	140,376	153,262	147,136

Source: (NSI, 2016)

All positive and negative effects with respect to the realization of freight transport by enterprises that are essential for stakeholders and society, in general, must reflect on the preparation of an integrated report.

## 2 INTEGRATED REPORTING IN THE TRANSPORT SECTOR

The financial information has always been a constructive element of a corporate accountability. Irrespective of this, the economic situation is subjected to dynamic alterations mainly due to the globalization which requires that the enterprises reacted to the stakeholders' requirements. Currently, non-financial information acquires more and more importance which is conducive to the upgrade of the corporate accountability over the

creation of financial information by composing an integrated report.

### What is the integrated reporting?

One of the definitions in the economic literature determines integrated reporting as "a process that represents outcomes (by an annual integrated report) concerning the manner enterprises create value over time and their influence from the economic, social and ecological point of view". (Busco, 2013)

As a result of the definition stated above, consequently, enterprises are to include in their corporate accountability data regarding the financial performance as well as information in three basic directions: environmental tolerance, social justice, and economic viability. These are the three pillars constructing the sustainable development's concept of the enterprises. By integrating non-financial information in the financial statement, companies accept the economic, social and environmental impact of their behavior. Stakeholders, however, receive the necessary information with respect to controlling and the making of management and investment decisions from the enterprises.

## 3 THE CAPITAL IN THE CONTEXT OF THE INTEGRATED REPORTING

From an accounting point of view, the capital is a source of every enterprise' assets formation. There are different classifications of the capital according to the point of view. For example, for the realization of their activity companies use equity (represent the invested funds by the owners) including realized profits) as well as liabilities (a capital provided by external sources). They, however, (the equity and the liabilities) possess their own constituent elements that form this classification, etc.

As per the International Integrated Reporting Framework (IIRF) the capital represents a stock of value that increases, decreases or transformations into a result of the enterprise's activity. (IIRC, 2013)

The classification of the capital accepted by the International Integrated Reporting Council (IIRC) is a little bit more different than the standard accounting concepts. The capital is considered in the context of the sustainable development and it

is classified as a financial, manufactured, human, intellectual, social and natural (table ...). As opposed to the conventional reporting's range, these types of capitals incorporate the so-called "invisible" capital.

Table 2 Types of capitals as per IIRF

Types of capitals	The essence of the capital
Financial capital	Source of means that are available for the enterprise in order to produce goods or provide services and are received by financing with equity, debt, grants.
Manufactured capital	Manufactured products in a naturally-substantial form that are available for the enterprise during the production of goods or the provision with services.
Human capital	Incorporates the human abilities and experience as well as employee's loyalty and motivation towards the improvement of the enterprise's activity.
Intellectual capital	It concerns knowledge-based intangible assets that provide a competitive advantage to the company.
Social capital	Includes values, behavior attitude, loyalty and confidence that the enterprise improves and builds with regard to providers; customers, business partners and, thus, it operates, i.e. all social attitudes that are conducive to the creation and maintenance of the company's value;
Natural capital	These represent the receipts of resources concerning the production of goods or the performance of services. It consists of all-natural resources that are of great significance to the economic efficiency and human life;

Source: (IIRC, 2013)

The resources are, practically, form part of the enterprise's capital, are used in its activities and

represent a factor for its market successes, however, they do not take part in the composition of the financial statement and are determined as "invisible" capitals. These are research costs and developments, costs of qualification and re-qualification of the employees, the enterprise's image, etc.

#### 4 INTERACTION BETWEEN DIFFERENT TYPES OF CAPITALS IN THE VALUE CREATION PROCESS. ECONOMIC VALUE ADDED

Every enterprise by executing its activities, transforms, increases or decreases different types of capitals as a result of which it creates value over time. Every company oriented towards the value creation per the shareholders creates value per the rest of the stakeholders.

- Employees – value creation for the employees with increasing the possibilities for a future development and higher incomes;
- Shareholders – an investment of a capital in the enterprise and value creation for the shareholders by guaranteeing future incomes;
- Managers – they manage the enterprise by balancing between defending the owner's interests, on the one hand, and increasing their own incomes, on the other, and by doing so, a value is created both for the enterprise and the managers;
- Investors – they increase their incomes, i.e. the companies create value for the investors by dint of the earning per share as well as the creation of conditions for the augmentation of the company's stock exchange;
- Creditors – by executing their activity the enterprise generates cash flow by which the repayment of the principal and the interests on loans are guaranteed, thereby creating value for the creditors;
- Society – by paying its own taxes the enterprise creates value for the community as a whole.

The capitals' interaction and the value creation process are fundamental concepts of the integrated reporting.

One of the methods for measuring the enterprise's created value is the index EVA (economic value

added) that is used as an evaluation of economic activity's efficiency.

The economic value added is an indicator regarding the company's residual income. By dint of EVA, the value's growth that the enterprise creates for the shareholders is measured. The index occupies a position between the profit and the value of incorporating information from the accounting statement, on the one hand, and adding the "invisible" capital, on the other.

From the integrated reporting's point of view, "the invisible" capital summarizes and represents the intellectual, human, social and natural capitals which are announced as non-financial information.

With the integrated reporting's entry in the corporate reporting, the researches regarding the connection between non-financial information and the enterprise's financial performance get deepen.

In order to explore the connection between financial and non-financial information, key indicators are to be brought out regarding the measurement of the created value over time by the enterprise based on the different capitals interactions.

To measure the financial performance, the indicator EVA should be used.

#### Equation 1

$EVA = NOPAT - WACC * Ic$   
NOPAT – net operating profit;  
WACC – the cost of capital;  
Ic – invested capital; (Kasarova, 2013)

To research the distinct types of capitals participation in the enterprise's value created, the following indicators are brought out:

#### - Human capital

*Indicator 1:* the ratio of the average number of employees for a certain period to revenue (sales);

*Indicator 2:* the ratio of the employees' costs including payments, costs of qualification and re-qualification etc. for a certain period to revenue (sales);

- **Intellectual capital** – the ratio of deployment costs of the ERP systems with respect to the expenditure on research and development activities or another intangible asset for a certain period to revenue (sales);

#### - Manufacturing capital

*Indicator 1:* the ratio of the non-current assets value with respect to the means of transport incorporated in the enterprise's activities for a certain period to revenue (sales);

*Indicator 2:* the ratio of the tkm produced for a certain period to revenue (sales);

- **Social capital** – the ratio of the average payment that the enterprise pays to its employees to average country payment per a certain period. The result is relative to revenue (sales);

- **Natural capital** – the ratio of the tax costs on the different types of cargo vehicles, however, these costs are preferential for the enterprise whose transport means fulfill to the European emission standards (EURO 3, EURO 4, EURO 5 and EURO 6, EEV) to revenue (sales).

In order to search the dependencies relations between financial and non-financial information, the following model is presented:

#### Equation 2

$EVA = f(NFI / Sales, X)$

NFI / Sales – represents the dependency between main non-financial indicators (displayed above) and the revenue for a certain period.

For comparison of EVA and the non-financial coefficients and measurement of the caused consequence, a correlation analysis should be executed that is going to be the subject of further research.

## 5 CONCLUSIONS

The more and more increasing attention regarding the corporate responsibility, requires a better corporate accountability, an increased corporate transparency, and improved disclosure. Currently, the enterprises are obliged to report their financial performance. The conventional financial reporting is considered to be insufficient and enterprises have to announce financial and non-financial information with respect to their completed activities: financial and economic, managerial, social, ethical and environmental reflecting, reflecting all stakeholders' interests.

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Received for publication: 25.01.2018

Revision received: 08.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

#### Style – **APA Sixth Edition:**

Petrova-Kirova, M. (2019, January 15). Integrated Reporting – The New Direction in The Corporate Reporting. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 80-84. doi:10.12709/mest.07.07.01.11

#### Style – **Chicago Sixteenth Edition:**

Petrova-Kirova, Magdalena. 2019. "Integrated Reporting – The New Direction in The Corporate Reporting." Edited by Zoran Čekerevac. *MEST Journal (MESTE)* 7 (1): 80-84. doi:10.12709/mest.07.07.01.11.

#### Style – **GOST Name Sort:**

**Petrova-Kirova Magdalena** Integrated Reporting – The New Direction in The Corporate Reporting [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 80-84. doi:10.12709/mest.07.07.01.11.

#### Style – **Harvard Anglia:**

Petrova-Kirova, M., 2019. Integrated Reporting – The New Direction in The Corporate Reporting. *MEST Journal*, 15 January, 7(1), pp. 80-84.

#### Style – **ISO 690 Numerical Reference:**

*Integrated Reporting – The New Direction in The Corporate Reporting*. **Petrova-Kirova, Magdalena**. [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 80-84.



# THE INFLUENCE OF ECONOMY DIGITALIZATION ON THE ACTIVITY OF OIL COMPANIES

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JEL Category: **O33**

## **Abstract**

*The oil industry in Russia and in the world is the basis of the economy, and modernizing it is of great importance in the conditions of financial resources shortage. One of the means is to increase the economic efficiency of oil enterprises performance in the digital economy environment. The process of digitalization has changed the process of doing business. The ability to handle the large bulk of information within the shortest period of time has become one of the crucial qualities that allow oil companies to be successful. The oil executives introduce digital technologies into the daily activities of the company in spite of the “special staff shortages” in this sphere. Practically at all large enterprises digitalization of the economical processes starts with analysis and reducing the office labor efforts: handling standard documents, including notices, requests, statements, reports, payments documents, declarations, contracts, i.e. the major part of the document flow and practically any work concerning the processing of information is automated. Economy digitalization complies with the program “Industry 4.0” being realized now. Its conceptual issues involve such conceptions as “cloud computing”, “Internet of things”, “big data”. A particular advantage of digitalization is an opportunity for geographically remote management teams to share their operating experience simultaneously supporting the functional competences of the teammates. The implementation of the economy digitalization requires intensive efforts and adequate management, but the value of such work will allow the oil company to foresee different scenarios of development, to put realistic goals and make appropriate plans for technological development and own scientific and technical potential to secure sustainable long-term progress.*

**Keywords:** digitalization, digital economy, economic activity, oil companies.

## **1 INTRODUCTION**

The oil industry is critical to the economy of the Russian Federation. Its influence can be hardly overestimated. First of all, oil is a basic raw material for a lot of industries including refinery

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and chemical sectors. Secondly, it is one of the key export items in the countries having oil reserves. In Russia, the oil industry together with other energy supplying industries is the basis of the whole economy. (Vasilieva, Peskova, & Ponomareva, 2017). Oil production has been the principal export revenue source. Therefore, problems in the development of the national oil industry are among the key issues of the current Russian economy. Under the circumstances where oil industry enterprises are short of financial resources to invest in the modification, upgrade and renovation of fixed capital, it is particularly topical to find out and define the ways of raising their efficiency. Stabilization and sustainability improvement of oil industry economic entities relate to the necessity of early modernizing a number of business aspects at the macro- and micro-levels. It is the purpose of this study to analyze economic complex of development of oil companies, the propriety of strategic lines in improving their present-day activities and formulation of recommendations on raising the economic efficiency of oil industry enterprises in the digital economy conditions.

## 2 ANALYSIS

The process of digitalization in Russia and overseas has changed both the everyday lives of people and business. It is impossible to work with economical processes using prior models. The most important qualities that enable oil companies to remain competitive have been flexibility, variability, ability to process the bulk of data within the shortest possible time. (Klimova, 2017) In 2017 the economy of Russia experienced a slight growth connected with the decline of the world crisis hangover in business. One of the key drivers for the development of the Russian economy was the digitalization of business in oil companies, which demonstrates their active position and openness to structural adjustments. Conventional methods of avoiding a raw-material model of economic processes in refining have been used up, now it is time to emerge from that crisis phenomenon through digitalization.

In view of acceptance and implementation in Russia of the program Digital Economy, it is planned to spend 100 billion rubles from the federal funds on industry modernization in 2018-2024. The program covers three levels of

implementation: markets and sectors of the economy; platforms and technologies forming competences and normative regulation; information infrastructure, staff, and information security.

At the conference "Petrochemistry in Russia and CIS" (April 2017, Moscow) the chief executives of the companies set the economic outlook of the industry: alongside with expansion of basic petrochemical production and laying the groundwork for development of special chemistry line, one of the utmost subjects of the conversation was staff shortages and implementation of such innovations as digitalization of economic and industrial processes (n.d., 2017). The company executives realize that the success of their business depends largely on how quickly they can cater to the needs of the market and include new digital technologies in the everyday activity of the enterprise. The adoption of digitalization is accentuated by staffing in oil companies, financing, and structure of the organizations. All the above factors are mostly internal and pertinent to the business strategy. However, it cannot be forgotten, that the role of the state in the innovative development in Russia is very important - such issues as financial support and forming an effective infrastructure cannot be carried out in the market of innovations without involvement and support of the state. The digitalization processes did not begin yesterday, banks have been involved in the "digital" industry for a long time, being engines for implementation of the payment system and various online services, that provide the dynamic development of the electronic commerce. Substantial modification and digitalization of the processes have been carried out in the work of state institutions, the portal "Gosuslugi" is a case in point. Some production enterprises use Industrial Internet Technologies.

One of the most significant trends whose scale of effect is different to imagine now is the development of cognitive technologies. Due to the cognitive technologies labor expenditures on office chores: standard paper handling including notices, requests, statements, reports, payment documents, declarations, contracts, etc., will be reduced dramatically. Thus, the main part of the document flow and virtually any job concerning information processing will be maximally automated.

In case we understand economics as a process of "production, distribution, exchange, and consumption of goods and services", all the technologies we dealt with before, only influenced

the first 2-3 links of the chain. The cognitive technologies will penetrate, interfere and cause substantial changes at all the stages including the process of consumption (see figure 1).

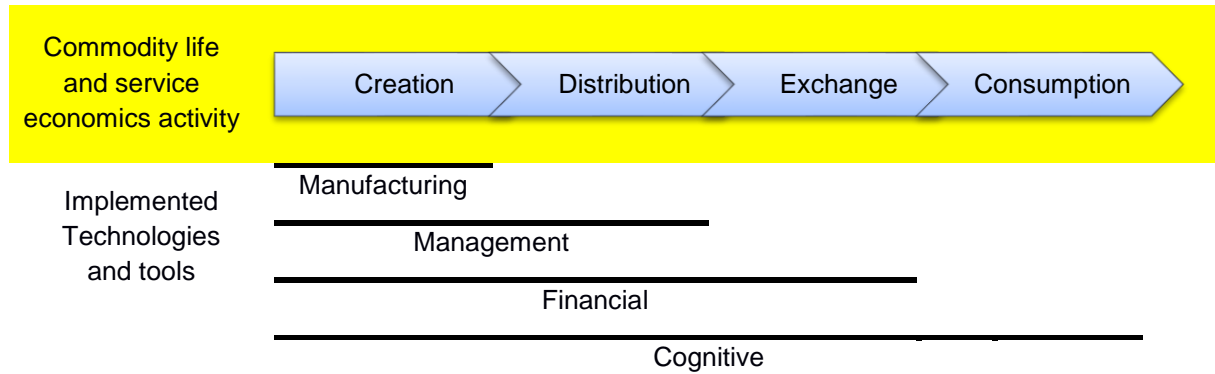


Fig. 1 Correspondence between components of economic activity and key technologies

Source: (Keshelava, et al., 2017)

The process of digitalization is considered to include several parallel processes:

1. End-to-end automation of all main economic processes in an oil company;
2. Automation of goods accounting and stores marshaling, direct data input;
3. Available reserves, supply chains, logistics, and transportation management automation;
4. Finance, budget management automation;
5. Staff management automation;
6. Customer relationship management automation;
7. Cloud office applications and cloud services for the activity of management of geographically distributed staff;
8. Cloudy communication services and virtual call-centers;
9. Accounting, tax and statistical information automation;
10. Automation of papers and data exchange with counter-parties and supervising authorities.

The technology management of Cisco are sure that the considerable increase of IT role is due to the fact that the digitalization trend interests not only IT specialists, but company executives too, and also finance and staff managers at organizations. There can be presented some examples of projects put into force by Cisco together with other companies for different production plants worldwide, and the projects related to digitalization and IT influenced particular intra-company business processes. One of the examples concerned a foreign refinery. A lot of

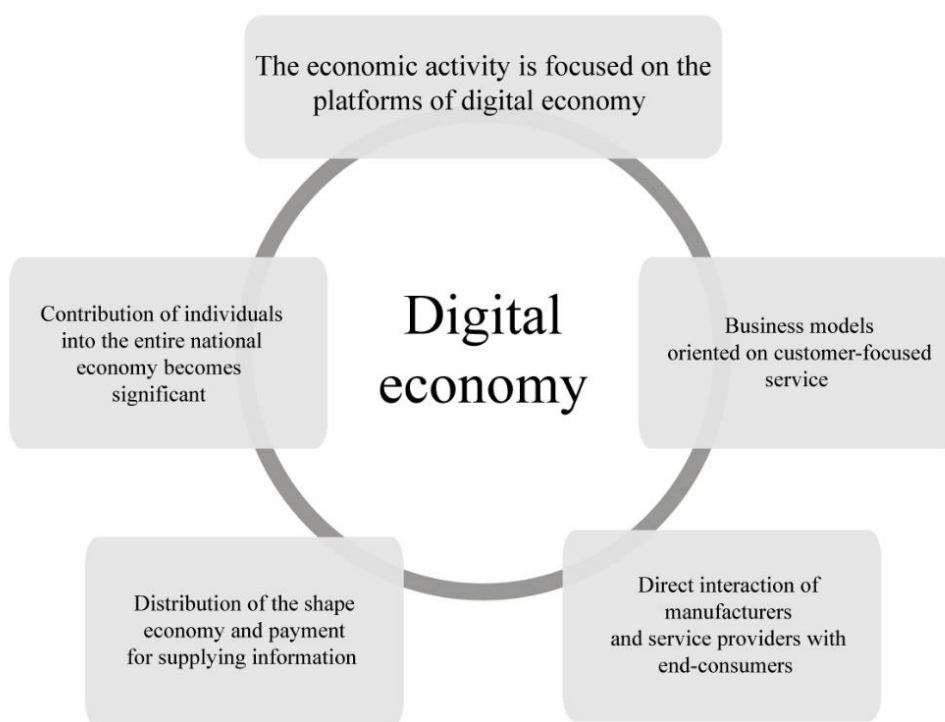
efforts were spent to persuade the management of the plant that digitalization technologies are safe as regards both information transfer from people and information transfer directly from the technological site. Having started work on the project it was found out that the human factor plays a valuable role: the operator had to walk around the units, to do statutory maintenance. The processing lines were to be removed out of service once a year or a year and a half, so the refinery produced twice as fewer oil products at this time. Not only that but the operator often shrugged off his responsibilities, the processing units were not serviced for months. When such a unit broke down, it appeared to be "repaired" just in words. That raised the task to optimize the scheduled maintenance operations. In cooperation with the companies SAP and IBM, the refinery was provided with electronic document management, which required quite a different interpretation on the part of the company officers: it was a case of using wireless technologies at a critically important facility of a country. As a result, the operating expenses were successfully reduced by 10% due to online data accessing, the expenses were cut down by 90% when new monitoring and control devices were installed, the job performance was doubled, the safety at work was significantly improved, the period of scheduled maintenance was reduced by four days (Voskanyan & Krivoshapka, 2016).

There can be no doubt that a successful business strategy is the framework of the functioning of any

enterprise, but what is more, effective strategic planning in oil companies is necessary because of the particular importance of this production sector for the world community. Strategic faults in oil companies not only cost them dearly, but they become a prelude to a variety of adverse economic, political and social processes in the society, carry a threat for the global ecological safety.

integrated management systems at the oil facility and reflect the capital gains due to more complete, reliable and up-to-date information. The key priorities are store and forward of production information by training and better techniques. It is also essential to provide an opportunity for geographically remote management teams to share their operating experience simultaneously supporting the functional competences of the team members through professional associations.

The economic aspects of the results of digitalization are connected with the use of



### Industry 4.0 and information and communication technologies

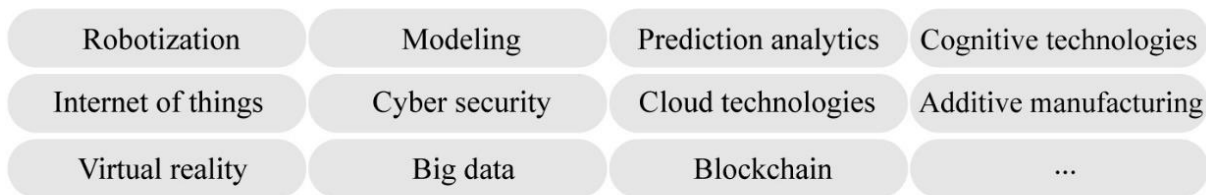


Fig. 2 Industry 4.0: and trends "of digital" economy.  
 Source: (Keshelava, et al., 2017)

The developers of digital technologies should consider a number of factors which are common with "digitalization" (Gululyan A, 2017):

- conformity of the proposals on rising in value with the strengths of the company, management requirements and implementation methods;
- generation of service proposals maximizing the product cost;
- provision of the full life cycle representation including the company's confidential information, for rapid adaptation and better decision-making;
- assurance of cost monitoring throughout the project life cycle, which makes it possible to

- improve and adjust the observed processes on-line;
- careful examination of the enterprise ecosystem.

Some of the digitalization technologies addressed can be better perceived in the context of specific studies. A common example of using digital technologies in order to improve operational efficiency in the exploration and production sector over the last 10 years is creating and using integrated operation centers. As a result, the period of monitoring was reduced by 60% on adding 240 new monitoring measures within a month. Improved making decisions eventually became possible by monitoring optimization which gave the opportunity for the operators to convert to signal to monitor with the result 75% within 24 hours, 88% with advance warning less than 48 hours, and 99% with advance warning less than 72 hours. Future development will include additional online data from the field, received via mobile devices and drones, and also connecting that process to the logistics chain in the field.

Digitalization of the economical processes well blends in with the program "Industry 4.0" being implemented nowadays (figure 2). Its basic provisions are cloud computing, Internet of things, big data. (Keshelava, et al., 2017)

Cloud computing is an IT concept meaning universal and easy network access on demand to the tool scope of configurable resources which can be provided and deallocated on-line with minimum operating costs or provider calls. Examples of resources can be data transmission networks, servers, storage devices, applications, and services both combined and individual. That is to say, cloud technologies are data processing technologies in which computer resources are supplied to an Internet user on demand as an online service. It is necessary to say that cloud technologies made an enormous contribution to the foundation of the emerging "digital" economy. This contribution is not limited by the technological component but also involves economic and ideological components. The development of cloud technologies, for example, has rung up such notions as production-on-demand, software as a service and many others that will become themes of most business models in the future and principle of most economic interactions. Internet of things is a concept unifying lots of technologies, meaning

instrumentation and Internet connection of all the tools (and things in general), which allows remote monitoring, monitoring, and control of all the processes on-line (also in automatic mode).

Big Data is a collection of approaches, tools, and methods to process structured and unstructured data (including those from different independent sources), with the purpose of obtaining human-readable outputs, Big data is characterized by considerable volume, diversity and update rate, which makes standard methods and tools of data processing rather ineffective. So, the technology of Big Data is a decision-making tool based on large qualities of data. Economic activity focuses on the platforms of the "Digital" economy. The platform of "digital" economy is digital media (a hardware-software complex) with a set of functions and services, which meet the requirements of users and producers and also provides direct interaction between them. The value of the platform is in providing a possibility of direct communication and facilitation of the interaction procedure between the participants. The platforms reduce costs and provide an additional function both for supplies and consumers. They are also supposed to provide data exchange between the people involved, which should considerably improve cooperation and promote producing innovative products and decisions. "Platform" as a business model has been existing for a long time. A classical market can be a simple example, where sellers and customers (producers and users) find each other. Nowadays there are a lot of activity growing companies based on the principles of the platform business model, the brightest being Uber and Airbnb.

Studies indicate that digital technologies have become main instruments of business struggle among companies. They are a driving factor for financial inclusion, a decrease in data processing expenditures o sales channels, an increase in customer satisfaction and expansion into new markets. Digitalization in modern-day Russia is a trend which will be increasing its capabilities in oil companies. According to the last survey of "Deloitte" (Klimova, 2017), the most popular organization structure innovation "Deloitte" implemented by companies in Russia, are remote work of the staff 38%, introduction of common user centers - 37%, and creation of project offices like

"Agile" - 26%. As for process solutions the most popular nowadays are: implementation of advanced ERP-systems (42%), complete automation of a particular business process (27%) and programs of processing big data (26%). Future belongs to the oil companies with advanced technological platforms and economic models which will be oriented towards the use of intelligent systems and robotics in business processes.

The above brief overview of using digital technologies in oil and gas business has shown that it becomes more profitable for the companies to cooperate together in the innovation area due to the increasing cost of research and development including digital economy. Russian and overseas companies form joint ventures with increasing frequency, and actively cooperate with petroleum universities and research centers in this field. In addition to that researches emphasize the

importance of digitalization and automation of industrial processes, which also drive up the productivity of human capital assets.

### 3 CONCLUSIONS

In conclusion it should be noted that drawing an innovation strategy in economy digitalization of an oil company requires intensive efforts and adequate management to carry out prediction analysis of engineering and technological level in all the in-house production parts, linked companies and world development trends in basic and exploratory research, industry scientific and technical complex, world market of research and engineering products. Conducting such work will allow the company to foresee different scenarios, put realistic goals and make appropriate plans for technological development and own scientific and technical potential to secure sustainable long-term progress.

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Received for publication: 15.01.2018

Revision received: 26.08.2018

Accepted for publication: 27.12.2018

#### **How to cite this article?**

Style – **APA Sixth Edition:**

Sharafutdinov, R., & Peskova, D. (2019, January 15). The Influence of Economy Digitalization on The Activity of Oil Companies. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 85-91. doi:10.12709/mest.07.07.01.12

Style – **Chicago Sixteenth Edition:**

Sharafutdinov, Rafael, and Dinara Peskova. 2019. "The Influence of Economy Digitalization on The Activity of Oil Companies." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 85-91. doi:10.12709/mest.07.07.01.12.

Style – **GOST Name Sort:**

**Sharafutdinov Rafael and Peskova Dinara** The Influence of Economy Digitalization on The Activity of Oil Companies [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 85-91. doi:10.12709/mest.07.07.01.12.

Style – **Harvard Anglia:**

Sharafutdinov, R. & Peskova, D., 2019. The Influence of Economy Digitalization on The Activity of Oil Companies. *MEST Journal*, 15 January, 7(1), pp. 85-91.

Style – **ISO 690 Numerical Reference:**

*The Influence of Economy Digitalization on The Activity of Oil Companies. Sharafutdinov, Rafael and Peskova, Dinara. [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, MEST Journal, Vol. 7, pp. 85-91.*



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# COMPETITIVENESS OF SMALL AND MEDIUM ENTERPRISES IN THE BRICS COUNTRIES AND SERBIA

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JEL Category: **F12, F21, M21**

## **Abstract**

*The focus of this study is on the position of BRICS countries (Brazil, Russia, India, China and South Africa) and Serbia in The Global Competitiveness Report for 2017. Constraints related to the public trust in politicians, the burden of government regulation and hiring and firing practices have caused Brazil to have the lowest rank in the examined group of countries. The highest rank has China (27<sup>th</sup> place), followed by Russia (38<sup>th</sup> place), India (40<sup>th</sup> place), South Africa (61<sup>st</sup> place), Serbia (78<sup>th</sup> place) and Brazil (80<sup>th</sup> place). Global Competitiveness Report (GCR) indicators related to the small and medium enterprises (SMEs) can be found in 6<sup>th</sup> pillar of competitiveness Goods market efficiency (effectiveness of anti-monopoly policy, no. procedures to start a business and no. days to start a business), in 7<sup>th</sup> pillar of competitiveness Labor market efficiency (cooperation in labor-employer relations, flexibility of wage determination, hiring and firing practices, pay and productivity and reliance on professional management), in 9<sup>th</sup> pillar of competitiveness Technological readiness (firm-level technology absorption) and in 11<sup>th</sup> pillar of competitiveness Business sophistication (local supplier quantity, local supplier quality, state of cluster development, production process sophistication, extent of marketing and willingness to delegate authority). China has the highest position among examined countries in terms of indicators related to the small and medium enterprises.*

**Keywords:** China, Russia, competitiveness, small and medium-sized enterprises

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## 1 INTRODUCTION

The importance of improving national competitiveness is connected with the standard of living as the basis for national prosperity (Savic, 2012). Competitiveness is the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the economy can achieve (Schwab, 2017). The World Economic Forum, which every year issues Global Competitiveness Report, uses Global Competitiveness Index (GCI) which combines 114 indicators grouped into 12 pillars: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication and innovation to estimate competitiveness of a nation (Schwab, 2017).

The GCI includes statistical data supplied by the International Monetary Fund (IMF), the World Bank and United Nations' specialized agencies, as well as indicators derived from the World Economic Forum's Executive Opinion Survey that reflect qualitative aspects of competitiveness (Schwab, 2017).

The focus of this study is on the position of BRICS countries (Brazil, Russia, India, China and South Africa) and Serbia in The Global Competitiveness Report for 2017 (Schwab, 2017).

BRICS countries have a population of about 3097.4 million inhabitants, while Serbia has a population of 7.0 million. BRICS country with the highest GDP of the US \$11218.3 billion is China, followed by India with the US \$2256.4 billion, Brazil with the US \$1798.6 billion, Russia with the US \$1280.7 billion and South Africa with GDP of US \$294.1 billion, while Serbia has a significantly lower GDP of US \$37.7 billion. Concerning the GDP per capita generated in 2016, Russia has the best result with the US \$8928.7, followed by Brazil with the US \$8726.9, China with the US \$8113.3, South Africa with the US \$5260.9 and India with the US \$1723.3. India has the lowest GDP per capita in BRICS group of countries, while South Africa has the lowest GDP and lowest number of inhabitants of 55.9 million. GDP per capita

generated in Serbia in 2016 is the US \$5376.3, which is higher than in South Africa and India (Table 1).

Table 1. Data concerning population, GDP and GDP per capita for 2016

Country	Population (million)	GDP (billion USD)	GDP per capita (USD)
Brazil	206.1	1798.6	8726.9
Russia	143.4	1280.7	8928.7
India	1309.3	2256.4	1723.3
China	1382.7	11218.3	8113.3
South Africa	55.9	294.1	5260.9
Serbia	7.0	37.7	5376.3

The table was made using (Schwab, 2017).

## 2 COMPETITIVENESS OF BRICS COUNTRIES AND SERBIA

If we examine the competitiveness of the BRICS countries and Serbia, according to The Global Competitiveness Report for 2017, we can conclude that Brazil has the lowest rank. Constraints are related to the public trust in politicians, the burden of government regulation and hiring and firing practices. There are poor indicators in the area of macroeconomic environment, goods market efficiency, labor market efficiency, institutions and health and primary education. The highest rank in this group of countries has China (27<sup>th</sup> place), followed by Russia (38<sup>th</sup> place), India (40<sup>th</sup> place), South Africa (61<sup>st</sup> place), Serbia (78<sup>th</sup> place) and Brazil (80<sup>th</sup> place) (Table 2).

The position of Brazil has elevated by 1 position. It is ranked 80<sup>th</sup>, as opposed to last year when it was in 81<sup>st</sup> position. According to The Global Competitiveness Report for 2017, the most problematic factors for doing business in Brazil are tax rates, restrictive labor regulations, corruption, inefficient government bureaucracy and inadequate supply of infrastructure. Brazil improved competitiveness position as a result of an increased capacity for innovation, a collaboration between universities and industry, a higher quality of research, and trained scientists and engineers (Schwab, 2017).

**Table 2.** BRICS countries competitiveness rank 2013-2017 according to Global Competitiveness Report (number of ranked countries is given in brackets)

Year / RC number	Brazil	Russia	India	China	South Africa	Serbia
<b>2013 (148)</b>	56	64	60	29	53	101
<b>2014 (144)</b>	57	53	71	28	56	94
<b>2015 (140)</b>	75	45	55	28	49	94
<b>2016 (138)</b>	81	43	39	28	47	90
<b>2017 (137)</b>	80	38	40	27	61	78

*The table was made using (Schwab, 2017).*

Russia is on the 38<sup>th</sup> position in the latest Report. Compared to the last year ranking, it progressed by 5 positions. The most problematic factors for doing business in Russia are corruption, tax rates, access to financing, inflation and tax regulations. Russia's economy is very dependent on mineral exports, while weak links also include the banking sector, the property rights, judicial independence, and corruption, which is still a problematic factor for doing business. Russia has increased the minimum wage and protects temporary employment, which lowered labor market flexibility by 18 places, but it may restore domestic purchasing power (Schwab, 2017).

India has regressed by 1 position compared to the last-year's report. It is in 40<sup>th</sup> position. The most problematic factors for doing business in India have been identified as corruption, access to financing, tax rates, inadequate supply of infrastructure and poor work ethic in the national labor force. India's competitiveness improves in infrastructure, higher education, and training, as well as in technological readiness, as a result of government investments in these areas. Indicators in the area of information technology are also elevated, especially Internet bandwidth per user, mobile phone and broadband subscriptions, and Internet access in schools. Competitiveness of institutions has progressed because of public spending efficiency (Schwab, 2017).

China has progressed by 1 position compared to the last year and is now in 27<sup>th</sup> position. The most problematic factors for doing business in China have been identified as access to financing, inefficient government bureaucracy, inflation, policy instability and corruption. China's largest improvement is in the area of technological

readiness because foreign direct investments have been bringing new technologies to China. Also, there has been a reduction in the number of procedures for starting a business. But, there is a decline in the area of infrastructure as the result of a decline in the quality of port infrastructure and the reliability of electricity supply (Schwab, 2017).

The position of South Africa has deteriorated for 14 positions. It is ranked 61<sup>st</sup>, as opposed to last year when it was in 47<sup>th</sup> position. According to The Global Competitiveness Report for 2017, the most problematic factors for doing business in South Africa are corruption, crime and theft, government instability, tax rates and inefficient government bureaucracy. South Africa is one of the most competitive and innovative countries in sub-Saharan Africa, although it regressed 14 positions. South Africa's economy is hit by persistently low international demand for its commodities and unemployment rate above 25 percent, while there is decreased confidence in business leaders (Schwab, 2017).

In Global Competitiveness Report for 2017, Serbia is ranked 78<sup>th</sup> among 137 ranked countries, which is for 12 places higher since last year, when 138 countries were ranked and when it was on 90<sup>th</sup> place. The most problematic factors for doing business in Serbia relate to tax rates, access to financing, inefficient government bureaucracy, corruption, and policy instability (Schwab, 2017).

### 3 GCR INDICATORS RELATED TO SMEs

Global Competitiveness Report (GCR) indicators related to the small and medium enterprises (SMEs) can be found in 6<sup>th</sup> pillar of competitiveness Goods market efficiency

(effectiveness of anti-monopoly policy, number of procedures to start a business and number of days to start a business), in 7<sup>th</sup> pillar of competitiveness Labor market efficiency (cooperation in labor-employer relations, flexibility of wage determination, hiring and firing practices, pay and productivity and reliance on professional management), in 9<sup>th</sup> pillar of competitiveness Technological readiness (firm-level technology absorption) and in 11<sup>th</sup> pillar of competitiveness Business sophistication (local supplier quantity, local supplier quality, state of cluster development, production process sophistication, extent of marketing and willingness to delegate authority).

According to the effectiveness of anti-monopoly policy, South Africa is on highest 28<sup>th</sup> position, followed by China (30<sup>th</sup> place), India (33<sup>rd</sup> place), Brazil (55<sup>th</sup> place), Russia (83<sup>rd</sup> place) and Serbia (114<sup>th</sup> place). Russia has the lowest number of procedures to start a business, it is ranked 18<sup>th</sup>, followed by Serbia (36<sup>th</sup> place), South Africa (70<sup>th</sup> place), China (104<sup>th</sup> place), Brazil (121<sup>st</sup> place), while India has the lowest rank – 131<sup>st</sup> place. Serbia has the lowest number of days to start a business and it is on 40<sup>th</sup> position, followed by Russia (59<sup>th</sup> place), India (110<sup>th</sup> place), China (116<sup>th</sup> place), South Africa (125<sup>th</sup> place) and Brazil which is on 133<sup>rd</sup> position. The best rank in cooperation in labor-employer relations has China (50<sup>th</sup> place), followed by India (56<sup>th</sup> place), Russia (90<sup>th</sup> place), Serbia (105<sup>th</sup> place), Brazil (106<sup>th</sup> place) and South Africa (137<sup>th</sup> place). Concerning flexibility of wage determination, Serbia has the highest rank and it is on 40<sup>th</sup> position. Russia is ranked 88<sup>th</sup>, China 89<sup>th</sup>, India 104<sup>th</sup>, Brazil 121<sup>st</sup> and South Africa 132<sup>nd</sup>. According to hiring and firing practices, India is ranked 19<sup>th</sup>, China 24<sup>th</sup>, Russia 46<sup>th</sup>, Serbia 80<sup>th</sup>, South Africa 125<sup>th</sup> and Brazil 136<sup>th</sup>. China has the best rank according to pay and productivity and it is in 26<sup>th</sup> place. India is ranked 33<sup>rd</sup>, Russia 57<sup>th</sup>, Serbia 68<sup>th</sup>, Brazil 89<sup>th</sup> and South Africa 99<sup>th</sup>. South Africa has the highest rank also according to indicator reliance to professional management, it is on 43<sup>rd</sup> place, followed by India (48<sup>th</sup> place), Brazil (49<sup>th</sup> place), China (53<sup>rd</sup> place), Russia (93<sup>rd</sup> place) and Serbia (128<sup>th</sup> place). Concerning firm-level technology absorption, South Africa ranks 38<sup>th</sup>, China 58<sup>th</sup>, Brazil 59<sup>th</sup>, Russia 72<sup>nd</sup>, India 73<sup>th</sup> and Serbia 117<sup>th</sup>. According to local supplier quantity Brazil is 40<sup>th</sup>, South Africa 46<sup>th</sup>, China 52<sup>nd</sup>, India 53<sup>rd</sup>,

Russia 83<sup>rd</sup> and Serbia 106<sup>th</sup>. According to local supplier quality, South Africa ranks 42<sup>nd</sup>, China 56<sup>th</sup>, Russia 66<sup>th</sup>, India 69<sup>th</sup>, Brazil 75<sup>th</sup> and Serbia 79<sup>th</sup>. According to the state of cluster development China ranks the highest, it is on 27<sup>th</sup> place, followed by South Africa (29<sup>th</sup> place), India (31<sup>st</sup> place), Brazil (41<sup>st</sup> place), Russia (88<sup>th</sup> place) and Serbia (100<sup>th</sup> place). China is ranked 39<sup>th</sup> concerning production process sophistication, followed by South Africa (40<sup>th</sup>), India (41<sup>st</sup>), Brazil (62<sup>nd</sup>), Russia (64<sup>th</sup> place) and Serbia (107<sup>th</sup>). According to extent of marketing South Africa is on 30<sup>th</sup> place, Brazil in 39<sup>th</sup> place, China on 57<sup>th</sup> place, Russia in 59<sup>th</sup> place, India on the 61<sup>st</sup> place and Serbia on 108<sup>th</sup> place. Concerning willingness to delegate authority South Africa ranks 24<sup>th</sup>, India 45<sup>th</sup>, China 47<sup>th</sup>, Brazil 50<sup>th</sup>, Russia 80<sup>th</sup> and Serbia 90<sup>th</sup> place. China had the highest position among examined BRICS countries in terms of indicators related to the small and medium enterprises and Serbia should follow the example of China in the area of SMEs initiatives (Table 3).

Brazil has enhanced electronic data interchange system and made trading across borders easier by reducing the time needed for documentary compliance for exporting and importing (World Bank Group, 2018).

The Russian Federation made it easier to transfer property, get credit and increase competition by reducing the time needed to apply for state registration of title transfer by adopting a new law that establishes a modern collateral registry, by opening a new deepwater port on the coast of the Gulf of Finland and by reducing the cost of border compliance at the Port of St. Petersburg (World Bank Group, 2018).

India made starting a business faster by improving the online application system. Also, it reduced the number of procedures and time required to obtain a building permit by implementing an online system. India strengthened access to credit by amending the rules on the priority of secured creditors outside reorganization proceedings and by adopting a new law on insolvency that provides clear grounds for relief to the automatic stay for secured creditors during reorganization proceedings. India strengthened minority investor protections by increasing the remedies available in cases of prejudicial transactions and it made paying taxes easier by requiring that payments be

made electronically and by introducing a set of administrative measures easing compliance with corporate income tax. Export and import border compliance costs were reduced by use of electronic and mobile platforms. India made resolving insolvency easier by introducing bankruptcy code that brought a reorganization procedure for corporate debtors and it has improved labor market regulation by increasing the mandatory length of paid maternity leave (World Bank Group, 2018)

China made starting a business paying taxes easier by streamlining registration procedures and introducing several measures to ease compliance (World Bank Group, 2018).

Serbia made starting a business, registering property and enforcing contracts easier by reducing the signature certification fee and increasing the efficiency of the registry, by improving reliability of its land administration

system by implementing a geographic information system and by adopting a new enforcement law that broadens and clarifies the responsibilities of enforcement agents as well as the powers of the courts during the enforcement process (World Bank Group, 2018).

To increase its competitiveness, Serbia will have to improve the enterprise environment, digital agenda and education and training as a basis for smarter growth, but the priority will be to build the institutional capacity. Also, room for improvement is in the area of labor-employer relations and a high youth unemployment rate (Schwab, 2014). Youth and women in Serbia face obstacles to start and run their own small and medium enterprises, because of poor access to finance and lack of institutional support needed to achieve their full potential (Todorovic, Komazec, Jevtic, Obradovic, & Maric, 2012).

Table 3: GCR Indicators related to SMEs

GCR Indicators	Brazil	Russia	India	China	South Africa	Serbia
Effectiveness of anti-monopoly policy	55	83	33	30	28	114
No. of procedures to start a business	121	18	131	104	70	36
Time to start a business	133	59	110	116	125	40
Cooperation in labor-employer relations	106	90	56	50	137	105
Flexibility of wage determination	121	88	104	89	132	40
Hiring and firing practices	136	46	19	24	125	80
Pay and productivity	89	57	33	26	99	68
Reliance on professional management	49	93	48	53	43	128
Firm-level technology absorption	59	72	73	58	38	117
Local supplier quantity	40	83	53	52	46	106
Local supplier quality	75	66	69	56	42	79
State of cluster development	41	88	31	27	29	100
Production process sophistication	62	64	41	39	40	107
Extent of marketing	39	59	61	57	30	108
Willingness to delegate authority	50	80	45	47	24	90
Mean value	78	70	60	55	67	88

Table was made using (Schwab, 2017)

## 4 CONCLUSIONS

In the Global Competitiveness Report for 2017, the highest rank has China (27<sup>th</sup> place), followed by Russia (38<sup>th</sup> place), India (40<sup>th</sup> place), South Africa (61<sup>st</sup> place), Serbia (78<sup>th</sup> place) and Brazil (80<sup>th</sup> place). China's improvements are in technological readiness since foreign direct investments have been bringing new technologies to China, while China also

reduced the number of procedures for starting a business. The decline is noticeable in the area of infrastructure as the result of a decline in the quality of port infrastructure and the reliability of electricity supply. Highest position among examined BRICS countries and Serbia in terms of indicators related to the small and medium enterprises has China, as a result of cluster development, hiring and firing practices and pay and productivity.

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Received for publication: 03.02.2018

Revision received: 03.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

Style – **APA Sixth Edition:**

Skunca, D., Bogavac, M., & Rudic, D. (2019, January 15). Competitiveness of Small and Medium Enterprises in the Brics Countries and Serbia. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 92-98. doi:10.12709/mest.07.07.01.13

Style – **Chicago Sixteenth Edition:**

Skunca, Dubravka, Milanka Bogavac, and Danilo Rudic. 2019. "Competitiveness of Small and Medium Enterprises in the Brics Countries and Serbia." Edited by Zoran Čekerevac. *MEST Journal (MESTE)* 7 (1): 92-98. doi:10.12709/mest.07.07.01.13.

Style – **GOST Name Sort:**

**Skunca Dubravka, Bogavac Milanka and Rudic Danilo** Competitiveness of Small and Medium Enterprises in the Brics Countries and Serbia [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 92-98. doi:10.12709/mest.07.07.01.13.

Style – **Harvard Anglia:**

Skunca, D., Bogavac, M. & Rudic, D., 2019. Competitiveness of Small and Medium Enterprises in the Brics Countries and Serbia. *MEST Journal*, 15 January, 7(1), pp. 92-98.

Style – **ISO 690 Numerical Reference:**

*Competitiveness of Small and Medium Enterprises in the Brics Countries and Serbia.* **Skunca, Dubravka, Bogavac, Milanka and Rudic, Danilo.** [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 92-98.



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# CORPORATE TAX INCENTIVES IN TRANSITORY ECONOMIES: CASE OF THE REPUBLIC OF SERBIA AND REPUBLIC OF MACEDONIA

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JEL category: **K34, K42, L21**

## **Abstract**

*Tax incentives are one often used tool by low-income countries for attracting capital and money into their economies. Usually, formerly closed economies during their transition to open-market economies use different forms of tax and other types of incentives to attract foreign companies and their capital to be placed into these economies. The case of the former Yugoslav republics, Serbia and Macedonia, is an interesting example of incentives established with the aim to reconstruct and rebuild industry and infrastructure, to get better welfare, etc. Of the various incentives in the pool, tax incentives are used the most. The authors of the article analyze the policy of corporate tax incentives in the Republic of Serbia and Republic of Macedonia since 2000, which have been changing in forms and scope as a consequence of the Serbian/Macedonian tax system's reform. The authors stressed differences between the two countries, which are mostly influenced by the negotiation process with European Union and the need to harmonize national legislation with European Union rules: in Serbia tax incentives in the sphere of corporate taxation were very generous at the beginning of the period; the similar situation was in Macedonia. However, after the negotiation process between the European Union and Macedonia was "frozen" in 2005 and the negotiation and accession process with Serbia has been opened, the situations in these countries have become different: the tax incentives' policy in Macedonia stayed generous comparing with Serbia which had to be narrowed because of the European Union pressure (to avoid being accused of harmful tax competition).*

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**Keywords:** transition; Serbia; Macedonia; tax reform; tax incentives; corporate income tax.



## 1 INTRODUCTION: TAX INCENTIVES IN TRANSITORY ECONOMIES

Although tax incentives as measures to attract Foreign Direct Investments (FDIs) are narrow measures (Nikolov & Bogov, 2003) and highly criticised by tax experts (Easson 2004) they are often used in developing countries and transitory economies to attract capital and increase economic activity. The tax incentives' policy of transitory economies has different characteristics than the policy applied by developing countries, which is a consequence of the difference in social and economic conditions, geographical and political environment, culture, heritage, etc. and the gravity of the European Union (EU), the accession road to the EU, and the potential of the EU transformative power. These EU related factors have probably the most important influence over transitory economies. These economies are *per definitionem* economies undergoing the transition from planned to efficient market economies. Most of them are in South-East Europe (SEE) as countries born after the breakup of large socialist countries (Czechoslovakia, FR Yugoslavia (FRYU)) or just after the breakup of the socialist regime in unitary countries (Hungary, Poland, etc.). In conjunction with a closed economy, socialism almost completely ruined free economic activity in these countries: infrastructure was in poor condition, production was at a very low level, the high level of unemployment related to low living standards caused corruption and degradation of the institutions and legal order. (Nikolov, 2004). After the demise of socialism, the new/old countries found themselves in a peculiar situation – they were in desperate need of capital, had depreciated infrastructure, and needed to reconstruct the whole economy. The geographical location of these countries (in Europe) placed additional pressure on the newly born economies – the EU's transformative power and the majority support from citizens to become a part of the developed community influenced SEE countries to introduce different forms of incentives to attract foreign investors and foster economic growth. Having in mind that a tax burden often has a decisive influence on investment decisions, transitory economies took the approach of

establishing a generous policy of tax incentives for FDIs. However, the accession and negotiation process with the EU has changed the chosen approach. One may separate the policy of tax incentives in SEE countries into three phases: (1) phase after the breakup of the socialist regime, but before the implementation of the Stabilisation and Association Agreement (SAA); (2) phase when the SAA went into force and began to be implemented (during the negotiation process); and (3) phase when the country received EU membership. Countries that have already entered the EU (Slovakia, the Czech Republic, Hungary, Slovenia, Poland, Croatia, etc.) have passed the first two phases and are currently in the third phase.

The situation of the Western Balkan countries – former FRYU republics – has specificities that separate them from other transitory economies: the collapse of the FRYU, the UN blockade, and the civil war in the 1990s strongly hit those economies and slowed or almost completely stopped their transition and initiated reforms. As the countries that are still outside of the EU, the Republic of Serbia and the Republic of Macedonia are in different positions. The negotiation process with Serbia is currently ongoing, while the Republic of Macedonia has been in the pre-accession stage since 2005; its process has been “frozen” because Greece has complaints concerning the name of this former YU republic. As nationals and citizens of Serbia and the Republic of Macedonia, the authors of this paper analyze the policy of tax incentives in their own countries from the aspect of the abovementioned phases, comparing the taken approach and view of the future path.

The first part of the paper deals with the policy of granting tax incentives in Serbia, taking into account the phase before the opening of the negotiation on accession with the EU and the current phase – after beginning the implementation of the SAA and opening negotiation. The second part of the paper represents an overview and analysis of the tax incentives' policy in the Republic of Macedonia. In the third part, we illustrate and summarize FDI and state aid experience for Serbia and Macedonia, and finally, we present our conclusions.

## 2 SERBIA

The breakout of civil war in Bosnia and Herzegovina and the introduction of economic sanctions for Yugoslavia in 1992 by the United Nations slowed and almost stopped the process of fiscal and tax reform that started simultaneously in Serbia and Montenegro. (Stojanović, 2002) This was a very difficult period for both republics, but as the authors of this paper are focused on Serbia (without Montenegro), only the situation and related consequences of this country are taken into consideration. Although tax reform was slowed down, certain changes were made in 1995 in the sphere of corporate taxation (which is of major importance for FDIs). (Stojanović, 2002) However, these were paradoxical changes that canceled all undertaken reformatory steps and returned the whole Serbian tax system to what it was in the period before 1992. The situation in the 1990s was bad for the whole country and consequently for the tax system; investors circumvented Serbia as well as other former Yugoslav republics as unpopular destinations for the investment of capital. The curse was broken after the fall of the political regime that marked the 1990s. Political changes in October 2000 brought on a positive change in how other countries viewed Serbia, which resulted in the granting of funds for conducting reforms in different sectors. Again, Serbia found itself on the transition road trying to repair the damage of “lost time” and stopped reforms.

### 2.1 Tax incentives as part of tax reform (the period from 2001 to 2013)

“New” fiscal and tax reform started in 2001<sup>1</sup>. (Popović, 2001) All tax forms were reformed, although the process of reform is still ongoing. The undertaken changes brought these forms closer to the forms that exist in open market economies. Taking into consideration that foreign capital and investors mostly pay attention to the corporate tax

burden (because the owners of the biggest capital are multinational corporations), for them the most important changes were those made in the sphere of corporate taxation. The law prescribed significant tax incentives as the measures that would encourage the arrival of “fresh” capital into the Serbian economy. The list of tax incentives consisted of three general forms: (1) accelerated depreciation, (2) tax exemptions, and (3) tax credits. Accelerated depreciation of fixed assets shortened the period of the productive use for purposes such as environmental protection, research, education and training, and computer equipment. Although accelerated depreciation was used a lot by all companies, the two other forms (tax holidays and tax credits) had greater importance for foreign investors. Tax exemptions were granted in several situations:

- to a non-profit organization that declares income up to a certain (prescribed) number of RSD higher than its expenditures in the year for which the right to exemption is granted, under the conditions prescribed by the law;
- in the case of concession-related investment, the concession-receiving enterprise or concessionaire owning an enterprise registered for engagement in concession-related activities is exempted from tax on the profit earned on the basis of the income stemming from the subject matter of concession up to five years from the contracted date of completion of the concession-related investment;
- an enterprise engaged in vocational training, professional rehabilitation, and employment of disabled persons is exempted from the payment of the corporate profit tax, in proportion to the share of such persons in the total number of its employees.

As with tax exemptions, legislators prescribed a list of situations when tax credits could be granted. According to the law, a taxpayer is entitled to a tax credit in the following situations:

<sup>1</sup> It was a continuation of the reform started in 1992, interrupted during the period of civil war and economic sanctions introduced by the UN. Having in mind that political and other conditions in Serbia had been changed in the meantime, fiscal reform initiated in 2001

was not only a return to the goals and tasks established in 1992, it also added new tasks for the Serbian government and, accordingly, for the Ministry of Finance. During the spring of 2001, completely new tax laws were adopted, which was the first step of the comprehensive tax reform in Serbia.

- a taxpayer who has generated profit in a newly established operating unit in an underdeveloped region (defined in accordance with the regulations dealing with regional development or identifying underdeveloped regions) is entitled to a corporate profit tax reduction in a period of two years, in proportion to the share of such profit in the total corporate profit;
  - a taxpayer who invests in his or her own fixed assets serving for the conduct of his or her registered business is entitled to the reduction of the tax calculated for the year when the investment was made (tax is to be reduced by up to 10% of the investment);
  - a taxpayer who employs new workers for an undetermined period is granted a reduction of the calculated tax equal to the amount of 40% of gross salaries paid to those workers plus public revenues paid by the employer; the reduction is granted for a period of two years starting the day of employment if other prescribed requirements are satisfied;
  - a special form of the tax credit was prescribed for small enterprises, which were entitled to tax credit from 40% of the investment in fixed assets, which may be up to 70% of the tax calculated for the year when the taxpayer made the investment.
- “big” and “small” tax allowances. At the time when these incentives were introduced, the required amounts entitling a taxpayer to a tax allowance were 600 million RSD and 6 million RSD. (Stojanović, 2010)
- In the first case, a taxpayer was granted a tax allowance for a duration of ten years starting the year when the first profit was earned. The allowance comprised freedom of tax payment in proportion to the amount invested in fixed assets. The prescribed number of new workers that had to be employed for an indefinite period was 100, and the investment needed to be made in assets used for businesses registered in Serbia, etc.
  - The second form of investment incentive comprised an amount of 6 million RSD invested in fixed assets used in business conducted in an underdeveloped region (at least 80% of these assets needed to be used in this region) in conjunction with employment of at least five new permanent workers who are permanent or temporary residents of the concerned underdeveloped region (at least 80% of permanent employees). The allowance in the proportion of the invested sum could be granted for a period of five years starting the year when the first profit was earned.

Up until 2013, when the SAA signed between the EU and Serbia went into force, the prescribed forms of tax incentives had been changing in the direction of enlargement and growth. Serbian legislators canceled some of them (e.g. tax credit for small enterprises), enlarged others, but also introduced completely new incentives. Certainly, the most significant change during this period was the establishment of tax incentives exclusively for the purpose of attracting investors. Legislators introduced new incentives that were granted if prescribed conditions had been fulfilled. Actually, these incentives had a form of tax holidays granted for a certain period (five or 10 years) depending on: the sum invested into fixed assets; employment of a determined number of new workers; if the investment had been made in assets located in an underdeveloped region (or region of special interest for the Republic of Serbia); etc. There were two types of investment incentives: an incentive for “big” investment and incentive for “small” investment and, accordingly,

The amount of the investment needed to be granted one of the above tax allowances had been changing: instead of 600 million RSD, the law prescribed an amount of 800 million RSD, and instead of 6 million RSD, the new prescribed amount was 8 million RSD. The same year when the amounts were raised, the incentive in the form of accelerated appreciation was canceled, and the tax exemption for non-profit organizations comprised a higher amount of the declared income (instead of 300,000 RSD, the new requirement was 400,000 RSD). However, lifting the required treasury was not a consequence of the sharpening conditions that investors should fulfill; it was a consequence of inflation. The same is the case with the establishment of “big” and “small” investment incentives – in the view of the authors of this paper, the main reason that influenced the Serbian Government and legislators to introduce two types of tax holidays exclusively for investors was the desperate need

for funds to recover ruined infrastructure and revive the almost “lifeless” industry. However, funds were cut off in the whole world, which was strongly hit by the global economic and financial crisis. During 2007 and 2008, several financial scandals broke out in the United States (US) and almost destroyed the banking and stock exchange markets. From the US, the crisis rapidly spread out to other developed economies around the world and, consequently, to other developing and transitory economies. It is interesting to note that the global crisis hit Serbia and Macedonia not through the financial channel, but through the trade channel. Since Germany and Austria are the biggest trade partners of Serbia and Macedonia, and both countries were faced with a shortage of demand for their goods and a shortage of funds, the Serbian Government decided to design a new set of tax incentives with the aim to attract investors and “fresh” capital.

Probably with the same intention, Serbia lowered the statutory tax rate from the initial 20% (in 2001) to 15%, and afterward to 10%. Although the low statutory tax rate is not tax incentive in the real sense of the word, its existence may be a good “signal” to investors when making a choice on investment location. (Stojanović, 2017) Actually, instead of a low statutory tax rate, investors “look” for an effective tax rate, which shows the real tax burden; it could happen that in conjunction with tax allowances, a higher statutory tax rate results in a lower effective tax burden of investment when comparing to a situation in which the statutory rate is low, but tax allowances do not exist or are narrow.

In this period, the network of Double Taxation Treaties (DTTs) inherited from the former FRYU numbered around 50 DTTs. The rates established for withholding tax on passive business incomes (dividends, royalties, and interest) were very beneficial in DTTs signed with countries such as Germany, Norway, Sweden, China, the Netherlands, etc. (Stojanović 2016) which invest a lot in Serbia and where many Serbian nationals are working temporarily.

The Law on foreign investments adopted in 2002 was asymmetric in its treatment of domestic *versus* foreign investors. Namely, according to the rules of this act, only foreign investors were entitled to prescribed allowances, whose lists

were more than generous. In 2006, the Regulation on conditions and method to attract direct investments was adopted. The Serbian Government had the intention to attract significant capital into the Serbian economy to remove and improve production, increase the employment rate, equalize territorial development, and transfer new knowledge and technologies. According to the Regulation, the special incentives were prescribed for investments in the car industry, electronic industry, and the IT industry. It is interesting that in this act, the Government prescribed a norm according to which special funds for attracting direct investments are provided in the national budget. An amount between 2,000 EUR and 10,000 EUR was granted to investors depending on the type of investment and its effects. Furthermore, funds were provided for investments of “special importance for the Republic of Serbia”, when an investor could be granted funds without the obligation to return them.

As is the case when one country grants generous incentives for investments, instead of attracting significant capital that would improve economic growth and living standards, the Serbian Government was faced with adverse effects – high budget expenditures without satisfactory results. Bad experience together with conditions prescribed in the SAA influenced the Serbian Government to change the policy of granting tax and other incentives for investments.

## 2.2 Influence of the SAA and negotiation with the EU

After the SAA went into force and the date of opening the negotiation on accession was approaching, the Serbian Government was under pressure to be more accurate in harmonizing Serbian legislation with EU standards and *acquis communautaire*. Further pressure was coming from the Code of conduct for business taxation (here and after Code of conduct) adopted in 1997 and the political statement of EU member states to undertake measures against harmful tax competition and to refrain from introducing any measure that would harm fair tax competition in the Internal Market. Before the Code of conduct was adopted, a group of experts made a *Ruding report* identifying certain measures as potentially

harmful (the existence of tax incentives and a low statutory and effective corporate tax rate were on the list). (Commission of the European Communities, 1992) Signing the SAA, Serbia obliged itself to commit to the rules of the Code of Conduct and to cancel all the measures that potentially create harmful tax competition. The first step undertaken by the Serbian Government in the sphere of corporate taxation was lifting the statutory tax rate – instead of 10%, in 2013 the rate was lifted to 15%. Furthermore, numbered forms of tax incentives were canceled. From 2013 to the present day, tax measures aiming to attract investors comprise the following tax incentives prescribed in the Corporate Income Tax Law:

- Tax exemptions for:
  - a non-profit organization that declares income up to a certain (prescribed) amount of RSD, which is higher than its expenditures in the year for which the right to exemption is granted, under the conditions prescribed in the Law;
  - an enterprise engaged in vocational training, professional rehabilitation, and employment of disabled persons is exempted from the payment of the corporate profit tax, in proportion to the share of such persons in the total number of its employees.
- Investment incentive in the form of “big” allowance: under the current solution, the prescribed amount that entitles taxpayers to a tax allowance is one billion RSD (approximately 8 million EUR).

In addition to corporate taxation, incentives prescribed in the Law on foreign investments had also been changed. In 2015, this Law was replaced with the Law on investments. For the first time, foreign and domestic investors were on equal footing, which has been explained as non-discrimination in the treatment of capital regardless of its origin. (Stojanović, 2017) Also, under this Law, the Serbian Government introduced state aid as a subsidy given from the national budget to support investment in the Serbian economy. Taking into consideration that this measure could have harmful effects, the prescribed rules follow EU standards (as stated in articles 107 to 109 of the Treaty on the functioning of the European Union) and have been

harmonized with those applied by EU member states with the aim to not disturb the functioning of the Internal Market. The rules prescribed in the Law on investments are, actually, a reflection of the rules established under the Law on State Aid Control, which was adopted in 2009, and related regulations. In addition to state aid, further incentives for investments into the Serbian economy prescribed under the Law on Investments are the following:

- Tax incentives and allowances, as well as exemption from fees;
- Customs incentives (e.g. exemption from customs duties);
- Incentives within the compulsory social security system.

A significant incentive for investments in the Serbian economy is represented by the existence of economic zones. Within the area of such zones, investors (companies and entrepreneurs) are entitled to various benefits: exemption from the Value Added Tax (VAT); customs duties and other charges on the import of goods for production in the zones; no taxes or other charges for the exchange between producers in the same zone or between producers in two zones in Serbia; no VAT on energy consumption for production activities in the zones; free circulation of capital profit, and dividends; efficient administration (one-stop-shop); etc. Currently, 14 economic zones are active in Serbia, which positively influences decisions to invest in Serbian economy and to start operating business within the territory of an economic zone or in some other part of Serbia.

Other significant benefits prescribed in the Corporate Income Tax Law are the following:

- Possibility to carry over losses (the allowed period is five years);
- Withholding the tax rate of 20% for the payment of the determined forms of (passive) income from a Serbian resident to a non-resident (in case of payment, the withholding tax rate is 25% for incomes to residents of the jurisdictions that are “blacklisted” by the Serbian Ministry of Finance);
- Possibility to pay tax under tax consolidation approved for a group of companies-residents of the Republic of Serbia for a period of five years (under prescribed conditions).

In combination with the aforementioned benefits, the network of 58 DTTs makes Serbia highly competitive in relation to surrounding countries. Surely, when comparing to other former Yugoslav republics such as Croatia (which is already in the EU) and Montenegro (which is also in the process of negotiation for EU membership), Serbia is in a worse position because it has no direct access to the sea (Adriatic Sea) as an alternative transport route. However, Europe's biggest river, the Danube, flows through Serbia, which is very important for shipping transport and access to the Black Sea.

At the end, we should stress payroll incentives prescribed in the Personal Income Tax Law (although this is not the last tax incentive within the Serbian tax system). Payroll tax incentives are granted to employers who hire new workers or disabled persons; depending on the number of hired new workers, the employer is entitled to a refund of a certain percent of the paid taxes: up to nine new workers – 65% of the paid taxes; up to 99 new workers – 70%; more than 100 new workers – 75%. In the case of employment of disabled persons, the employer is exempted from the payment of taxes for a period of three years as of the date of employment. The most important condition for the approval of the tax relief under the Personal Income Tax Law is the non-use of any other tax relief prescribed under other Serbian laws.

### 3 MACEDONIA

As already mentioned in the introduction, one may separate the tax incentives' policy in Macedonia into two phases: (1) phase after the breakdown of the socialist regime and signing of the SAA in 2001 until the granting of the pre-accession status in 2005; (2) phase when the new fiscal paradigm came to power in 2006 with the flat tax regime and the introduction of the various incentives in the Corporate and Personal Income Tax laws.

#### 3.1 Transition, signing of the SAA and getting the status of a candidate country for EU membership

The real transition process began after the breakup of the FR Yugoslavia when Macedonia became an independent state. The most

important sphere influenced by the transition and breakdown of the command economy was the sphere of enterprise organization. In 1993, the Macedonian privatization process adopted the Law on the Transformation of Enterprises with Social Capital. However, the tax system had not been so radically changed. Only the introduction of the VAT (which replaced the sales tax) in April 2000 can be considered as a radical change. In the sphere of corporate income tax, the first changes were made after Macedonia became a candidate country for EU accession (December 2005). In 2006, the flat tax regime was introduced in the Corporate Income Tax Law, as well as in the Personal Income Tax Law. Other changes, such as regulations on State Aid control occurred after the European Commission gave its recommendation to the Council, for the first time, for initiating accession negotiations in 2009.

#### 3.2 Start of the flat tax regime and introduction of other corporate income tax incentives

The Government of Macedonia introduced a number of supply-side policy measures at the end of 2006 aiming to reduce the tax burden and improve the business environment. The main pillars of the tax system reform were the elimination of the progressive personal income tax system, the reduction and unification of the statutory rates for the personal income and corporate taxes, and the introduction of the zero tax rate on reinvested profits. The so-called *flat tax* refers to personal income and corporate profits being taxed at one marginal rate (12% in 2007 and 10% in 2008 onwards). Additionally, the Government of Macedonia introduced a 1.5% tax on the gross annual income of micro businesses. (Stojkov, Nikolov & Smilevski, 2008) From the very beginning, it was widely campaigned through the media as a part of the election platform for the governing party at that time. After the parliamentary elections in 2006, foreign investors also became an important segment of the target group. The IMF and a number of independent experts also welcomed such policy.

What were the main driving forces behind tax reform in Macedonia? Desperate for foreign direct investment inflows, burdened with high unemployment, and willing to provide the impetus

for vigorous restructuring, the Government of Macedonia decided to design a competitive tax system. Positive experiences from other countries (Estonia, Lithuania, Latvia, Russia, and Slovakia) that had already introduced the flat tax system gave strong justifications for the tax reforms. (Stojkov, Nikolov, & Smilevski, 2008)

At that time the greatest benefit from the flat rate system was the introduction of tax simplicity, replacing the complexity of tax calculations that taxpayers have to go through, which is also supported by survey results. Cutting the tax rates and broadening the tax base hindered the incentives for tax evasion. In return, the fiscal discipline of taxpayers increased as seen by the improved collection of taxes, which makes the flat tax system more efficient. With respect to the level of the tax rate, it seemed unavoidable to envisage a lower tax rate as part of the new tax reform proposals, given the fierce tax competition in the region.

Within the corporate income tax, the most important incentives prescribed under the Corporate Income Tax Law are the following:

- right to be granted a reduction of the tax base for the reinvested profit for development purposes;
- tax holiday (exemption from the corporate income tax) for a period of 10 years for investments in technological development zones.

In contrast to Serbia and other former Yugoslav republics, the current solution in Macedonia is the possibility to carry over the losses for a period of three years. Furthermore, Macedonian Corporate Income Tax Law does not have any provision on tax consolidation, which means that this form of tax allowance is not regulated under the Macedonian corporate tax regime.

Economic zones in Macedonia are currently regarded as Technological Industrial Development Zones (TIDZ). As of 2007 when the Law on Free Economic Zones was superseded by the new Law on TIDZ, these zones have been promoted as a form of attracting FDIs and, pursuant to the law, aim at: *“acceleration of the economic development by attracting foreign and domestic capital for the development of new technologies and their application in the national*

*economy, increasing the competitiveness and employment.”* Therefore, companies that are located in TIDZs in Macedonia enjoy significant benefits for achieving their goals: by tax and nontax exemptions (measures for stimulating the investors). These subsidies and exemptions are based on the Law on TIDZ and, additionally, on the right to State Aid as an additional incentive for investors in accordance with the Law on State Aid Inspection.

According to the Law on TIDZ and the Law on State Aid Inspection, there are more types of tax exemptions and additional incentives for foreign companies, the beneficiaries of TIDZs in Macedonia. Macedonia, as mentioned before, offers benefits in the form of exemptions and State Aid through the Law on TIDZ and the Law on State Aid Inspection to those FDIs that are beneficiaries of TIDZs. The exemptions and incentives that the Government offers for the companies in TIDZs appear in the following forms (CEA, 2016):

- Tax exemptions from the corporate income tax: the beneficiary of the zone is exempt from paying the corporate income tax for a period of 10 years. The profit tax rate in the Republic of Macedonia is 10%. The tax rate is applicable in the case of an allocation of the profit in the form of a dividend.
- Tax exemptions from the personal income tax: the beneficiary of the zone is exempt from paying the personal income tax on the basis of wages of the employees in the period of 10 years, regardless of the number of employees.
- Subsidising for the rental of land: the beneficiaries of TIDZ pay significantly lower rent given the area of the parcels.
- Grant for construction: the amount of aid for construction in TIDZ is limited to 0.5 million EUR, and the companies - beneficiaries of the zones - use this aid in the form of a grant.
- Exemptions from compensation for organizing construction land (communal fees): exemption from compensation, which is local compensation, determined by the municipality on whose territory TIDZ is located.
- Aid for the training of employees: the beneficiaries of TIDZ can receive aid in the form of a grant for training employees in the

amount of 50% of the respective training costs.

- Exemption from paying the VAT: the beneficiary of the zone is exempt from paying the VAT for goods and services in TIDZ (except the profit intended for final consumption) and export of goods in TIDZ (provided that the goods are not intended for final consumption).
- Subsidising 50% of the gross wage of employees for a period of two years: this aid is an alternative for the 50% out of the justified investment costs (for investments up to 50 million EUR), which are evaluated either as justified costs for the investment or as costs for the wage of employees in a period of two years.

It is interesting that in Macedonia there currently exist 15 economic or technical development zones, of which only three are fully operative (two in the capital city and one in the largest town in Macedonia, Stip). Other zones are in various stages of development.

The existence of the zones in conjunction with 33 DTTs (currently in force) and 27 investment protection treaties makes Macedonia attractive for foreign investors, especially those coming from countries that are the biggest investors in Macedonia (the United States, Germany, and Italy). Furthermore, withholding tax rates prescribed in DTTs on passive business incomes received by non-residents is very beneficial (dividend rate mostly varies – 0%, 5%, 10%, and 15%; interest rate is usually – 10% and 15%; royalties rate – 0%, 5%, and 10%). Although the United States is the biggest investor in Macedonia in TIDZs, no DTT or protection investment treaty between Macedonia and this country have been signed. (

#### 4 CONCLUSIONS

After the breakup of the FRYU, former Yugoslav republics, Serbia and Macedonia, took different paths in building their economies. Both countries have been trying to attract as much capital as possible to increase the living standard of their citizens and to better position themselves in international economic flows. However, the period of the planned economy put both countries in a difficult situation. Each started with various

reforms: reforms in some sectors moved faster, but slower in others; some reforms gave significant results, others did not; some reforms faced many problems and were disrupted, etc. Tax reforms in Serbia and Macedonia have a different path, although both countries are former Yugoslav republics with EU membership aspirations. However, Serbia has an advantage because it has already started the negotiation on EU membership; negotiation with Macedonia has not even been opened because of problems with its official name. Tax reform in Serbia that started during the 1990s was interrupted by the breakup of the FRYU. It restarted at the end of 2000 and is currently ongoing. Reform addressed almost all tax forms. The personal income tax has been changed a lot - although the income tax system is still in force, it is now combined with global income tax applied only to residents and non-residents earning income above the prescribed amount. Corporate income tax has been changed much more: the statutory tax rate was changed several times since 2000; transfer pricing regulation was reformed in accordance with international and EU standards; other current anti-avoidance rules were sharpened and some new ones introduced (e.g. list of jurisdictions whose residents are taxed with withholding tax at a higher rate, etc.); various tax incentives were introduced (some of them are still in force, others have been cancelled). Important reform took place in the sphere of consumption taxation when the retail sales tax was canceled and replaced with the VAT; the tax administration was reformed, etc. Notably, in both landlocked countries, the price competitiveness with narrow measures for attracting FDIs was prioritized against the wider measures for attracting FDIs.

In comparison to that of Serbia, tax reform in Macedonia was not that dynamic. Up until now, only a few changes have been made (e.g. replacement of the sales tax with the VAT; lowering of the statutory tax rate of corporate income tax and personal income tax; transitory phase with flat tax regime, etc.). Having in mind the EU accession road of both countries, the above-mentioned differences are understandable. Although Serbia is currently negotiating with the EU on membership and the negotiation process with Macedonia has been blocked, both countries are trying to attract foreign and domestic capital, which is the reason for introducing corporate tax

incentives. Different positions of these countries in relation to the EU caused different policies of tax incentives: Serbia had to cancel many of those introduced after 2000 (especially in 2006) and to harmonize its legislation with EU standards; Macedonia still has tax incentives that may create harmful tax competition as per the EU standards. This is especially true with the statutory (and effective) tax rates and regulation of the State Aid. In each case, in general, both countries are carrying out reforms in accordance with the ongoing trends in the international and EU environment, especially bearing in mind the changes that will happen in international taxation as a result of the BEPS Project (Base Erosion and

Profit Shifting). This is more evident in Serbia than in Macedonia because (as we have already mentioned) Serbia has already started the EU membership negotiations and is under bigger pressure from the EU than it is the case with Macedonia. Last, but not least, both countries have to create tax incentive policy that will take into account EU law and the undisturbed functioning of the Internal Market because once they become EU members, they will need to respect EU rules and fundamental freedoms of EU nationals. Otherwise, they would be accused of harming the Internal Market and, consequently, harmful tax competition.

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Received for publication: 12.02.2018

Revision received: 28.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

#### **Style – APA Sixth Edition:**

Stojanovic, S. R., & Nikolov, M. (2019, January 15). Corporate Tax Incentives in Transitory Economies: Case of the Republic of Serbia and Republic of Macedonia. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 99-110. doi:10.12709/mest.07.07.01.14

#### **Style – Chicago Sixteenth Edition:**

Stojanovic, Snezana R, and Marjan Nikolov. 2019. "Corporate Tax Incentives in Transitory Economies: Case of the Republic of Serbia and Republic of Macedonia." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 99-110. doi:10.12709/mest.07.07.01.14.

#### **Style – GOST Name Sort:**

**Stojanovic Snezana R and Nikolov Marjan** Corporate Tax Incentives in Transitory Economies: Case of the Republic of Serbia and Republic of Macedonia [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 99-110. doi:10.12709/mest.07.07.01.14.

#### **Style – Harvard Anglia:**

Stojanovic, S. R. & Nikolov, M., 2019. Corporate Tax Incentives in Transitory Economies: Case of the Republic of Serbia and Republic of Macedonia. *MEST Journal*, 15 January, 7(1), pp. 99-110.

#### **Style – ISO 690 Numerical Reference:**

*Corporate Tax Incentives in Transitory Economies: Case of the Republic of Serbia and Republic of Macedonia*. **Stojanovic, Snezana R and Nikolov, Marjan**. [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 99-110.



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# THEORETICAL ANALYSIS AND POSITIONING BENCHMARKING AS A PRODUCT QUALITY MEASURING INSTRUMENTS

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JEL Category: I23, I25

## **Abstract**

*The European Higher Education Area - EHEA is established on the principles and values, indicated in the Bologna declaration from 1999. During the annual conferences of ministers of higher education at countries from EHEA in the next years (Prague, Bergen, London, Leuven, Budapest, and Bucharest) these principles and values are developed and approved. One of these values is the quality of education. The highly compatible educational environment could provide such quality of education through which students acquire knowledge, skills, and competencies, necessary for the labor market. The aforementioned defines the relevance of the scientific problems addressed to the quality of higher education. The problem for quality has many aspects. One of them is at most significant: the quality of education science. It has to solve many tasks, addressed to the quality concept, quality measurement; choice of quality criteria and indicators (according to methods of mathematical taxonomy, multi-factor and cluster analysis, multidimensional scaling), quality verification and etc. Today, the dynamic development of the IT sector and the social trend raise new problems for higher education. Higher schools are related to both the market where quality educational services are provided and the labor market. The students are the consumers of educational services, while employers are the main consumers in the labor market. With the benchmarking approach, higher schools can define clear objectives for their development, based on the*

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information about the advantages and disadvantages of education. The main objective of the present report is to be defined and evaluated the key indicators for quality measurement and management of education at higher schools by means of benchmarking model and to be defined the competitiveness of the European educational market.

**Keywords:** benchmarking, higher education, higher schools, quality, competitiveness.

## 1 TIMELINESS AND RELEVANCE OF SCIENTIFIC PROBLEMS

The European Higher Education Area - EHEA is established on the principles and values, indicated in the Bologna declaration from 1999. During the annual conferences of ministers of higher education at countries from EHEA in the next years (Prague, Bergen, London, Leuven, Budapest, and Bucharest) these principles and values are developed and approved. One of these values is the quality of education. In this regard:

- The main principles, criteria, and methodology are harmonized to ensure the quality of education. Three levels of their application are adopted: institutional (the universities it selves), external (the Agencies for evaluation and accreditation) and European, which is represented by the *European Association for Quality Assurance in Higher Education (ENQA)*.
- The *European Qualifications Framework (EQF)* in EHEA is adopted, through which the national qualification frames are established. In 2012 the Bulgarian Ministry of Councils ratified the *National Qualifications Framework of the Republic of Bulgaria (NQF)*, in which the last three levels define the knowledge, skills, and competencies of bachelors, masters, and doctors in Bulgaria,
- The Bulgarian Parliament adopted the National Strategy for development of higher education till 2020.

At the conference of ministers of higher education in Erevan, last year (May 14<sup>th</sup>-15<sup>th</sup>, 2015) the document "Standards and guidelines for quality assurance in EHEA" was updated.

The original document was adopted in 2005 and since then significant progress in the field of quality assurance is achieved. In the elaboration of standards in 2012, the Education International (EI), *BUSINESSEUROPE* and the European registry for quality assurance (EQAR) are included.

The final document is approved by the conference of ministers in Erevan.

ENQA, which member is Bulgaria (through the National Evaluation and Accreditation Agency (NEAA)), put all the necessary requirements for applying the document. NEAA adopted its own program and action plan in October 2015 that was officially published on its website.

In this program, it is underlined that higher schools have the responsibility for the quality of education as they take into consideration the main student and public needs. (Hristov & Hristova, 2016)

In the world, where we live, there is fierce competition among various countries, territories, as well as in and out of the European Union.

What is typical is that countries do not have equal economic, social and geographical conditions and not every country could compete in the same conditions.

There are also such conditions in the field of education, where the European educational policy provides various measures (tools), which are necessary, the differences among member-states to be surmounted.

The highly compatible educational environment could provide such quality of education through which students acquire knowledge, skills, and competencies, necessary for the labor market.

The aforementioned defines the relevance of the scientific problems addressed to the quality of higher education.

## 2 PROBLEMS IN EDUCATIONAL SYSTEM IN BULGARIA AS A RESULT OF THE CRISIS

The problem for quality has many aspects. One of them is at most significant: the quality of education science. It has to solve many tasks, addressed to the quality concept, quality measurement; choice of quality criteria and indicators (according to methods of mathematical taxonomy, multi-factor

and cluster analysis, multidimensional scaling), quality verification and etc.

Bulgarian higher schools need to overcome many negative effects of the world economic and financial crisis. As a result of these conditions in the period 2009 – 2013 for the Bulgarian economy the following is typical:

- Shrunk of the industrial production;
- Many production factories were closed;
- The number of unemployed people raised;
- Many sectors of the economy needed lower prices of utilities and state funding to keep their professionals at work;
- The global financial crisis reflects negatively on the households' real incomes – the credit installments were increased, as well as the prices of products and services;
- The share of bad credits in Bulgaria reached 12.6%.
- The Bulgarian export decreased significantly, which results in a negative balance of payments and lower GDP. As a result, some of the companies shortened their personnel and others changed to part-time working process.
- As a consequence of the lower turnovers, many companies were forced to change their investment policy, which results in a decrease in economic growth.
- The lower global liquidity leads to a discount of the direct foreign investments. (Plevnaliev, 2012)

These conditions suppose application of activities that stimulate sustainable development through employment, social activities, efficient investment policy and funding through national and European resources. These are the key structural elements of the National Policy for Sustainable Development, which the main objective is to enhance effectiveness in all sectors of the economy and ensure better living conditions for the society.

Many problems could be observed also in the educational system in Bulgaria as a result of the crisis:

- The population of the country drastically thinned down (e.g. from 8.8 million in 1990 to 7.35 million in present times);

- Aging population (Bulgaria takes the third place of the middle-aged population in the EU);
- Lower birth rate and higher mortality rate;
- Reduced flows of students;
- An increasing number of the dropouts, especially from minority groups;
- Increasing the number of dropout students;
- Limited opportunities for employment;
- Growing youth emigration etc.

According to the National Statistical Institute of the Republic of Bulgaria, public expenditures as a percentage of GDP in the country constitute 3.98%. Public expenditures for education are of utmost importance because they have a direct impact on the economic growth, influence labor productiveness and professional development of the workers.

It is necessary to develop the qualifications of employees continuously to give them a chance to adapt easily to the requirements of the labor market. The main objective of higher education in Bulgaria is to develop and maintain efficiently the relation education-science-business, because of its great importance for the professional realization of graduates.

The main objective of the educational market is a complex of knowledge and skills of graduates to be developed. The accumulated competence, professional expertise, and creative work during training, allows graduates to be more competitive, effective and adaptive.

### 3 CURRENT STATE OF THE RESEARCH ON THE PROBLEM AREA

The relevance of problems, concerning the quality of education at higher schools, is reinforced by the fact that their overcoming is in accordance with the national, regional and European strategic objectives in the field of higher education.

The quality of education and higher education are of utmost importance for the competitiveness of the nation as well as of the state. The symbiosis between traditional forms of education at higher schools together with innovative methods allows new and modern teaching approaches to be applied. (EC, 2015)

The main objective of Bulgarian universities is not only to provide new skills and competencies but also to support the development of science and integrate innovations in the teaching and research activities.

At the Bulgarian educational market, the competition among higher schools is fierce because of their need to attract much more candidate-students. The good quality of educational services provided, the university vision as well as the educational policy are the key factors of guarantee for success. That is why; the priority of each university is the expansion of new professional fields and the development of the systems of education. It is also very important, the education to be carried out in accordance with the business and labor market needs.

Another significant challenge for higher schools in Bulgaria is the programs for lifelong learning and training development.

The quality of education has two main aspects. The first aspect is to be assessed the conditions and potential of the school to provide quality. And the second aspect refers to the assessment of knowledge, skills, competencies, and values of students, as well as their ability to find a job at the labor market, concerning his personal and professional realization.

The fundamental principles for evaluation in the first aspect (applied also for evaluation and accreditation) are (Lambovska, 2013):

- Determination of the standards for knowledge, skills, values, and competencies of the evaluated person;
- Determination of the criteria and key quality indicators;
- Definition of the weight coefficients for their significance;
- Determination of the evaluators and their significance;
- Assessment of the object in accordance with the accepted measures and defining their numerical values.

The National evaluation system of Bulgaria applies this approach. It has chosen a method according to which different aspects of education and research process are assessed.

#### 4 BENCHMARKING – FOR QUALITY MEASUREMENT AND MANAGEMENT OF EDUCATION AT BULGARIAN HIGHER SCHOOLS

With the benchmarking approach, higher schools can define clear objectives for their development, based on the information about the advantages and disadvantages of education.

In the second aspect, applied during the running and term assessment of students, as well as during their state exams and diplomas defend, the level of education is examined. The science of examine is also characterized, as well as the issues concerning the national and European standards for educational degrees. When the quality of education is assessed in this aspect, also the ability of students for self-education must be taken into account.

In the benchmarking, a new assessment for the competitiveness of higher schools will be proposed, which depends on the following indicators: competitive conditions, competitive advantages, competitiveness of higher education and of the labor market. (Todorova & Gergova, 2016)

The main is to be defined and evaluated the key indicators for quality measurement and management of education at Bulgarian higher schools by means of benchmarking model and to be defined the competitiveness of Bulgaria at the European educational market.

The subject of the research is the quality of education, characterized by its peculiar indicators for evaluation of the higher schools in Bulgaria.

The higher schools of Bulgaria face the challenge to provide such educational services that must guarantee quality and good professional realization of everybody who wants to educate. By eliminating the education barriers and proposing equal opportunities and rights for education in the last years, the interest of Bulgarian students for education abroad is getting higher. This raises the question of the ability of Bulgarian universities to cope with these new challenges.

Core points for comparison are the standards for knowledge, skills, values, and competencies, defined in the European and National qualification

frames and specified in the academic standards for degrees in the various professional fields. Through the main hypothesis, the project team strives to prove that Bulgarian higher education is developed in accordance with the European standards and at the same time a fundamental change of the educational methods is being done.

The main component of the development of the educational system is the implementation of innovations as a result of the improvement of the quality of research at higher schools as well as the application of the best practices at other higher schools in the EU. To prove the main hypothesis, a benchmarking model will be established in order for the main objectives of the research to be achieved.

The main hypothesis is based on the network approach in the field of higher education.

Based on the aforementioned, the competitiveness of higher schools will be analyzed as a complex model, consisted of the following:

- Need for educational services;
- Consumers of the higher schools' services provided;
- Consumers' preferences of higher schools' services provided;
- Realization of educational services;
- Assessment of the indicators for the competitiveness of higher schools.

Many factors such as the social, demographic, economic and technological impact of the above-mentioned indicators. Both the number of higher schools and their rating are the main indicators for every region of the country. When defining the competitive advantages of higher schools, indicators such as quality of education, professional expertise of academic staff, material-technical base, quality of resources, development of the research activity and the international prestige are what matters.

Today, the dynamic development of the IT sector and the social trend raise new problems for the Bulgarian higher education.

Higher schools are related to both the market where quality educational services are provided and the labor market. The students are the consumers of educational services, while employers are the main consumers in the labor market.

The benchmarking is related to the assessments for the situation and issues, concerning the Strategy for the development of higher education in Bulgaria, adopted by the Parliament during 2015.

- Establishing measures for quality of education and sustainable system for feedback by the employers about the quality of knowledge, skills, and competencies of graduates at higher schools.
- Although all of the higher schools adopted quality management control system in recent years, still the control and its application are not satisfactory.
- Development of the practice for external quality control of higher education.
- Establishment of working and effective mechanism for assessment of the quality of professional realization of graduates.

By adopting and obeying the Standards and guidelines for quality assurance in the European Higher Education Area (ESG), the member-states ensure an education that is based on the principles of transparency and mutual trust.

The improvement of the quality of education depends mostly on the opportunities for competition among higher schools.

Carrying about young people is a serious challenge that our country faces because by ensuring appropriate conditions for education and professional realization of students, the quality of life could be improved as well as the demographic situation in the country.

Stimulating innovations and entrepreneurship are the basis of the Lisbon strategy. Achieving sustainable economic growth and providing better jobs in a competitive economy based on knowledge identify opportunities and challenges for the development of higher education in Bulgaria.

According to the official statistics in 2015, the number of people on age 15-34 is 1 747 648, and till 2020 – it will be 1 555 852 (Danchev, Bassett, & Salmi, 2012). As a result of the sharp drop in emigration in the period 2002-2006, in the last years, the new rise of emigration among young people on age between 20 and 29 years is observed. What is positive here is that the structure of the potential emigration flow is

changing. At the same time, unemployment among young people is rising.

The share of self-employed among young people on age 15-24 is 3.4%, which share is under the average for the EU and lower than that in Greece (7.8%) and Romania (11.3%). The group of self-employed young people on age 25-29 rises to 5.7%, but it is still under the average for EU-28 (8.7%), Romania (11.4%) and Greece (14.9%).

As a result of the trends observed, it is clear that most of the graduates are looking for professional realization as employees and that is why they have to improve their qualification, competencies, and skills continuously in order to respond to the requirements of their employers. In this regard, education at state higher schools must respond to the national policy for young employment, based on the short-term (5 years) and long-term (15-20 years) planning.

## 5 CONCLUSION

There is a strong correlation between national identity and the development of the educational system in Bulgaria. Despite the significantly low living standards of the nation, the ambition of the population for higher education is increasing.

As a result of the Bulgarian membership in the EU, there is a direct correlation between welfare and

the ambition of young generation to graduate higher education in other countries in the EU or in the USA, which reflects negatively on the identity of education in the country at the expense of globalization and cosmopolitan identity.

The lower level of prosperity and the limited opportunities to reveal the young population potential leads to their migration after they graduate universities, as the education is paid by the state and consumed by students but the return for the national economy is zero.

The surrounding economic environment and the state of the labor market require continuous improvement and qualification of people, as well as acquiring new knowledge and skills. The national strategy for lifelong learning main goal is "successful employment of people by improving conditions for equal access to education and training and development of the system for lifelong learning."

The investment in knowledge brings the highest dividends, and that is why it is necessary to focus on stimulating modern, flexible education system. It is a major challenge for the education system of our country as it is necessary to create and provide an effective system that enables lifelong learning.

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Received for publication: 14.04.2018  
Revision received: 08.09.2018  
Accepted for publication: 27.12.2018

### **How to cite this article?**

#### **Style – APA Sixth Edition:**

Todorova, D., Gergova, N., Christova, M., & Kolev, P. (2019, January 15). Theoretical Analysis and Positioning Benchmarking as a Product Quality Measuring Instruments. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 111-117. doi:10.12709/mest.07.07.01.15

#### **Style – Chicago Sixteenth Edition:**

Todorova, Daniela, Nina Gergova, Maria Christova, and Petar Kolev. 2019. "Theoretical Analysis and Positioning Benchmarking as a Product Quality Measuring Instruments." Edited by Zoran Čekerevac. *MEST Journal (MESTE)* 7 (1): 111-117. doi:10.12709/mest.07.07.01.15.

#### **Style – GOST Name Sort:**

**Todorova Daniela [et al.]** Theoretical Analysis and Positioning Benchmarking as a Product Quality Measuring Instruments [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 111-117. doi:10.12709/mest.07.07.01.15.

#### **Style – Harvard Anglia:**

Todorova, D., Gergova, N., Christova, M. & Kolev, P., 2019. Theoretical Analysis and Positioning Benchmarking as a Product Quality Measuring Instruments. *MEST Journal*, 15 January, 7(1), pp. 111-117.

#### **Style – ISO 690 Numerical Reference:**

*Theoretical Analysis and Positioning Benchmarking as a Product Quality Measuring Instruments.*  
**Todorova, Daniela, et al.** [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 111-117.



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# MISESIAN EPISTEMOLOGY

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JEL category: Z00

## **Abstract**

*Like all science, economics is essentially a truth-seeking enterprise. As such, it necessarily runs up against certain epistemological questions. What kinds of facts or expressions may count as economic truths? What method or methods might enable us to ascertain those facts? Is there any such approach that is both appropriate to the nature of the facts of economics and capable of generating substantial, interesting, or useful knowledge? Ludwig von Mises recognized the central importance of such questions. Much of his work is devoted to spelling out and refining his distinctive "Austrian" position on epistemology and economic method. We offer a summary and analysis of Mises's bi-modal thesis concerning scientific methodology: that the approach in the physical and social sciences diverges, the former being an empirical enterprise, the latter (including economics), a logical-deductive one. This is because the object of the social sciences is a man, a creature who acts freely and purposively. The empirical method of the physical sciences, adequate for the study of objects and systems that are not purposive in this way, is inappropriate in this domain. Therefore, methodological dualism is justified. Mises's alternative aprioristic approach takes into account the uniquely human features of consciousness and freedom as well as the complexity and unquantifiability of social phenomena; these he saw as the main barriers to empiricism's usefulness in social science. This paper focuses in particular on the intellectual context in which Mises articulated this theory, emphasizing the divergence between his contribution and the dominant methodological views among practitioners of the social sciences in his time.*

**Keywords:** *Mises; methodology; praxeology; epistemology; dualism*

## **1 INTRODUCTION**

F.A. Hayek wrote that while an era's discussions are marked primarily by disagreements among its dominant schools of thought, its "general intellectual atmosphere" is revealed in the areas

where the opposing schools' views coincide. These points of agreement "become the unspoken presuppositions of all thought, the common and unquestioningly accepted foundations on which all discussion proceeds" (Hayek, 1979, 191).

Ludwig von Mises was, perhaps above all else, a challenger of such unspoken presumptions. As continental European writing during the first half of the twentieth century (Hulsmann, 2007), he defied the presumption of statism shared by the

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ascendant ideologies of fascism, communism, and progressivism. Indeed, it may be this image of a proverbial liberal David confronting the Goliath of totalitarianism that is most closely associated with Mises today. He was equally disruptive, however, in technical matters of methodology in the social sciences. At the time when Mises wrote his major works on method, Hayek's declaration was especially applicable to this field, dominated as it was by schools of thought that Mises characterized as unified in their denial of a legitimate role for aprioristic theory in history, sociology, or economics. Mises rejected this viewpoint, challenging the empiricist and anti-theory intellectual currents of his age.

The present essay aims to provide an overview of the salient epistemological and methodological elements of Mises' alternative approach. In section II, we explore Mises' objections to the positivist and historicist viewpoints, focusing on his rejection of empiricism and his endorsement of the necessity of a priori theory. We discuss social science, not what it is, but what it is not. In section III we briefly describe his proposed alternative to these theories, namely, praxeology. This section explores Mises' methodological apriorism and considers his description of the human action in its definition and application to economic theory. Here, we engage with the issue, finally, of what *is* a social science. We conclude in section IV.

## 2 SOCIAL SCIENCE: WHAT IT ISN'T

Mises proposed that the social sciences are concerned with objects categorically different from those belonging to the physical sciences. For this reason, the means properly employed in the latter cannot be fruitfully applied to the former. The physical sciences can legitimately find their laws on an empirical basis because they take as their object unconscious, non-acting matter. By means of repeated testing by individual alterations of conditions in controlled test environments, scientists can isolate causes of observed phenomena in the physical world. This constitutes a process of empirical study or an analysis of *a posteriori* observations. The physical scientist's knowledge comes entirely from observation of things external to himself. According to the results of repeated, controlled, external observation, hypotheses can be supported or falsified. Their validity or invalidity hinges on empirical

observation; as Mises (2003, 10) puts it, "Hypotheses must be continually verified anew by experience."

This author argued that the social sciences cannot operate by these means. They take as their object social phenomena which are constituted by the actions of freely-choosing, conscious human beings. An astronomer need not consider whether or not the asteroid whose trajectory he calculates will change its mind and begin flying in another direction—it is bound by the laws of gravitation against which it, a non-conscious, non-choosing lump of matter, is powerless. The social scientist, on the other hand, must consider choice on the part of the objects of his analysis since he studies relations between and among purposively acting *humans*. The related human capacities of consciousness and choice disrupt a scientific method designed to study effects which follow from causes as a matter of course, free from the influence of independent action by the objects he studies. So, says Mises, the empirical method of the physical sciences cannot be applied to social science, including economics.

Furthermore, Mises (2003, 10-11) argues that "Two assumptions are necessary for these [empirical] methods of verification: the possibility of controlling the conditions of the experiment, and the existence of experimentally discoverable constant relations whose magnitudes admit of numerical determination," neither of which is realized in the study of historical human relations. For,

"Here...we can observe and experience historical change only as the result of the combined action of a countless number of individual causes that we are unable to distinguish according to their magnitudes. We never find fixed relationships that are open to numerical calculation." (2003, 10-11)

Unlike in chemistry or physics, the social scientist seeking to understand historical change by controlled experiment would find it impossible to isolate individual causes of observed results and to tease out fixed quantitative relationships between the elements of his object of study. Therefore, the attempt to discover the laws of historical change (including economic change) by empirical means will inevitably fail. Not only do the

human faculties of consciousness and free will<sup>1</sup> disqualify the social sciences as a fit object of empirical inquiry; the tangled and unquantifiable nature of human history point to the same conclusion.

In subscribing to a non-empiricist view of social science, Mises set himself apart from the positivist viewpoint that dominated the intellectual scene of his home city, Vienna. Positivism had its most significant expression in the views of the “Vienna Circle,” a group of intellectuals heavily influenced by empiricism. Centered at the University of Vienna circa the first third of the twentieth century, the Circle included leading scholars from various scientific and philosophical disciplines; notable among its then-members are philosopher-physicist Moritz Schlick, philosopher Rudolph Carnap, and mathematician Kurt Gödel.<sup>2</sup> Mises held that the positivist/empiricist project was defined by “the thesis that the experimental procedures of the natural sciences are the only method to be applied in the search for knowledge” (1962, 120). According to his account, members of that school of thought rejected the view that the empirical scientific method ought to be limited to the physical sciences, instead “affirm[ing] the possibility of deriving empirical laws from historical data” (2003, 9). But this project is condemned to failure from the outset, due to the very different subject matters analyzed by the two very different<sup>3</sup> disciplines.<sup>4</sup>

The Misesian approach also distinguished itself from what its founder called “the Historical School.”<sup>5</sup> Mises considered the central feature of this school to be its rejection of the possibility of

developing universally valid, time-independent economic and sociological laws. The historicists held that the social sciences can provide no knowledge that is not historically contingent. Since the “laws” of sociology and economics are only valid within a given historical context, “the only appropriate method of the social sciences is the specific understanding of the historically unique” (2003, 6). By implication, the historicist program entails that “theorems whose validity is thus limited historically or geographically should replace, or at least supplement, those of the universally valid theory” (2003, 26). Mises considers their view of facts as entirely independent of theory to be problematic.

Leeson and Boettke (2006, 252) aptly reference Goethe’s declaration that “everything in the realm of fact is already theory” as representative of Mises’s alternative conception of the relationship between facts and universally valid theory. Mises held that facts can only be expressed by thoughts whose linguistic content presupposes prior theory. “It is only with the aid of a theory that we can determine what the facts are” (2003, 29). Mises demonstrates the untenability of the historicist project of history without theory by examining how much of the simple statement “The defeated king found himself forced to conclude peace under unfavorable conditions” relies on and assumes universally valid theoretical concepts. He writes, “What is involved here are simple and scarcely disputed theories, which, by their very character, are nonscientific, but this does not change the fact that they are still theories, i.e., statements understood as universally valid” (Mises, 2003, 108). Mises explains: “Each and every proposition

<sup>1</sup> More detailed analysis of the role of free will in praxeological reasoning can be found in Van Schoedlandt, et al, (2016), and Block, (2015).

<sup>2</sup> For criticisms of the logical positivists of the Vienna Circle, see Batemarco, 1985; Block, 1973, 1980, 1999; Engel, 2018; Fox, 1992; Gordon, 1996, 2011; Hoppe, 1989, 1991, 1992, 1995; Hulsmann, 1999; Long, 2008; Mises, 1969, 1998; Polleit, 2008, 2011; Richards, 2009; Rizzo, 1979; Rothbard, 1951, 1957, 1960, 1971, 1973, 1976, 1992 1997a, 1997b, 1997c, 1997d, 1993; Selgin, 1988; Wiśniewski, 2014.

<sup>3</sup> No economic laws have been derived by purely empirical means despite years, no, decades, nay, perhaps centuries of popularity and ascendancy of the rampant empiricism in academia. In contrast, there are literally dozens of economic laws that have been generated by Austrian economists. See on this Hoppe (1995).

<sup>4</sup> The Austrian formulation of the universally valid law of downward-sloping demand curves is rejected by mainstream economists who buy into the notion of the Giffen good. For a critique of the latter, see Barnett and Block. 2010; Block, 2012; Block and Barnett, 2012; Block and Philbois, unpublished; Block and Wysocki 2018; Klein, unpublished; Klein and Salerno, Unpublished; Murphy, Wutscher and Block, 2010.

<sup>5</sup> Members of this school of thought included Karl Bücher, Bruno Hildebrand, Georg Friedrich Knapp, Karl Knies, Étienne Laspeyres, Wilhelm Roscher, Friedrich Wilhelm Joseph Schelling, Gustav von Schmoller, Werner Sombart, Adolph Wagner, Max Weber, Karl Polanyi, Joseph Schumpeter. The latter is often thought to be a part of the Austrian School of Economics, but this is debatable. For a critique of the German Historical school of Economics, see Mises, 2003.

of history implicitly contains theorems of sociology” (Ibid. 109). The theory-laden nature of facts condemns any attempt at coming to the knowledge of a system, event, or phenomenon using “just the facts.”

In short, Mises opposed two views: first, that scientific laws governing social relations (i.e. laws of the social sciences) could be discovered by empirical means; second, that social phenomena as studied by sociology and economics are not subject to any laws independent of contingent historical context. He rejected positivist empiricism and embraced *a priori* theory in the social sciences.

### 3 SOCIAL SCIENCE: WHAT IT IS

According to Mises, social phenomena can only be understood by logical deduction from the fundamental axiom of *action*. He opens his economic treatise *Human Action* with a statement, and four subsequent restatements, of this axiom:

“Human action is purposeful behavior. Or we may say: Action is will put into operation and transformed into an agency, is aiming at ends and goals, is the ego's meaningful response to stimuli and to the conditions of its environment, is a person's conscious adjustment to the state of the universe that determines his life” (1998, 11).

He distinguishes action from unconscious, or reflexive, behavior. In the latter there is no purposive direction of means for the attainment of ends—indeed, there is no consciousness of means and ends, to begin with. Even if an actor becomes aware of a reflexive bodily reaction to certain stimuli, that behavior becomes a datum of purposive action rather than an action itself. Mises grants it can be difficult to distinguish between conscious and unconscious elements in particular instances of human behavior but insists that the “distinction between consciousness and unconsciousness is nonetheless sharp and can be clearly determined.” (1998, 11)

Mises argues that this central axiom of human action serves as the ultimate and irrefutable

foundation on which rest the *a priori* propositions that collectively constitute universally valid knowledge of social science. He writes, “The science of human action that strives for universally valid knowledge is the theoretical system whose hitherto best-elaborated branch is economics...Like logic and mathematics, it is not derived from experience; it is prior to experience” (2003, 13). Economic knowledge belongs to the broader science of praxeology—the science of human action—which constitutes a body of propositions deduced from the fundamental judgment that humans act purposively. This elaboration of the logical consequences of action *per se* is the task of the social scientist; insofar as it is concerned with action that employs scarce resources for the attainment of ends, it is within the realm of the economist.

It is important to note that praxeology stipulates nothing about actors' chosen ends. To the consistent Misesian, the science of action applies with equal validity to the businessman maximizing his profits, the drug addict seeking his next fix, and Mother Theresa feeding the poor. Mises' acting man is not the ultra-rational, cardinal-utility-maximizing Homo Oeconomicus adopted by certain economists in the classical tradition, for “[p]raxeology is indifferent to the ultimate goals of action, [and] its findings are valid for all kinds of action irrespective of the ends aimed at” (1998, 15). Praxeology is concerned with human action as such. However, he writes, there is “no valid objection to a usage that defines human action as the striving for happiness,” (1998, 14) so long as it is made clear that “happiness” serves as a placeholder, empty of a specific referent. Happiness, then, is the state achieved by the actor who has attained his chosen ends. Therefore, to say that human action is directed toward achieving happiness, properly understood, tautological (1998, 15). All the praxeologist could tell us about the actions of the three actors mentioned at the beginning of this paragraph is that each seeks different ends; for each, the placeholder “happiness” picks out a different referent.<sup>6</sup>

<sup>6</sup> Mises also speaks in terms of a reduction in “felt uneasiness” in this context. Mises says in *Human Action*, “In the praxeological terminology the proposition: man's unique aim is to attain happiness, is tautological” (1998, 15). The first-mentioned author of the present paper agrees with Mises on this matter.

However, the second mentioned author departs from both Mises and his own coauthor; he maintains that such statements are synthetic aprioris. That is, they both pertain to the real world, and are necessarily true. Such claims are not merely tautological: necessarily true because they have been defined in that manner.

## 4 CONCLUSION

We now have an idea of the main elements that constitute Mises' methodology. Praxeology is the *a priori* science that takes as its object human action as such. The action is the purposive aiming at chosen ends by human beings. Praxeology is not concerned with the particular ends that actors seek to attain and is neutral with regard to the means they employ in attempting to achieve their ends.

At first glance, the tools of praxeology may appear woefully ill-equipped for the tasks of economics. It may be readily admitted that the proposition "humans act purposively" is true *a priori* but accepting that something as complex as an economic theory could be derived from such a simple judgment poses a far greater challenge to even the most sympathetic reader not already acquainted with praxeological economics.

Hoppe (2002) attempts to put these concerns to rest with the example of the derivation of the law of diminishing marginal utility by praxeological reasoning alone.<sup>7</sup> Stipulating that means (including time) are scarce, we can say with certainty that an actor cannot satisfy all of his wants at any given time. Thus, he must decide which ones he will attempt to satisfy, and which will remain unsatisfied. This entails a ranking of ends: he will act to satisfy his most highly-valued end first, and then, assuming his preferences remain unchanged, act to satisfy the second, followed by the third, and so on, according to the means available to him. We may conclude that given stock of homogeneous goods, he will use

the first unit to satisfy the most highly-valued end he believes he can satisfy by employing one unit of his stock. He will use the next unit to fulfill his second most-highly valued end, followed by the third, and so on to the last unit and the least-valued end he believes he can satisfy with one unit of his stock. As units are added to the actor's stock, they will be used to satisfy ends lower and lower on his scale of preferences. If he is forced to give up a unit of his stock, he will sacrifice the least-highly-valued end he believes he can satisfy with one unit. Thus, the size of an actor's stock of homogeneous goods corresponds inversely to the value he places on the last (marginal) unit of that good. Hoppe provides this demonstration to show that Mises's action axiom provides the sole premise necessary to reach the economic law of diminishing marginal utility that itself forms the basis of the economic concept of supply and demand schedules.

In the Misesian vision, economics is conceived of as a logical-deductive enterprise. This distinguishes it from two views with which Mises contrasted his own, namely, historicism and empiricism. While his praxeological method, which takes the axiom that humans act as the sole principle from which knowledge of the social sciences is deduced, may appear too simplistic to tell us anything significant about the science of man, the voluminous body of work by Austrian economists that derives substantive economic knowledge from this single axiom shows this appearance to be illusory. Mises' methodological innovations are not only distinctive; they are useful.

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For example, "Bachelors are unmarried males" is a tautology, while "whenever voluntary trade occurs, but parties gain ex ante" is a synthetic a priori statement.

<sup>7</sup> Nozick (1977) calls this accomplishment into question. For a refutation, see Block (1980).

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Received for publication: 25.07.2018

Revision received: 08.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

#### **Style – APA Sixth Edition:**

Torsell, C., & Block, W. E. (2019, January 15). *Misesian Epistemology*. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 118-126. doi:10.12709/mest.07.07.01.16

#### **Style – Chicago Sixteenth Edition:**

Torsell, Christian, and Walter E Block. 2019. "Misesian Epistemology." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 118-126. doi:10.12709/mest.07.07.01.16.

#### **Style – GOST Name Sort:**

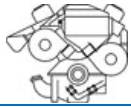
**Torsell Christian and Block Walter E** *Misesian Epistemology* [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 118-126. doi:10.12709/mest.07.07.01.16.

#### **Style – Harvard Anglia:**

Torsell, C. & Block, W. E., 2019. *Misesian Epistemology*. *MEST Journal*, 15 January, 7(1), pp. 118-126.

#### **Style – ISO 690 Numerical Reference:**

*Misesian Epistemology*. **Torsell, Christian and Block, Walter E.** [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 118-126.



# RESPONSE TO J.C. LESTER ON DAVID FRIEDMAN ON LIBERTARIAN THEORY

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JEL category: **P10**

## **Abstract**

*This essay is written in support of my (Block, 2011A) critique of Friedman (1989) in response to Lester's (2014) support of the latter. The debate concerns libertarianism, private property rights, crime, law and other issues of interest to libertarians. If you are not interested in the libertarian political-economic philosophy, nor debates, this would be a good time to stop reading. My main target in this article is Lester's contention that rights can clash. If they may, we are left at sea without a rudder, since all we have, as libertarians, is the non-aggression principle plus private property rights based on initial homesteading. If these will not suffice to obviate any clash, then we have nothing in the cupboard. Another difficulty I have with this author is his defense of utilitarianism; my perspective, in sharp contrast to his, is deontological. While this article is highly critical of Lester, I do acknowledge that he makes several good points, on the basis of which I have had to revise my own views of these matters. For one thing, thanks to him, I have added violation of dignity to my theory of punishment. For another, he corrected a slip of mine about the right not to be murdered. So, it is hat's off to Lester, as far as I am concerned, despite my many criticisms of him in this paper.*

**Keywords:** *Libertarianism; private property; rights; crime; law*

## **OVERVIEW**

This little story starts out with Friedman (1989). Block (2011A) was a rejoinder to the former. I invited the previous author, several times<sup>1</sup> to respond to the latter. My thought was that, following Mill (1859), the two of us could better get to the bottom of these issues if we debated about them. Friedman has so far declined to engage me

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in this manner. Happily, Lester (2014) has taken up the slack in defending Friedman (1989) and rebutting Block (2011A). The present essay is an attempt to refute this essay of his (Lester, 2014), in defense of my publication (Block, 2011A). In order to accomplish this task, I shall criticize Lester both where he defends Friedman (1989) against my critique of him (Block, 2011A), and, also, condemn Lester (2014) on those occasions where he errs in his understanding of libertarianism, apart from my debate with Friedman (1989). There are also some issues on

<sup>1</sup> Certainly not more than a half dozen times. I am delighted that Lester has agreed to condescend to

respond to me, even if Friedman is unwilling to do so.



which I stand corrected by Lester, and duly thank him for educating me on them.

This paper follows the format set out by Lester.<sup>2</sup> This section is devoted to his overview and introduction. In section 2.1 I respond to his “initiation of coercion,” in 2.2 to his “absolute control,” in 2.3 to “super flashlights,” in 2.4 “probability of risk,” in 2.5 “homesteading,” in 2.6 “resource value,” in 2.7 “crime and punishment,” in 2.8 “extent of punishment,” in 2.9 “the madman,” in 2.10 “contradiction in rights,” in 2.11 “the draft.” In section 3.1 to “critique” and in 3.2 to “weaknesses in utility theory.” I also comment on his conclusion in section 4.

However, I must start out with a comment on what he writes in his initial “overview” section. He states: “Professor Block is a leading Rothbardian libertarian.” That is one of the kindest compliments I have received in a long time, and I am very grateful to Lester for characterizing me in this manner.<sup>3</sup>

## 1 INTRODUCTION

Lester starts out on a curious note. He avers:

*“I am very happy to bring Professor Block the good news that there is at least one other philosophy of libertarianism. For in addition to any consequentialist philosophies (and I would not restrict these to utilitarianism, in any of its flavours) and any deontological philosophies (and I would not restrict these to the Rothbardian-Blockian one) there is also critical-rationalist libertarianism, which does not base libertarianism on anything at all.... With our finite and fallible reasoning facing the infinite worlds of unknown matter and theories, we never know what we might have overlooked. Therefore, theories cannot be justified (or supported, grounded, founded, based, backed, established, proven, etc.”*

This is more than merely passing curious. This is highly problematic. Yes, yes, a decent modesty

requires that we not be so cock-sure of ourselves that we doubt we can ever be wrong, even about the most basic things. For example, I take it as a basic empirical fact that the earth is not shaped like a flat pancake, that water runs downhill, and that it is composed of two parts hydrogen and one part oxygen, that the moon is not made of green cheese. Similarly, in my view, it is very difficult to deny the Socratic syllogism,<sup>4</sup> the claim that  $2+2=4$ , and that the Pythagorean Theorem is correct.<sup>5</sup> As well, under libertarian deontology, that murder, rape, and theft are rights violations. Could we be wrong on any and all of this? Of course. We should all strive to be modest. But this is such ultra-skepticism, it is difficult to base any coherent examination of the Friedman-Block controversy on it or anything else for that matter. Yes, we two debating partners could both be wrong on everything we say. However, unless Lester can come up with specifics, and he does, undermining his own extreme cynicism, he cannot help resolve any such difficulties. There is also a logical self-referential difficulty with this position on the basis of which he sets out: if we must doubt everything, if we can be sure of nothing, then, this applies, too, to the very claim of disbelief from which he starts. That is if we are compelled to reject all that seems definitively true, and Lester maintains that it is definitively true that we must doubt everything, well, double negative amounts to a positive: Lester’s view requires that we accept everything as true.

Moreover, Lester’s claim that radical skepticism is the third basis of libertarianism seems patently false. It would appear that he makes this up as he goes along, with no justification for it whatsoever. He offers no evidence for his claim. Nor is this any slip of the tongue on part; not a typographical error he has committed. Indeed, he doubles down on this perspective of his: “However, refutations are themselves conjectural. So no refutation is ever justified either.” But if this is true, it is difficult to see how he can refute my refutation of Friedman,

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<sup>2</sup> All subsequent references to this author will refer to this one publication of his.

<sup>3</sup> This inclines me in the direction of being supportive of this author, but, I shall strive mightily to accurately assess what he says despite that compliment, which I treasure.

<sup>4</sup> All men are mortal; Socrates is a man; therefore, he is mortal.

<sup>5</sup> Of course, on a flat surface, not like the surface of the third planet.

which, supposedly, is the purpose of his present essay.

Happily, after relieving himself of these skeptical thoughts, he leaves off them and never discusses them again. Instead, he

*“mention(s) the type of liberty that I assume libertarians to be defending. It is a kind of interpersonal liberty. In particular, it is about people being unconstrained by other people’s interferences, or invasions, or aggressions, or trespasses, or – as I prefer to theorize it – it is about the absence of proactively imposed costs...”*

This is mostly correct. Libertarianism indeed focuses on interpersonal issues. When Robinson Crusoe is alone on his island, no libertarian issue can arise.<sup>6</sup> And, yes, “invasions, aggressions, trespasses are certainly proscribed by this philosophy.” But even at this early stage of the development of his views, he is not fully correct. For example, it is fully compatible with this view of what the law should be that some people are “constrained by other people’s interferences.” For example, I buy a loaf of bread. I “interfere” in the bread market. Due to my capitalist act, the price of this commodity rises by a small amount. You, who was about to purchase this foodstuff can no longer afford to do so at the slightly higher price. You are constrained. Am I a criminal?<sup>7</sup> Of course not. But, I did “constrain” you.

Lester also sees libertarianism in terms of eliminating “proactively imposed costs.” But, by purchasing bread, I “proactively imposed costs” not only on you but on everyone else. In return, in order to get even with me for my wild bread purchase, you seduce my wife away from me. You have now “proactively imposed costs” on me. Are you a criminal? Again, of course not, provided, only, that you did not threaten or use violence against my wife, in your nefarious scheme.

Lester upbraids me as follows:

*“Therefore, when Block asserts that his deontological libertarianism —is based on the nonaggression principle (NAP)... there are at*

*least three possible problems. 1) This statement is fine as long as he means —based only in an explanatory sense, but not if he means it in any kind of grounding or justifying sense. 2) He cannot be literally right to explain this as —no one may properly initiate violence against another person or his justly owned property. For a thief need not to use violence (e.g., when shoplifting: a shoplifter is not thereby a ‘violent criminal’, is he?). And libertarian police may legitimately initiate violence against a non-violent thief, if necessary. 3) Any actual theory of liberty is at best tacit.”*

In my defense, he quotes me out of context. Here is the full quote:

*“There is not one philosophy of libertarianism, but rather there are two. One of them, the utilitarian, is predicated on the notion that the free economy tends to bring about that state of affairs which is preferred by all or at least most of its members; the one that maximized utility. The other school of libertarian thought is the deontological one. It is based on the nonaggression principle (NAP), according to which no one may properly initiate violence against another person or his justly owned property. The latter is based upon homesteading and legitimate title transfers, such as those that emanate from free trade or gifts.”*

I do not think it is incumbent upon me to take back a single word of this statement. I am not here either “explaining” or “justifying” anything. Instead, I am merely offering this as a statement of fact. Does Lester believe that the NAP has nothing to do with libertarianism? In this short statement, of course, it is impossible to include all elements of this philosophy. Of course, shoplifters, and pickpocket man and those who engage in bad check writing and other types of fraud are not “violent.” But, still, they do improperly transfer from their victims to themselves the “justly owned property” of others. Our author is mistaken in thinking that “libertarian police may legitimately initiate violence against a non-violent thief.” When and if they properly use violence, they would not thereby be *initiating* it; rather, they would be reacting to a prior denigration of the NAP on the

<sup>6</sup> I say this even though I know I am an imperfect human being, and can be wrong when I least expect it.

<sup>7</sup> Libertarianism, in my view, focusses mainly on just law; what the law should be.

part of the criminal. Let me put this in another way. The short passage of mine quoted by Lester at this point indicates the *necessary* conditions of libertarianism. Without the NAP, this philosophy all but disappears. But it is not a *sufficient* statement. I cannot anticipate all objections. It is picky, picky, say, I, to expect a short statement of this sort to cover the entire waterfront. But if we seek more exactitude, the both of us, him in 2014, me in 2011A, but not me now, missed one point: threats. A better short statement of libertarianism would also rule out threats of violence, not only engaging in the latter.

## 2 INITIAL CRITICISMS

### 2.1 Initiation of coercion

Lester does not much appreciate my example of the libertarian Nazi concentration camp guard. The specifics of that case were that ordinarily, each guard murders 100 Jews, gays, black, Romany, per day. Our hero enlists in this, of course, unjustified killing, but he puts to death only 90 innocent people daily, saving 10. If he killed any fewer, saved any more, his cover would be blown and he would no longer be able to engage in these benevolent acts.<sup>8</sup> When the libertarian Nuremberg trial takes place, he will be found guilty, and his life can be spared only if the heirs of *all* the people he has done away with forgiving him for his errand of mercy.<sup>9</sup>

Lester rejects this analysis on the following grounds:

*“Many people would surely disagree – I am not convinced myself – and so the force of the point is weak. 2) The other Nazi guards were behaving in accordance with German state-law at the time. And, without going into details, the Nuremberg Court is problematic as an example of libertarian law in action”*

But this is problematic. Ethical and legal analysis is not a matter of nose-counting. We do not arrive

at the truth about these issues based on democratic voting. We are interested, instead, in the logic of the matter: does the analysis faithfully adhere to the NAP, libertarian punishment theory<sup>10</sup> and deductions therefrom, or not? Lester points out no error in my thinking, but contents himself with relying on irrelevant majority rule, about which, I concede, he is undoubtedly correct. Lester is not convinced himself. I have a question for him: What would it take to convince you? It is a philosophical howler to justify what these despicable (nonlibertarian!) concentration guards did to their hapless victims on the ground that “other Nazi guards were behaving in accordance with German state-law at the time.” This, from a libertarian? It is bad enough to engage in majoritarianism instead of carefully thinking through an issue, but this is a matter, even worse, of legal positivism: whatever the government does is necessarily justified. A low rung in the hell is reserved not for those who articulate this view, but for the view itself if there be such a place for erroneous perspectives. It is simply not true that governments can do no wrong; and, certainly, this is incompatible with the libertarianism with which Lester has so long and properly been associated.

He casts doubt on the veracity of the actual Nuremberg findings but, curiously, offers no reasons for this stance. Is, “I was only following orders” to be exculpatory, according to this libertarian theoretician?

Lester now offers the case of the person who “takes a car without permission so that he can ram open the jammed doors of a burning office block and rescue the trapped occupants. The car is destroyed but the people are freed.”<sup>11</sup>

He then asks:

*“Was his behaviour moral? I suspect that most self-identified libertarians would agree that it was. Did it flout libertarian law? Yes, because he stole and destroyed the car and now owes compensation to the car’s owner. So what does*

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<sup>8</sup> If you don’t believe this, ask the 10 people he saves every day.

<sup>9</sup> He knows this; he saves lives at the possible cost of his own. If that is not heroic, then nothing is.

<sup>10</sup> About which more below

<sup>11</sup> This is similar to the case in the movie “Dr. Strangelove” where someone shoots a Coke machine in order to get change to make a phone call which will save the planet from nuclear war.

*this show? It does not show that libertarianism is not about morals. It merely shows that morality and libertarianism can sometimes diverge in extremis. But that does not alter the fact that it is usually moral to respect libertarian law. Moreover, libertarianism is not a theory of what the law currently is anywhere. It is, at most, a theory of what the law ought to be. And thus, libertarianism is partly a moral theory. More precisely, however, libertarianism is an ideology. Therefore, it contains both factual and moral theses. Broadly understood, these theses are that liberty generally promotes human welfare and is moral. In fact, the law does not need to be mentioned at all.*

I have a different take on the matter. In my view, libertarianism solely concerns “what the law ought to be.” Lester and I agree on that. But, this philosophy does not concern morality at all. Stipulate that it is immoral to get drunk, to engage in prostitution, to commit suicide. These acts are highly immoral, indeed, paradigm cases of immorality. And, yet, libertarianism does not lay a glove on any of them. They are all compatible with this ideology. Thus, “libertarianism is *not at all* partly a moral theory.” The two are orthogonal to each other. Another error, here, is to say that libertarianism contains a “factual” thesis. Yes, “liberty generally promotes human welfare” but this is a positive statement, not a normative one, and libertarianism lies entirely within the latter realm.

As well, our author blatantly contradicts himself. At one point, he writes, correctly: “... libertarianism is not a theory of what the law currently is anywhere. It is, at most, a theory of what the law ought to be.” But at another point, he brings himself to aver: “So much for the thesis that libertarianism is not about morals at all, but only about law. On the contrary, it is not inherently about law at all and it is inherently about morals.” At yet another place in his essay, he maintains: “As we have seen, libertarianism is not a theory of law, as such, and there might not even need to be laws in a libertarian society.”<sup>12</sup> Well, which is it?

Either libertarianism is about law and what constitutes proper law, or not. It is difficult to see how our author can take both sides of this logical divide.

## 2.2 Absolute control

Friedman severely upbraided Rothbard (1982A) over radio waves, and Lester followed suit. What did Rothbard do to deserve such calumny? He maintained that radio waves were not a per se rights violation, even though they were pretty much everywhere, and even intersected with third parties and their possessions.

Here is what Rothbard (1982A) had to say about this subject:

*“...consider the case of radio waves, which is a crossing of other people's boundaries that is invisible and insensible in every way to the property owner. We are all bombarded by radio waves that cross our properties without our knowledge or consent. Are they invasive and should they, therefore, be illegal, now that we have scientific devices to detect such waves? Are we then to outlaw all radio transmission? And if not, why not?”*

*“The reason why not is that these boundary crossings do not interfere with anyone's exclusive possession, use or enjoyment of their property. They are invisible, cannot be detected by man's senses, and do no harm. They are therefore not really invasions of property, for we must refine our concept of invasion to mean not just boundary crossing, but boundary crossings that in some way interfere with the owner's use or enjoyment of this property. What counts is whether the senses of the property owner are interfered with.”*

*“But suppose it is later discovered that radio waves are harmful, that they cause cancer or some other illness? Then they would be interfering with the use of the property in one's person and should be illegal and enjoined, provided of course that this proof of harm and the causal connection between the specific invaders*

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<sup>12</sup> Here, Lester falls into the Marxist trap of thinking that under a libertarian society, there would be such a thing as “libertarian man” akin to the “communist man” of the Marxists. No, even in an

otherwise libertarian society, it is extremely likely that there will still be a few murderers, rapists, thieves and other reprobates. Libertarians, apart from Lester, are typically more realistic on such matters.

and specific victims are established beyond a reasonable doubt.”

“So, we see that the proper distinction between trespass and nuisance, between strict liability per se and strict liability only on proof of harm, is not really based on ‘exclusive possession’ as opposed to ‘use and enjoyment.’ The proper distinction is between visible and tangible or ‘sensible’ invasion, which interferes with possession and use of the property, and invisible, ‘insensible’ boundary crossings that do not and therefore should be outlawed only on proof of harm.”

“The same doctrine applies to low-level radiation, which virtually everyone and every object in the world emanates, and therefore everyone receives. Outlawing, or enjoining, low-level radiation, as some of our environmental fanatics seem to be advocating, would be tantamount to enjoining the entire human race and all the world about us. Low-level radiation, precisely because it is undetectable by man’s senses, interferes with no one’s use or possession of his property, and therefore may only be acted against upon strict causal proof of harm beyond a reasonable doubt.”

But Lester is having none of this. He maintains:

“There are two main problems with this. First, radio waves are objectively invasive of other people’s property: they physically pass through human bodies and many other things. Therefore, this does not —refine our concept of invasion. Instead, what it implies is that some invasions are to be allowed. Second, what counts cannot be —whether the senses of the property owner are interfered with because a) trespassing would be acceptable as long as no —senses of the property owner are interfered with (and most libertarians would not think that even undetected trespassing is acceptable); b) damage would be acceptable as long as no —senses of the property owner are interfered with (and most libertarians would not think that even undetected damage is acceptable); and c) some \_sense interferences’ need to be tolerated if liberty is to be maximized.”

There are problems with his critique of Rothbard, serious ones. According to Mary Tyler Moore, “Love is all around us.” In the considered view of scientists, this applies, also, to low-level radiation, as for example, that emanating from radios. It, too,

is “all around us.” That is to say, it most certainly is not “objectively invasive of other people’s property,” or their persons. Consider some of the evidence.

In the view of Valberg (2006):

“Radiofrequency (RF) waves have long been used for different types of information exchange via the airwaves—wireless Morse code, radio, television, and wireless telephony (i.e., construction and operation of telephones or telephonic systems). Increasingly larger numbers of people rely on mobile telephone technology, and health concerns about the associated RF exposure have been raised, particularly because the mobile phone handset operates in close proximity to the human body, and also because large numbers of base station antennas are required to provide widespread availability of service to large populations. The World Health Organization convened an expert workshop to discuss the current state of cellular-telephone health issues, and this article brings together several of the key points that were addressed. The possibility of RF health effects has been investigated in epidemiology studies of cellular telephone users and workers in RF occupations, in experiments with animals exposed to cell-phone RF, and via biophysical consideration of cell-phone RF electric-field intensity and the effect of RF modulation schemes. As summarized here, these separate avenues of scientific investigation provide little support for adverse health effects arising from RF exposure at levels below current international standards. Moreover, radio and television broadcast waves have exposed populations to RF for > 50 years with little evidence of deleterious health consequences. Despite unavoidable uncertainty, current scientific data are consistent with the conclusion that public exposures to permissible RF levels from mobile telephony and base stations are not likely to adversely affect human health.” (emphasis added by present author)

Further, low-level radiation emanates from radio waves, but also from such sources as bricks and well water. Here are some other sources: “Air Travel, Airport Security Screening, Building Materials, Wearable Computers, and Wearable

Technology.”<sup>13</sup> This even applies to “the heat that is constantly coming off our bodies” (ACS, undated).

According to the Centers for Disease Control (2015):

*“Some building materials contain low levels of radioactive material. Building materials that are made up of sandstone, concrete, brick, natural stone, gypsum, or granite are most likely to emit low levels of radiation.... Building materials that are made up of sandstone, concrete, brick, natural stone, gypsum, and granite are highly unlikely to contain radioactive material that will increase radiation dose above the low levels of background radiation we receive on a daily basis.... What is the risk from radiation found in building materials? For the most part, the levels of radioactive materials found in building materials are very low. These low levels of radioactive material and the radiation emitted by them are unlikely to harm human health.”*

States the IAEA (undated):

*“Radioactivity is a part of our earth - it has existed all along. Naturally occurring radioactive materials are present in its crust, the floors, and walls of our homes, schools, or offices and in the food we eat and drink. There are radioactive gases in the air we breathe. Our own bodies - muscles, bones, and tissue - contain naturally occurring radioactive elements. The man has always been exposed to natural radiation arising from the earth.”*

Further, Davis (undated) lists numerous “everyday sources of radiation, including:

television, drinking water, natural gas, consumer products (such as Cell phones, fluorescent lamps, watches, clocks, televisions, computers, and even ceramics and glass), soil, radon, plane travel, medical imaging and cigarette smoke.”<sup>14</sup>

Lester’s second reason is equally invalid. It is not that there is “undetected damage (that is) is acceptable.” It is rather that this so-called “damage” is undetectable, apart from the use of special technology. Why call it “damage” then, when the victim simply cannot be even aware of it, not with his five senses in any case, nor does it harm him, from an objective medical point of view. Thus, there are simply no “sense interferences (that) need to be tolerated if liberty is to be maximized.” Liberty does quite well with “incursions” of this sort.

William Jennings Bryan famously demanded that “you shall not crucify mankind upon a cross of gold.” Lester and Friedman are trying to crucify Rothbard and me upon a “cross of radio waves.” The case they offer in this regard is exceedingly weak.

Lester in this section also mentions “clashes of liberty.” He is very much mistaken in this point as well. Under libertarianism, it is akin to a logical contradiction for there to be a clash of rights. If there appears to be one, then one or the other of these supposed rights, or, both of them, are mis-specified. If there were any such thing, then the freedom philosophy would have no answer to a given problem, a lacuna very much to be avoided.<sup>15</sup>

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<https://www.cdc.gov/nceh/radiation/sources.html#objects>

<sup>14</sup> For additional evidence, see American Cancer Society, Undated; Centers for Disease Control, 2015; Cohen, 2011; Davis, Undated; Feinendegen, 2004; IAEA, Undated; McLean, 2017; Oxford, 2017; Tasker, 2011;

<sup>15</sup> In the view of Dominiak (2017) Natural property rights ... must avoid conflicts or they will not be natural property rights—rationally justified claims—since consistency is the necessary condition for any rational justification. Regardless

of what the other characteristics of natural property rights are and which rights are actually rational and just, one thing is beyond doubt: no system of rights that runs against the law of non-contradiction can fit the bill. From the purely conceptual point of view, rationally justified rights cannot be contradictory. And, states Hoppe (2006, p. 319), libertarianism endorses a “theory of property as a set of rulings applicable to all goods, with the goal of helping to avoid all possible conflicts by means of uniform principles.” Translation from these two authors: there is no, there can be no, rights clashes in any coherent version of libertarianism.

He started this section on the wrong foot, and ends there too. He summarizes:

*“If I prefer not to have either your carbon dioxide or your radio waves objectively invading my property, including my body, then they do proactively impose on me to some small degree when they do so. But for me, or my agents, to prevent you from producing carbon dioxide or radio waves would proactively impose to a vastly greater extent on you (especially the prevention of your carbon-dioxide emissions). And the liberty-maximizing policy must be to prefer the lesser imposition. Moreover, the imposition on me is so trivial with radio waves that any compensation is too small to be economic to collect.”*

According to the evidence adduced above, there is no “proactive imposition.” No harm, no foul. Move along folks, nothing to see here.

### 2.3 Super flashlights

Friedman makes the point that there are no such things as absolute property rights. Lester supports him. I am not exactly sure what this means, but Friedman’s demonstration of this contention is that “a thousand-megawatt laser beam” shined on someone’s house will do it damage. Therefore, an ordinarily flashlight, with miniscule power, somehow establishes that property rights are not absolute.<sup>16</sup> I tried to rebut this claim on the ground that just because there is a continuum of light power does not mean we cannot distinguish those that violate property rights from those that do not. Yes, to be sure, there will be a gray area somewhere in between, as there are in many cases, such as age cut off points for statutory rape. But this hardly rebuts the point that the everyday flashlight cannot violate property rights by being shined on a house.

Lester defends Friedman, and rejects my analysis on the following grounds:

*“The correct answer to Friedman is that libertarian property rights are not absolute. They have to be modified where there is a clash with interpersonal liberty. And so, for instance, it proactively imposes on me significantly if I am not allowed to have ordinary lights on my property (or must have perfect blackouts). But it proactively imposes on you to a tiny degree that my photons objectively invade your property. So the lesser imposition must be preferred.”*

I reject Lester’s examination regarding this supposed “clash of rights.” He has established no such thing. He offers no solution to this “problem” apart from his very subjective weighting of greater and lesser impositions.

Consider this reductio. I value punching Lester in the nose at the level of \$100. He disvalues this at only \$80. So, according to his analysis, if I punch him in the nose, GDP rises by \$20. But more; and worse. Would it be a violation of libertarianism for me to punch him in the nose from his perspective? No. Because GDP will in this way be raised. This is, to say the least, a strange kind of libertarianism. This is certainly not the Rothbardian variety. It is more compatible with the “libertarianism” of David Friedman and Lester.

There is simply no clash of rights when A shines his flashlight at B’s house. There most certainly is when A wields, instead, “a thousand-megawatt laser beam” in that direction. Then, and only then A is a rights violator.

Lester ends his analysis of this matter on this note: *“And there will be no compensation due, either because the damages would be too small to collect or because of the equivalent opposite—invasions cancelling any claim.”*

Not so, not so. The rich, presumably, have more light at their disposal than the poor. The poverty-stricken will claim that these emanations cut them to the quick. If Lester has his way, all of these “damages” from the chandeliers of the wealthy

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<sup>16</sup> Coase (1960) is perhaps the most famous analysis of private property rights from a Chicago School perspective. For a critique, see Barnett and Block, 2005, 2007, 2009; Block 1977, 1995, 1996, 2000, 2003B, 2006, 2010A, 2010B, 2010C, 2011B; Block, Barnett and Callahan, 2005;

Bylund, 2014; Cordato, 1989, 1992a, 1992b, 1997, 1998, 2000; DiLorenzo, 2014; Fox, 2007; Hoppe, 2004; Krause, 1999; Krecke, 1996; Lewin, 1982; North, 1990, 1992, 2002; Rothbard, 1982, 1997; Stringham, 2001; Stringham and White, 2004; Terrell, 1999; Wysocki, 2017.

shining on the poor a few miles away will be determined by ultra-subjectivists such as himself. Who knows, then, whether plaintiffs demands for compensation will be honored. Once we wrench our way away from “absolute property rights” whatever they are, we are as at sea without a rudder. Anything can occur, in Lester land.

One last point on radio waves. Opines Lester: “ ‘Rothbard is said to be right where he says, —Only if the radio transmissions are proven to be harmful to Smith’s person beyond a reasonable doubt should Jones’s activities be subject to an injunction.’ But that cannot be right, for there could be detectable but insignificant harm that is outweighed by the huge benefit of radio transmissions.”

But this will not do. As we have seen, there are indeed “detectable” effects, not “harms” due to waves emanating from bricks, water, the earth, the human body, etc. If we take Lester’s claims to their logical conclusion, and where else should we take them, the courts will be inundated by all sorts of highly irregular claims. The proper reaction is to give them the back of our (intellectual) hands, and, when and if such lawsuits arise, dismiss them on the basis of being frivolous lawsuits. The plaintiffs should be fined for their audacity. And, yet, according to Lester’s perspective, plaintiffs would be justified in asking courts to “weigh” benefits and costs emanating from such sources.

## 2.4 Probability of risk

Here, the stick with which to beat up on the Rothbardianism I endorse is based on airline crashes which supposedly violate the property rights of those on the ground. Lester is keen enough to see this as “Friedman applying similar arguments (as in the flashlight case, supra) to risk.”

What are the specifics?

Lester offers similar arguments to the above:

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<sup>17</sup> We abstract from those in the airplane. Presumably, there are there voluntarily, and thus there can be no question of rights violation from a crash.

<sup>18</sup> Benson, 1990, 2002; Berman and Dasser, 1990; Friedman, 1979, 1989; Hoppe, 2001;

“... rightly conceived, libertarianism is not about absolute non-invasiveness; it is about minimizing invasions. Where there is a clash, the lesser imposition is to be preferred and any significant compensation will be due.”

He now applies this to air flight:

“In the case of flying a plane, a weighing is more plausible. It does proactively impose on some people that they are at an extremely small risk of being hit by a falling plane. But that risk is probably too small to be worth suing for. It would proactively impose to a far greater degree if people were not allowed to fly by plane. Therefore, tolerating flying is liberty-maximizing (or proactive-imposition minimizing).”

In my view, in contrast, no “weighing” is necessary. The issue is, is flying a plane a *threat* to those on the ground,<sup>17</sup> not whether or not it is a risk. Everything is a *risk*, everything. There is some small risk that when a normal person walks, he will keel over and accidentally commit assault and battery on someone else on the sidewalk. Given air safety records, they do not impose a threat. Yes, yes, if crashes per passenger mile quadrupled, and then quadrupled once again, God forbid, we would be approaching, if not surpassing, that gray area where the mere risk turns into the sort of threat proscribed by libertarianism. On this basis, Lester asserts that the “non-aggression principle is not ‘intact and unscathed’ as I would have it. I readily acquiesce in the view that the NAP alone, while it is necessary, it is not sufficient for a well-functioning legal system. We need courts, hopefully, private ones,<sup>18</sup> to deal with these gray areas: how close, and in what context, does your fist have to be to my nose so that I am justified in taking violent defensive action, what is the proper statutory rape cut-off age, etc. The NAP remains “intact and unscathed” as a *principle*, the attempts by Friedman and Lester to undermine it

Marcus, 2009; Osterfeld, 1989; Popeo, 1988; Peden, 1977; Rothbard, 1973A, 1973B, 1982B, 1991; Stringham, 1998-1999; Tannehill and Tannehill, 1984, 2001; Thierer, 1992; Woolridge, 1970; Young, 2002

notwithstanding; but it never was the be all and end all of an entire legal system. Says Lester: “Block has no adequate theoretical solution here.” Of course, I do: the NAP. But an adequate theoretical solution can only do so much. It does not exhaust all of the libertarian law.

Let us end this section by considering Lester’s view on the justification of self-ownership. He states:

*“Strictly speaking, in all normal cases, allowing the use of other people’s bodies without their permission would be an immense proactive imposition on them. But not being allowed to do this would be a relatively trivial imposition. Hence self-ownership is derived from applying liberty as minimizing proactive impositions. But we no more need to try to weigh the difference than we need to weigh an elephant against an ant to determine which is heavier.”*

Oh yes, we do indeed need to “weigh” these matters. The only heart surgeon in town is about to go off to his vacation. What does he do on his holiday? Frivolous things: lying on the beach, playing poker, getting drunk, etc. Nor do these activities replenish the batteries of the doctor; as a matter of fact, they reduce them. At the same moment, townsfolk becomes ill and needs heart surgery. This man is the salt of the earth, an inventor, a family man, someone who will greatly increase the GDP. Yes, we have an “elephant against an ant” here. But the elephant is the patient, and the doctor is the ant. According to Lester, the physician should be compelled to at least postpone his vacation if not cancel it entirely. Surely, at least according to the utilitarianism suffered by both Lester and Friedman, the police would be justified in doing exactly that. Yet, it seems difficult to reconcile this sort of forced labor, not to say (short term, or partial) slavery, with libertarianism.

## 2.5 Homesteading

Previously, I objected to Lester imposing upon me (and my mentor, Rothbard) a “cross of radio waves.” I now resist his attempt to do so again, only this time with John Locke. For some reason, known, perhaps, only to himself, Lester in effect maintains that I support Locke’s view that the earth belongs to “mankind in common.” He offers no evidence for this false belief of his. Lester also

queries my reliance on Locke for homesteading, that is, “mixing one’s labor” with the land as a legitimate way of establishing ownership of it. How can I both insist that “Locke is a relatively poor representative of libertarian homesteading theory” and yet cite him on “mixing one’s labor” with the land as a means of homesteading, he asks. It is simple. Locke is perhaps the most famous philosopher associated with this idea, and, yet, he erred in thinking, inconsistently, that land should be the common heritage of all mankind, that is, owned equally. This would not be the first time in the history of economic and philosophical thought that one and the same person sometimes was brilliant, and, at other times, the very opposite.

Whereupon Lester asks three questions of me and proceeds to answer them in my behalf, for which I am very grateful. The questions and answer are as follows:

### Lester’s Question 1.

“How does —homesteadingll relate to a clear theory of liberty (for Block is supposed to be explaining libertarianism, which ought to have principles explicable in terms of liberty itself and not ad hoc additions)?”

### Lester’s Answer 1.

*“The reason that initial acquisition (or —homesteading) is libertarian is that it strongly tends to maximize liberty, i.e., minimize interpersonal proactive impositions (or, if one prefers, minimize interpersonal interferences, aggressions, invasions, initiated constraints, etc.). Without it, we face the tragedy of the commons’ whereby economizing is drastically curtailed because people cannot help being a nuisance to each other.”*

### My Comment on Lester’s Q&A1.

That “minimize interpersonal proactive impositions” business is highly problematic. Yes, I vastly prefer to “minimize interpersonal interferences, aggressions, invasions, initiated constraints.” Moreover, private property rights are hardly “ad hoc additions.” Rather, they, along with the NAP, are the very heart and soul of this philosophy. Without private property rights, both in persons and in physical possessions, the very NAP makes no sense whatsoever. For, what is a kick in the teeth apart from a violation of someone’s property in their own body?

### Lester's Question 2.

"Why a labor theory of initial acquisition (it sounds as anachronistic and dubious as the labour theory of value)?"

### Lester's Answer 2.

"Labour-mixing is not a bad rule of thumb for initial acquisition. It usually works because when others, without our permission, take material things that we have made useful by our labours, then they thereby significantly interfere with our projects (and thus proactively impose on us). However, theoretically speaking, labour is completely irrelevant. If we simply start to use something that was previously unowned, then the imposed interventions of other people will be a constraint on our projects. No labour-mixing is necessary. It can be sufficient that we are using the resources in question. Of course, without somehow establishing boundary claims we are in a weaker position. For then it is often not clear what we are claiming or that there really is a pre-existing claim (rather than someone making a claim at that moment or even retrospectively). Consider Block's assertion, if I place a fence around a square mile of land, I own the periphery, but not the inside of it. On the contrary, a fence might well suffice for the inside too. For I might have a use for keeping the land exactly as it is for a variety of reasons (as an investment, a beauty spot, a sacred grove, etc.). It would proactively impose on me to require me to mix my labour with it when that would be both irksome and reduce the value or even destroy it (maybe if a sacred grove or beauty spot). But, we may suppose, I do not significantly (anywhere near as much) interfere with, or proactively impose on, or initiate a constraint on, you in your projects by taking this place for myself. Strictly speaking, what is necessary is not labour-mixing but simply using (in whatever way) such that interventions would impose on us more than our ownership imposes on others."

### My Comment on Lester's Q&A2.

Lester is a native speaker of the English language. Yet, he does not seem to realize that "mixing labor" with something is the very same thing as is

"using" that very thing, whatever it is. The labor theory of value sounds quite a bit like the labor theory of homesteading or the "labor theory of initial acquisition." But the former is an entire erroneous attempt at economic explanation. It belongs in the realm of positive economics. Why is Mercedes so valuable, and rubber bands not? It is questions of this sort that the labor theory of value attempts to answer. The explanation of such theorists is that the former has more labor embodied in it than the latter. But, a mud pie and a cherry pie have the same amount of labor inputted into them and yet one is valuable and the other is not. Moreover, how can prices of an already manufactured good change, when the labor put into it cannot? These are some of the refutations of the labor theory of value. The "labor theory of initial acquisition" is an altogether different animal. It belongs in the category of normative, not positive, economics. It asks under what conditions property may be owned *justly* and answers only when the owner has *mixed his labor* with the material in question, or *used* it.

Lester's challenge regarding the "sacred grove," or the "beauty spot," or the "nature preserve" is an important one. It deserves a serious answer. However, I have already done so (Block and Edelstein, 2012), and, instead of repeating myself, refer the interested reader to that publication.<sup>19</sup>

There is yet another reason why all the territory within the periphery must be homesteaded, and that merely building a fence around the property will not suffice. Consider the state of Ohio. Its boundaries form roughly a roundish square, so to speak. Suppose I were the first one in that area, and I built a fence around the entire Buckeye state. According to Lester, I would own the entire property, which, in and of itself, is highly problematic, since I have not even come close to mixing my labor even with every 10 square miles of its land. Even worse, however, is, who is to say what is "inside" and what is "outside" of this periphery? Whenever a (suarish) circle is imposed upon a sphere such as earth, it is entirely arbitrary to claim that the smaller area is "inside"

mice, elsewhere, and then setting them loose in the soon to be privately owned, but not touched by human hands or feet, nature preserve.

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<sup>19</sup> Hint: people can homestead land indirectly, via cows and sheep. They can also do so for nature preserves by first capturing worms and bugs and

and that the bigger one is “outside.” Let us reverse this matter, since there is no reason not to. I now claim not what is *outside* my fence, namely, the area that now contains such places as Cleveland, Columbus, and Cincinnati, but, rather, what is *inside* of it, namely, the *entire rest of the world*. The point is, Lester’s recipe could end up not merely with me owning all of Ohio, a manifest absurdity, in and of itself, but the entire remainder of the planet, apart from this one state, which is even more bizarre.

### Lester’s Question 3.

*What if someone —homesteads the sole natural water supply: in a drought, do others then have to pay whatever he chooses to charge or go without water?*

### Lester’s Answer 3.

*“... the libertarian principle of minimizing interpersonal proactive impositions (or constraints, etc.) overrides his ownership. Such extreme situations are undoubtedly rare, but they illustrate two things. First, —homesteading is not inherently libertarian. Second, the libertarian principle is ultimately pre-propertarian.”*

### My Comment on Lester’s Q&A3.

What if one person figures out how to make a rocket that will reach Mars, and, also, invents the technology to allow humans to live on the fourth planet. Everyone knows that for some reason, the earth will soon explode, and all those still remaining here will perish. Do others then have to pay whatever he chooses to charge or go without being able to live on Mars?

Yes, of course, they do. That is the way the cookie crumbles. This sounds harsh, but, private property rights, and the NAP, über alles.

Now let me pose a counter question to Lester, and, also, answer it for him.<sup>20</sup> Under which conditions are people more likely to make these inventions, and amass the capital that will allow us to transfer to Mars and successfully live there? Is it one which respects private property rights, and

the NAP, as all good Rothbardians do, or is this more likely to occur under Lesternomics, where private property rights can be abrogated, and the NAP violated, as long as someone,<sup>21</sup> thinks that by doing so, this will “minimize interpersonal proactive impositions?” To ask this is to answer it. Of course, economic freedom is not only the only just system, but it is also the most prosperous one.<sup>22</sup> It is also the one most likely to get us to Mars, when we need to do so.

The identical considerations apply to water. We are much more likely to have well-developed water resources under private ownership and the NAP (Block and Nelson, 2015), than with any other possible system. It sounds horrendous, and preposterous, that the water “monopolist” could charge an arm and a leg for this product; but, paradoxically, if we allow for this possibility in law, it is less likely to occur than if not. What are the alternatives? There are only two. One, non-ownership of water, in which case it will disappear, due to the tragedy of the commons. Two, the government bureaucrat/politician will own all the water and will do to the populace precisely what Lester fears will emanate from the private owner if any of it is left after their depredations. No truer words were ever said than these by Milton Friedman (1980) “If you put the federal government in charge of the Sahara Desert, in five years there’d be a shortage of sand.” Ditto for water.

Libertarianism, properly understood, does not countenance anyone “overrid(ing) (any one else’s) ownership.” We have a word for such “overriding.” It is called theft. This is anathema to liberty, its polar opposite. Contrary to Lester, “homesteading is (indeed) inherently libertarian.” I often think of libertarianism as a two-sided coin. On one side is the NAP. The other side? Wait for it: private property rights that are *not* “overridden.” To say that libertarianism “is ultimately pre-propertarian” is to seriously misunderstand and deprecate this viewpoint.

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<sup>20</sup> No good deed ever goes unpunished.

<sup>21</sup> Lester himself, one wonders? Maybe, David Friedman?

<sup>22</sup> There is such a wealth of empirical evidence for this claim that I would be embarrassed to mention any of it, certainly not in an intra-libertarian debate, such as this one.

## 2.6 Resource value

I have no comment on this short section of the Lester paper. I mention it only because I want to follow the organization of his essay.

## 2.7 Crime and punishment

Lester begins this section with an inquiry as to “what degree of proof should be necessary.” I have nothing original to add to the commonplace viewpoint on this matter. To wit, for a criminal charge, the evidence should be “beyond a reasonable doubt”; if we placed a number on this, it would be, oh, 95%. For a tort, the aphorism would be “the preponderance of the evidence,” or “more-probable-than-not”. To quantify this, it would be 51%. And, also, there is a third level of proof, for cases, for example, of sexual harassment charges at a university: “clear and convincing evidence,” at 75%. In all these lawsuits, there should be the presumption of innocence, coupled with the legal insight that possession is nine-tenths of the law. The burden of proof should always rest with the plaintiff, not the defendant. Here, I expect, Lester and I might well be in full agreement.

Secondly, he maintains: “*to duly convict and punish an innocent man who one honestly believes is almost certainly guilty would be possibly tortious but not criminal.*” Here, this author and I part company.

Friedman and I are both libertarian anarchists, both anarcho-capitalists. As such, there is no government in operation in our worldview. There are just folks, none with any more rights than anyone else. Suppose A kidnaps B. That is, A puts B in a cage, and keeps him there for a year. Posit that C also kidnaps D. That is, C places D in a similar enclosure, and keeps him there for twelve months as well. A and C act in the same way; they both use force against B and D, respectively, the latter of whom are entirely innocent of any crime whatsoever. The motives of A and C are entirely different, however. A engages in his act out of

malevolence. He hates B, and wants him to suffer. C in sharp contrast, represents a court, a private one, and he is the judge in charge of it. D has been (erroneously – remember, D is innocent) found guilty of a crime, and C has sentenced him to one year in jail.

Lester would consider A a criminal, and C only guilty of a tort. This is all well and good -- for statists. They see a sharp difference between someone acting governmentally, and someone acting privately. But Friedman and I, if I can speak in his behalf in this matter, reject statism. For us, there is no difference between acting governmentally, and privately.<sup>23</sup> Under anarcho-capitalism, there is no such thing as the former. There are only folk, and other folks, and there is no difference between them as far as the law is concerned. To be sure, the motives of A and C are entirely different. A may know he is a criminal, and yet acts as a kidnapper in any case. C honestly believes that D is guilty of a crime, and that a year in the pen is the appropriate punishment for his abhorrent act. Motive schmotive, say I. Of far more importance is the actual act. Ok, ok, the motive is not entirely irrelevant in libertarian punishment theory, it can distinguish accidents from purposeful acts. But, surely, the behavior is the first thing we look at as libertarians in terms of criminality, and, both A and C took away the freedom of B and D for the same amount of time. Thus, C is a kidnapper in effect, if not in intention, and kidnapping is a crime, so C is a criminal.

In Lester’s view, “... it would be absurd to say that any policeman, judge, or jailer acting in good faith and using the best libertarian practices were thereby themselves criminals because of their mistakes.” That does not seem at all absurd to me. After all, these “mistakes” were the cause of initiating violence against an innocent person. This is in direct contradiction to the all-important NAP.

What would our court system look like given the regime I recommend? The “policeman, judge, or jailer” would be *exceedingly* sure that anyone they

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<sup>23</sup> Says Mr. Libertarian on this (Rothbard, 1973, p. 49): “if you wish to know how libertarians regard the State and any of its acts, simply think of the

State as a criminal band, and all of the libertarian attitudes will logically fall into place.”

punish was actually guilty of a crime. For, if they erred, they would pay for their mistake not only in terms of lost revenue but with actual criminal charges. “Innocent until proven guilty” might well be changed into “Innocent until really, fully, without much doubt at all, proven guilty.” We might raise that 95% to 99.9%. This would be all to the good, since proper law abhors, most of all, confining innocent people in prison. Allowing a guilty man to go free is horrific, but only secondarily so.

## 2.8 Extent of punishment

In my view, proper libertarian punishment consists of four levels. What are they? Suppose X steals Y’s car. The first level would compel X to return the vehicle to Y.<sup>24</sup> Surely no one, not even a non-libertarian, can object to that. Second, what X did to Y should now be visited upon the perpetrator. Namely, X should be obliged to give to Y his own car, of equal value.<sup>25</sup> This means two cars, or, in biblical terms, “two teeth for a tooth.” Third, if X immediately turns himself over to the authorities, then there are no costs of searching for this miscreant. But, if the perpetrator of this crime adds insult to injury by remaining at large, and the (hopefully private) police have to search for him, then X must be required to pay for these costs too. Fourth, there is the fact that when this theft occurs, Y was frightened. His sense of living in a civilized society was undermined. X owes Y compensation for that too.

Lester objects to the second of these payments on the ground that they are “somewhat arbitrary.” But, I cannot see my way clear to agreeing with him on this matter. It does not at all seem arbitrary, as part of his punishment, to do to X what he just did to Y. Rather, it seems to be part and parcel of poetic justice. Nor is it difficult to reconcile this second level of punishment with libertarianism, nor with the general legal *weltanschauung*. Supporters of this philosophy are hardly the only ones who believe that “the punishment should fit the crime.” What can be more “fitting” than to do to

the criminal exactly what he did to the victim as part of his punishment?

Now let us consider the fourth. My debating partner accuses me of overlooking indignity. Here, not only do I agree with him, I go further; I thank him for improving my analysis of this matter. He is absolutely right, and I stand corrected by him. Yes, X scared Y during his theft, for which he must be made to pay, but as Lester tellingly writes, he also imposed “indignity” on Y. I am always on the lookout for more and more Draconian punishments to inflict on criminals, and this fits the bill perfectly. So, I am very grateful to Lester for correcting me on this oversight of mine.

Enough with this mini-era of good feeling and hail fellow, well met. Let me now return to lambasting this scholar. Saith Lester:

*“Because the imposer treated your window as though it were his to break, you have the option of doing up to some price-equivalent damage to his property instead of taking the compensation. For that would not be a proactive imposition but a reactive one. Yet, unless you feel particularly vindictive, there would not seem to be much point. For what you could not do, in libertarian terms, is take full compensation and then enact retribution as well.”*

If I understand this author here, he maintains that only one tooth, not two teeth, may be imposed on the malefactor. The first tooth (car or window) would be “full compensation” while the second (car or window) would be “retribution.” The proper answer to the question: “Do you want vanilla or chocolate ice cream?” is “Both.” A similar response is justified here. We want both full compensation *and* retribution from the criminal. X’s return to Y of the automobile he stole from him shouldn’t “count.” That is hardly a punishment to X. This first capital good is Y’s property, after all. Yes, the second horseless carriage is over and above that, but X richly deserves to have that taken away from his as well. If all he has to do is hand over his ill-gotten gain, the first car-tooth, he is not being chastised at all, and the libertarian

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<sup>24</sup> If it is no longer available, for example, it has been wrecked, then X must return to Y its value in money.

<sup>25</sup> Ditto

punishment theory requires that reprobates like X be *penalized*.

Let us look at the matter, not from the vantage point of deontology. Instead, take a peek at it from the perspective of utilitarianism or pragmatism. Abstract from the chastisement for scaring and attacking dignity. Assume that there are no costs of searching for the criminal. If all we do to the Xs of the world is demand one automobile from them, not two, then the expected value of their crime is 50% of the value of whatever they steal, assuming they are caught half the time. For, if they succeed, they retain 100% of Y's property. If they fail, they are no worse than they were before they went on their trail of depredation, apart from the alternative costs of time from which they suffer. This would practically be in the invitation for the criminal element to engage in their nefarious activities. Yes, Lester is entirely correct when he insightfully remarks: "... crime would not be a good bet once we factor in the additional compensation costs of fear, indignity, detection..." but I believe that proper libertarian theory allows us to "pile on," even though it is prohibited in football. The more we can reduce crime, up to the proper limits of libertarian Draconianism, the better. Certainly, this second "tooth" passes muster.

As it happens, Lester also looks askance at forcing the criminal to pay for the costs of searching for and capturing him. He asserts:

*"The likelihood of capture and the magnitude of the crime will tend to limit how much expense is risked on detection. However, if too much is spent (perhaps by some obsessively vengeful billionaire), then it would itself go beyond libertarian rectification if it were all passed on to the criminal. The libertarian theoretical detection costs probably has to relate to what is normally regarded as economic."*

But this amounts to coddling the criminal, something no right-thinking, God-fearing, a real man, or libertarian, should even contemplate. To be sure, we cannot tack onto the criminal's bill expenses that have nothing to do with finding him and locking him up. There are limits to Draconianism, after all. However, to tell criminals they have nothing to fear from the "obsessively vengeful billionaire," is not the libertarian way to go, either. And on the utilitarian side, beloved of Lester, stealing money from rich people reduces

the GDP more than from the poor. If the underworld is put on notice that it is relatively open season on the poverty-stricken, but not the wealthy, GDP will rise.

## 2.9 The Madman

I must again thank Professor Lester for correcting me on an error of mine. He quotes me as follows:

*"...according to Friedman, there is a conflict in rights, between the right of members of the crowd not to be killed, and the right of the misanthrope to the sole use and possession of his rifle. But for the libertarian, there is no such thing ... Whenever there is such a seeming conflict, one or both of the so-called rights is mis-specified. Here, the misanthrope has a clear right to his gun, but the crowd does not at all have a —legitimate right ... (not to be killed). Rather, this latter so-called —right is not a right at all. Instead, it is an aspect of wealth or economic welfare. Of course, it is a most heinous rights violation for the —madman to murder innocent members of the crowd, but that is another matter."*

Lester then proceeds to set me straight:

*"The —crowd, i.e., each individual member, does have a —legitimate right ... (not to be killed) proactively, i.e., murdered. What they do not have a libertarian right to is that some third-party stops them from being murdered."*

He is entirely correct, and me, mistaken, and I thank him for this rectification. In my own defense, I plead that I have a long paper trail of maintaining exactly his point (Block, 2003C). What I meant to say, what I should have said, as it happens, Lester says it for me, is "What they do not have a libertarian right to is that some third-party stops them from being murdered." Indeed, I did say it correctly, as Lester notes, one sentence later: "Of course, it is a most heinous rights violation for the —madman to murder innocent members of the crowd..." In effect, it was almost a typographical error on my part to utter such a falsity.

The substantive point is, are there any rights clashes?

No, contrary to Lester, there is no clash of rights herein, or for that matter anywhere else. He maintains there is such an incompatibility, since the members of the crowd do indeed have a right not to be murdered, and the owner of the rifle has

a right that no one else but he use it, and he refuses to allow the hero to utilize it so as to stop the madman. But, no. It is not the rifle owner who is about to be in the act of murdering anyone.

Let us consider all the permutations and combinations. Is there a clash of rights between the rifle owner and those who would seize it from him in order to protect the crowd? No. The owner of the rifle has the right to it, and anyone who wants to take it from him for this or any other purpose is in the wrong. No clash here. Is there a clash between the madman and members of the crowd he is intent upon mowing down? Again, no. The madman has no right to murder anyone, and every member of the crowd has a right not to be murdered. Is there then a clash between the rifle owner and members of the crowd? Not at all. The former is not threatening to kill anyone; he only wants to keep his firearm to himself. Well, that is it. There are only three characters in this little play of ours: the owner of the rifle, the hero who would seize it from him in order to protect the crowd, and the crowd. We have seen there is no conflict of rights, no clash, between any two of these three actors.

Here is Lester say to the contrary:

*But if a third party does decide to save them in the way described, then there is a clash between their right not to be murdered and the gun-owner's rights to the control of his gun. It is just that, in this example, the clash is not direct but only exists because of the actions of the third party.*

Not a "direct" clash of rights? That is one way of putting the matter. It would be far more accurate to deny that there is any rights clash at all. After all, the gun owner is not at all threatening to kill anyone in the crowd. *That* would be clash alright, but not a clash of rights, since the people in the crowd do indeed have a right not to be murdered, but he has not right at all to do so. Hence, no clash.

Next up into the batter's box is this statement of Lester's:

*It is probably slightly ideologically blinkered to restrict all legitimate rights to libertarian rights. For instance, a right to self-preservation (as famously defended by Hobbes) seems to be plausible to me. And we can easily imagine, at least in extremis, direct clashes between the right to self-*

*preservation and libertarian property rights (for instance, the well-known examples of a hiker who breaks into a cabin to save his own life, and a falling man who manages to grasp onto a flagpole and seeks entrance to an apartment to save himself."*

But this is erroneous. If I have a right to something, you have an obligation to support me. If I have a right not to be murdered, you have an obligation not to murder me. If I have a right not to be raped, you have an obligation not to rape me. If I have a right not to be stolen from, you have an obligation not to steal from me. I take it that no one can coherently object to these claims, certainly not a libertarian. These are all negative rights, part, and parcel of libertarianism.

However, the so-called right to "self-preservation" is a positive right. It is not at all "plausible," at least not to a libertarian. For, if I indeed do have a right to self-preservation, you have an obligation to preserve my life. If I am starving, you are a criminal if you do not give me food, and in sufficient quantity. If I am naked, you are a criminal if you do not give me clothes, and in sufficient quantity. If I am homeless, you are a criminal if you do not give me housing, again in sufficient quantity and quality to "preserve" my life. But these so-called positive "rights" are antagonistic to the libertarian philosophy. They are a downright violation of this perspective.

Along the way in this section, almost en passant as they say in chess, Lester takes several other potshots at Rothbardian libertarianism. Let me deal briefly with them.

First, the hiker who breaks into a cabin to save his own life.

Second, the falling man who manages to grasp onto a flagpole.

Third, the person who places landmines in his garden "to deal with the trespassing of local children who use it as a shortcut."

In each of these cases, Lester casts aspersions on private property rights, the be-all, and end-all of libertarianism, along with the NAP. This is not an explication of this philosophy, this is an attempted denigration of it. In these examples, Lester attempts to drive a wedge between libertarianism on the one hand, and, on the other, simple human decency, along with the

preservation of precious human life. We simply cannot allow him to get away with these charges.

The hiker is a criminal trespasser, be he ever so intent upon not doing any explicit damage to the premises owned by another, even if he leaves money for his "rental" of the property. Of course, we must distinguish him from other types of trespassers, who are far more guilty than him. Based on his motive, he will pay a far lesser penalty, but, still, it cannot be denied that he is guilty of the crime of trespass. However, has not Lester succeeded in showing the adherence to private property is inhumane? No. Under which situation will more people perish: one where private property rights are scrupulously respected, and those who violate them, even from the purest of motives, punished? Or, one in which when "emergencies" are declared, all bets are off, and the cabin owner's rights can be swept aside? This, of course, is an empirical issue. But I resort to the following aphorism: "wealthier is healthier." The richer are a people, *ceteris paribus*, the more likely they are to be without illness. But, rabid respect for private property rights also about prosperity. The more "propertier," also the wealthier. Therefore, paradoxically, fewer hikers will perish if they are treated as the (slight) criminals that they are than if they are not. This case is really the one about shooting the coke machine to save the planet. Yes, shoot the coke machine, invade the premises of the cabin owner, by all means. But, also, admit you are a criminal, and pay what is owed by you.

A man falls off a roof of a skyscraper, unfortunately. Fortunately, he grabs hold of a flagpole on the way down, on the 35<sup>th</sup> floor. Unfortunately, as he is moving hand over hand to safety toward the deck, the owner of that apartment demands that he drop to his death, otherwise she will shoot him for trespassing. We

are invited by the terms of this example to empathize with the flagpole holder. But the woman was raped last week by someone who looks just like him, and fears for her safety. Has she no rights in the matter as the owner of the property now under dispute? Not according to those who use this example as a means of undermining private property rights.<sup>26</sup> Again, I ask, is the life of the falling man safer under a regime of strict private property rights, fully enforced, or not? It seems difficult to deny that although this particular man will perish under these rules,<sup>27</sup> the general population will be far safer.

It always good, when trying to besmirch libertarianism, to tug at the heartstrings by using innocent children as a foil. It is not easy to take the side of the land-miner who kills children. Better to jettison libertarianism is the Lesterian response.

Not so fast. This difficulty is created by the fact that the government, bless its heart, owns all the streets, roads, highways. Suppose that, instead, private enterprise were in charge of this sector of the economy.<sup>28</sup> What types of contracts might likely ensue, between the road owner and the homeowner abutting his property? Well, the corporation that controls the thoroughfare will not likely enjoy the prospect of neighborhood children being blown up for taking a shortcut along a patch of grass. This would be bad for business, and all that. Possibly, an explicit contract would be drawn up, preventing that sort of thing, even with a clearly demarcated warning sign. Even more likely, the *private* courts would rule there is an *implicit* contract precluding such child killing, and anyone found guilty of doing so would be considered an attempted murderer before any such heinous act ever occurred initially, and a murderer in the first degree after the fact. Then,

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<sup>26</sup> For a further analysis to the "flagpole" objection from the libertarian, not the Lesterian, point of view, see Block, 2003C

<sup>27</sup> When word gets out that this woman shot an unarmed man who refused to let go of her flagpole, things will not go well for her. But, she has every right to do so. What to do in an emergency makes bad law. This case can also be

obviated by the building manager imposing contractual rules on all tenants or condo owners to keep a gun handy, and allow flagpole holders access to their premises.

<sup>28</sup> For an answer to the question of how would capitalism provide streets and roads, see Block, 2009

there is the question of who installed that land mine; he might well be considered as part of this murder conspiracy.

But, assume none of this occurred. The road owners were just too stupid to safeguard the value of their property in any such way. If so, one child killed in this way, not murdered, would soon ensure the obviation of this practice. Large-scale capitalists are not *that* stupid. One such occurrence and it would never happen again. And many more toddlers would be saved not only through respect for private property in general than perished in this one case. Road privatization would preserve the lives of thousands more (Block, 2009). Nice try, Lester, in attempting to undermine libertarianism, but no cigar.

## 2.10 Contradiction in rights

Let me limit myself to commenting on but one claim of Lester's in this short section: "A hierarchy of rights is perfectly conceivable."

Taken literally, this is entirely correct. For example, for our friends on the left, the progressives, if there is a conflict between a straight white male and anyone else, the rights of the former must give way to those of the latter. There is indeed a conflict, and this hierarchy can indubitably settle it, and justly so, at least according to the doctrine of "social justice." Similarly, if there is a dispute between a black, female, lesbian transgendered person, and again, anyone else, then, too, the former must prevail, since she has the least "power" of us all.

There is another sense in which Lester is correct, although he will not like this one either. The right not to be murdered is stronger, higher up in the hierarchy than the right not to be raped, and the latter occupies a superior position than the right not to have a pencil stolen from you. Why? Because if offered a choice between these three rights violations, virtually everyone would rather lose a pencil to theft than be raped, and prefer to be raped than murdered.

But this is not what Lester means at all. Rather, in his view, as we have seen in the last section, the hero's right to save the members of the crowd can trump the right of the innocent gun owner to keep his property to himself. No. The hero can seize the gun from its owner alright, shoot the madman and save the crowd, but, it cannot be denied that in order to do so he violated the gun owner's right to his possession. There is simply no conflict here: the hero is also a (minor) criminal, as difficult for Lester to process this as it may be. Similarly, the man who shoots the coke machine to get the change to make a phone call to save the world is also a hero, but it cannot be denied that he shot up the coke machine and that this is a violation of property rights. Again, there is no rights conflict of the sort that Lester sees.

## 2.11 The draft

In this section, we have the same challenge; suppose without the draft, the evil enemy will take over the country and do to the residents far worse than would compulsory military service. I claim that our "hero" should take over and impose the draft, and then, after the foreign aggressor is beaten off, pay the penalty for imposing this form of temporary slavery/kidnapping.

What sticks in Lester's craw is the following:

*"Block's reply is that ... Suppose that all the people refuse to fight, and not a single hero steps forward to force them to do so. Then, that society deserves to be enslaved by the enemy... That is a gratuitously anti-libertarian remark analogous with, though far worse than, blaming a burglary victim for not having a burglar alarm or a rape victim for wearing a short skirt."*

To be sure, the libertarian rights of a society of pacifists who refuse to defend themselves are still sacrosanct. Anyone who violates them, such as this foreign enemy, is a criminal, as far as libertarianism is concerned, and Lester is quite justified in insisting upon this point. However, there are other "deserts" apart libertarian ones. Certainly, from a socio-biological point of view<sup>29</sup>

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<sup>29</sup> See on this Axelrod and Hamilton, 1981; Barkow, Cosmides and Tooby, 1992; Buss, 1994, 2017; Dawkins, 1976; Levendis, Block and

Eckhardt. Forthcoming; Pinker, 1994, 2002; Ridley, 1986, 1993; Smith, 1976; Symons, 1992; Trivers, R. 1985; Williams, 1966; Wilson, 1975;

pacifism, particularly on a massive scale, will not be survival oriented. This perspective “deserves” to be eliminated in that it is not life supporting. Moreover, there is surely a difference, albeit not a libertarian one, between a rape victim who wore a short skirt, and a homeowner who failed to install locks or fences or a burglar alarm on the one hand, and an able-bodied pacifist who refuses to defend the lives of his wife and children. The former two are not detestable from any reasonable point of view. The latter most certainly is. Pacifism, in this context, is similar to suicide. Yes, from a libertarian point of view, doing away with one’s own life should not be a crime. We all own ourselves and may end our lives without in the slightest violating the NAP. But it is still detestable, blameworthy, from many other points of view other than the libertarian.

Matters, however, are even worse for the pacifist, and, here, from an explicitly libertarian perspective. This is true not with regard to his failure to protect himself from the evil enemy, but, due to the fact that he will not do so perhaps regarding his wife, and, even more so, his children. Consider only the latter; the former would lead us too far away from the points I wish to make in this rejoinder.

The father is a parent. A parent is a guardian. The function of the guardian is to, wait for it, guard. The guardian who refuses to guard is not a proper guardian. The pacifist who refuses to guard is not a proper guardian. But a parent has the responsibility to guard. The pacifist reneges on this obligation. He is in effect a precluder, or a forestaller. He is occupying a role of ownership. He does not, of course, own his children, but he does lay claim to the ownership rights to be a guardian over them. But, he defaults on this, right from the get-go. He in effect occupies the guardianship role, since he claims to be a parent, but, also, explicitly does not do so, since he is a pacifist. Pacifists thus cannot be proper parents. When they claim this honorific, they are rights violators, hence, criminals.

What is this forestalling or precluding business (Block 2016)? The only legitimate way to own something is to mix your labor with it. Parents own

the guardianship rights over their children. How do they obtain this? By “mixing their labor” with them: feeding them, clothing them, housing them, and most important in this context, guarding them. What would we think of a parent who refused to feed his child? As libertarians, even as non-libertarians, we would properly think of them as occupying ownership rights over something (guardianship) to which they no longer had any right to call their own. They would be precluding other people from adopting these children while starving them to death. Guarding them is fully analogous. What would we, as libertarians now, thinking of a father who stood idly by while some criminal savaged his children when he had the ability to defend them against this attack? We would think he was doing something akin to not feeding them: not guarding them. If he is unwilling to either feed or guard them he would lose his right to be their parent. But, he unjustly claims this right. So, pacifism, at least with regard to children if not himself, is not at all akin, from a libertarian point of view to a rape victim wearing a mini-skirt, or a victim of theft neglecting to install a burglar alarm

### 3 FURTHER CRITICISMS

#### 3.1 Critique of utilitarian libertarianism

Here, Lester objects to my characterizing utilitarianism as an exercise in “nose counting.” Do not ask me what this has to do with Puritans objecting to sexual intercourse on the ground it might lead to dancing. I appreciate the humor but do not see the point. Of course, utilitarianism is an instance of proboscis calculation; it seeks the greatest good *for the greatest number*, does it not?

#### 3.2 Weaknesses in utility theory

Lester starts off by criticizing this statement of mine:

“It is impossible to meaningfully say, ‘I value this pen at 8 utils; this sandwich at 16 utils. Therefore, I value [the] latter at twice the rate of the former.’”

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Wright, 1994 The politically correct term for this discipline is now “evolutionary psychology.”

What reason does this author give for this rejection of his? He offers the following:

*“The words —impossible to meaningfully say is a philosophical challenge. I think we might be able to make a sort of theoretical sense of cardinal utility and make it objective too. We could imagine a brain scan or chemical test that showed the extent of a brain’s pleasure centres firing or its serotonin levels. After a little calibration with the person’s subjective experiences (—How do you rate this experience, positive or negative, from 1-10?) we could assign numbers to the different states that approximated to the degree of subjective utility and disutility. If consistent results were found over time, then even remote readings would match the person’s subjective reports. Such a device would be a hedonometer or a hedonimeter as the economist Edgeworth called it in his Mathematical Psychics (1881). It might even have practical uses as regards testing for pain or depression, possibly in a person appearing to be in a coma. However, suppose that such a device is not possible or, at least, insufficiently precise or consistent to function as cardinal. Then its impossibility would appear to be a contingent fact about the world – and one that might change – rather than relating to what one can —meaningfully say. As Karl Popper rightly observed, a statement is not meaningless because it cannot (currently) be tested (although it is metaphysical). What is not science is not thereby nonsense (and it might become testable science eventually, just as theoretical physics aims to do).”*

Alright, I’ll go along with Lester with his Nozickian (1974) type of measurement.<sup>30</sup> Let me try to make the best case for Lester’s “hedonometer,” and then demonstrate that it is still “impossible to meaningfully say” what he quotes me as saying, supra. Ok, so the hedonometer is sort of like the

mercury thermometer. The latter measures heat, the former, happiness or utility. With the medical implement, we can say that 98.6 Fahrenheit is normal. Let us posit that a hedonometer reading of 100 is the maximum, indicating the most extreme pleasure possible. Now, to use my numerical example: this here pen rates at 8 utils on the hedonometer; while this sandwich over there clocks in at 16 utils. That would mean that the person who scores these values on the hedonometer would regard two pens and one sandwich equally.<sup>31</sup> What is wrong with that, pray tell? The challenge is not an empirical one, and no “testable science (will) eventually” solve this problem. For the difficulty is emanates from the logic of economics, not empirical science. The problem is human action: there is no way that a person can be indifferent between two pens and one sandwich, at least not as a matter of technical economics, no matter what are the readings on the hedonometer. Suppose, then, that the person for whom we are making these measurements has a sandwich, and wants two pens instead. So, he goes out into the market and makes this barter trade. Does that demonstrate equality between the two pens and the foodstuff? Not at all. Instead, it establishes that he *prefers* the two writing implements to the sandwich since he gave up the latter for the former pair of goods. Ditto if we turn this the other way around. Posit, now, that the person for whom we are making these measurements has two pens, and wants a sandwich instead. So, he goes out into the market and makes this barter trade. Does that demonstrate equality between the two pens and the foodstuff? Not at all. Instead, it establishes that he *prefers* the sandwich to the two pens since he gave up the latter for the former. There is no way

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<sup>30</sup> I stand second to no one in my appreciation of Nozick and his magic machines.

<sup>31</sup> In contrast, someone with 100 Fahrenheit fever would not at all regard that as twice as good, or

even half as good, as having a fever of 50 Fahrenheit twice. Indeed, this calculation is “impossible to meaningfully” discuss.

out. It is sort of like the “briar patch”;<sup>32</sup> once you’re in, you can’t get out.<sup>33</sup>

The intrapersonal cardinal utility of the sort discussed above is meaningless enough; interpersonal cardinal utility (A rates the sandwich at 8 utils; B rates the two pens at 4 utils; therefore, A values the sandwich twice as highly as B the two pens) is nonsense on stilts. But Lester is nothing loth to defend this position to the very end:

*“Having constructed our hedonometer, we might go on to compare people. Of course, similar readings might not mean similar levels of utility. But there are ways to test for this. One such is what the person would do in order to achieve or avoid a certain reading on the hedonometer. But we do not need to pursue this line of enquiry. The point is that it is not —nonsensell. It is simply not, currently, possible (though thought-reading brain scans are developing and something like this might become possible eventually).”*

I will not comment on this response, except to say that the very same indifference considerations that apply in intrapersonal utility comparisons also hold true, even more forcefully, to interpersonal ones.

Lester is not ready to give up this argument. He pursues it as follows:

*“We can and do make rough-and-ready interpersonal comparisons of utility all the time. If Joe were shoeless and Mary bikeless, then we might well judge that a pair of shoes for Joe would give him more utility than a bike would do for Mary. Or we might look at two different societies and say that the people living under an authoritarian regime are far less happy than the people living in a relatively libertarian society.”*

But this “rough and ready” concession gives the game away entirely. We are talking about a hedonometer with the fineness of a mercury thermometer. We need no hedonometer to know all about the likes and dislikes of Joe and Mary, nor the benefits of economic freedom. When I say indifference is impossible, meaningless, I mean that as a matter of technical economics, not everyday, ordinary, “rough and ready” assessments. Consider the technical term in physics, “work.” This means that mass is moved through a distance. But, suppose even a very strong man holds 20-pound weights at arm’s length, steadily. There is no movement, none. Thus, in physics, there is no “work.” However, in ordinary language, he is working very intensely; sweat begins to form on his brow after 30 seconds, and after a minute he has all he can do to keep his arms parallel to the ground. This is one of the most intensive “work” outs in all of sports training. A similar assessment applies to “indifference.” We all know exactly what this means in the every day “a rough and ready” word. It exists. Obviously. But, not as a matter of technical economics, nor in the case of “work” and physics.

Lester next upbraids me for insisting that Friedman’s utilitarian-libertarianism only makes sense if all people have equal utilities, and no one has ever offered a coherent justification for that heroic assumption. Otherwise, utilitarianism is vulnerable to the “utility monster” objection. Who is this worthy? He is someone who enjoys killing and eating us way more than such an act provides disutility to the rest of us. If we truly want to maximize utility, we are obliged to march up to his doorstep and offer ourselves to him as a sacrifice. Lester twists and turns, changes the subject partially (“gourmets”), and entirely (discusses the

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<sup>32</sup> It is similar to the situation of the church folk who wanted to rid themselves of stocks in South African companies, during apartheid. If they sold them, others would be immoral, in their view, and they would then be promoting immorality of the part of others, a no, no, in their view. Suppose they just ripped up their shares? Then, the value of all other shares of stock would rise, and they would be guilty of enriching people who (still) supported apartheid. No way out.

<sup>33</sup> For more on the Austrian economic analysis of indifference, and its logical impossibility, see Barnett, 2003; Block, 1980, 1999, 2003A, 2007, 2009A, 2009B, Block and Barnett, 2010; Callahan, 2003; Collingwood, 1945; Hoppe, 2005; Hulsmann, 1999; Machaj, 2007; Rothbard, 2004, pp. 265, 267; Wysocki, 2016; Wysocki and Block, Forthcoming

possible evolution of such creatures), but cannot shake off my claim that if we do not consider all people equal in ability to enjoy life, then some will have more utility than others. If so, some satisfactions may outstrip others by a *wide* margin, generating our “utility monster.” Either all people are equal in this regard, or they are not. Lester cannot have this both ways. He offers no evidence for any such contention as equality. Friedman blithely assumes it. And if we are not all equal in this regard, here comes the utility monster, ready to bite and eat you.

Lester notes that I question Friedman’s free-market anarchist credentials. I do so because *“if the few winners from these dirigisme institutions count more heavily than the many losers, then ...This author would then be precluded from defending even these elementary and basic aspects of the free enterprise philosophy.”*

Lester objects to this query of mine since:

*“... someone is a libertarian if he advocates universal interpersonal liberty. What more, or less, could be needed? And this Friedman does do... Hence Friedman is a libertarian. One’s motives for advocating universal liberty are a separate matter.”*

In response let me say, I was only questioning Friedman’s qualifications as a libertarian, not rejecting them. Are motives entirely irrelevant? Suppose someone supports libertarian conclusions (end the Fed; no minimum wage law; legalize drugs, pornography, gambling prostitution; bring all U.S troops home), but does so because he is a misanthrope, and thinks these policies will promote human misery.

Or, posit that a person adopts libertarianism because he is confused, and thinks this philosophy opposes private property rights, the NAP, limited government and economic freedom. Are such persons libertarians? I am not sure. They are, and they aren’t. But this confusion of mine indicates, I think, that motives are not entirely irrelevant to this categorization.

As it happens, I divide up the libertarian world into five sections, in order of their purity:

A. Anarcho-capitalists (for example, Rothbard, Molinari, Spooner): no government at all

B. Minarchists (for instance Ayn Rand and Robert Nozick) very limited government; defensive armies, courts, and police, only

C. U.S. constitutionalists (as interpreted by the likes of Ron Paul) a little less limited than immediately above

D. Classical liberals (Milton Friedman, Friedrich Hayek) mostly free market but somewhat limited government

E. Thick libertarians (they smuggle in irrelevancies in their understanding of this philosophy, such as the “bleeding heart libertarians”)

Where do I place David Friedman? Right there at the very top. He is one of the most eminent anarcho-capitalists of the present generation. I was only questioning, querying, his bona fides, not rejecting them.

#### 4 CONCLUSION

I call into question Friedman’s scholarship. All too often he relies on what some libertarian or other has said, who he has overheard. Lester criticizes me for being too harsh, and a bit hypocritical, because “Block himself occasionally draws on philosophical literature without quotations or references.” But there is all the world of difference between the hearsay style of Friedman, and my not citing all well-known aspects of the “philosophical literature.” As Block (2001) indicates, and as does the present paper, I do quote and cite quite a few. In any case, Lester fails to point out any instances of my specific dereliction in this regard, so it is difficult to respond to this criticism.

Let me say in closing that my compliment to Friedman that he gives “deontological libertarianism a good run for its money” applies to Lester as well. When you are in an intellectual battle with the latter, you are also in a serious battle. Moreover, I repeat that on several occasions Lester’s criticisms of my critique of Friedman were right on the money, and I again thank him for them.

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Received for publication: 20.12.2018

Revision received: 06.01.2019

Accepted for publication: 08.01.2019

### **How to cite this article?**

#### Style – **APA Sixth Edition:**

Block, W. E. (2019, January 15). Response to J.C. Lester on David Friedman on Libertarian Theory. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 127-155. doi:10.12709/mest.07.07.01.17

#### Style – **Chicago Sixteenth Edition:**

Block, Walter E. 2019. "Response to J.C. Lester on David Friedman on Libertarian Theory." Edited by Zoran Čekerevac. *MEST Journal (MESTE)* 7 (1): 127-155. doi:10.12709/mest.07.07.01.17.

#### Style – **GOST Name Sort:**

**Block Walter E.** Response to J.C. Lester on David Friedman on Libertarian Theory [Journal] // MEST Journal / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 127-155. doi:10.12709/mest.07.07.01.17.

#### Style – **Harvard Anglia:**

**Block Walter E.** Response to J.C. Lester on David Friedman on Libertarian Theory [Journal] // MEST Journal / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 127-155.

#### Style – **ISO 690 Numerical Reference:**

*Response to J.C. Lester on David Friedman on Libertarian Theory.* **Block, Walter E.** [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, MEST Journal, Vol. 7, pp. 127-155.



# CONFLICT HANDLING STYLES WITHIN LOCAL SELF-GOVERNMENT MANAGERS IN THE SLOVAK REPUBLIC

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JEL Category: **H70, Z18**

## **Abstract**

*The aim of the contribution is to present the partial nationwide research results aimed to find out the conflict handling style most used by mayors to resolve conflicts. A synthesis of the basic ideas of the theories of the mentioned authors is about the typology of five conflicting handling styles, namely avoiding, competition, adjustment, cooperation, and compromise. There are many conflicts handling styles used by individuals. It depends on the specificity of the situation, the structure and dynamics of the relationship, and, finally, the disposition characteristics of the actors involved in the conflict. The research results were processed using the primary data analysis and by using descriptive statistical methods. The research sample consisted of a core set of objects. There had been addressed all mayors of 2,753 municipalities in the Slovak Republic. Research sample were mayors of the Slovak Republic. The distribution of the sample by gender is in favor of men (67.6%), the highest number of respondents has a university education (51.5%). Based on the results, it was found out, that cooperation is the preferred conflict handling style by older women mayors, university graduates, in the second term of office, and in municipalities with over 1001 inhabitants.*

**Keywords:** conflict, conflict situations, conflict handling style, mayor

## **1 INTRODUCTION**

Conflicts are part of our everyday life - family, work and social. They are a natural manifestation of disagreements, exchanges of opinions, inconsistencies between the demands of individuals and groups. Conflicts disturb the balance of life, cause stress and anxiety. Conflicts, however, also have a positive impact - giving the opportunity for a new and creative approach to

problem-solving. The positive function of the conflict is, for example, in releasing negative tension, evaluating relationships among people, or increasing interest in solving problems. The basic problem, however, is not in the existence of a conflict, perhaps even in its prevention, but above all in the way of its solution (Zupova, 2015).

All interpersonal conflicts, whether occurring between employees and their superiors, family members or partners, have some common elements. One from the popular definitions of the conflict offered by Coser in the 1960s (in Wilmot & Hocker, 2004), arguing that the conflict is a

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struggle for values and a demand for deficient status, power, and resources, in which opponents' goals are to neutralize, injure or destroy rivals.

Conflict is generally defined as a mismatch of interests or thoughts, attitudes. It is about a situation where one party perceives that its interests are opposed to the interests of another person (Wall & Callister, 1995).

Rahim (1992) understands the conflict as an interactive process manifested by incompatibility, disagreement or mismatch within or between social entities. Interaction with others supports the existence of different values, which in some cases can cause tension and friction between the parties involved. Current definitions of conflict focus largely on interdependence to an unchangeable opposition. Conflicting parties are presented as essentially interdependent. In addition, it may be necessary for at least one person to change their perception of the situation. Conflict is often accompanied by strong emotions (especially anger) and requires "doing something". By synthesis of given knowledge, we can understand the conflict as an expression of disagreement between at least two interdependent parties perceiving incompatible goals, lack of resources, and interfere with others in achieving their goals (Wilmot & Hocker, 2004)

In general, conflict handling style can be broken down into two poles according to (a) the degree of interest in each other or (b) the degree of interest in others (Blake & Mouton, 1970; Rahim, 1983; Cann, Norman, Welbourne, & Calhoun, 2008). The dimension of interest represents the significance of a given conflict handling style, which will satisfy its own priorities. The dimension of interest on others, on the contrary, represents the need to ensure that the other person resolves the conflict according to their own ideas.

Based on the mentioned dimensionality, several authors (Pruitt & Rubin, 1986; Rahim, 1973; Thomas & Kilman, 1974; Wilmot & Hocker, 2004) developed conflictual style theories; strategies. A synthesis of the basic ideas of the theories of the mentioned authors is about the typology of 5 conflicting handling styles, namely:

1. Avoiding,
2. Competition,
3. Adjustment,
4. Cooperation,
5. Compromise.

Avoiding - it is a non-assertive and non-cooperative conflict resolution strategy. An individual is not interested in solving a conflict and is not interested in meeting the requirements of the other party. Thus, the individual does not deal with the conflict and ignores the passive problem. This can happen in the form of a diplomatic avoided problem, postponing the problem at a more appropriate time, or simply withdrawing from a threatening situation. It's an escape strategy where both sides are losing. However, it should be remembered that this conflict resolution strategy is only a temporary solution. This strategy is appropriate to apply if it is a minor matter, there is no time to resolve the conflict or if a satisfactory solution can not be reached. Also, if we know that other people are better able to solve the problem or when we realize that potential conflict losses outweigh the potential gain.

Competition - is an assertive and non-cooperative conflict resolution strategy. An individual monitors his/her own interests at the expense of another person. An individual has a strong interest in pursuing their solution and not interested in the goals of the other party - he is highly concentrated on himself. This is so-called "a force-based conflict resolution strategy" that uses as much power as it is necessary to gain its own dominant position. It is negotiated using tactics and the position of interest and power. In this case, it is the ability to use argumentation, position, or advantageous economic situation. Contesting means "to stand up for your rights", to defend the position that is assumed (and believes in it) to be right or to simply try to win. This strategy disturbs relations because the other side will try to repress the attitude of the first party. This strategy should be applied if we decide on timing or if we introduce unpopular measures with which the other party does not agree. The advantage of implementing this strategy is the speed of conflict resolution.

Adjustment - is a non-assertive and cooperative conflict resolution strategy. It is a complete antagonism of competition and applies if the relationship of power between the parties is unbalanced. One party dictates the terms and the other party for any reason will not approach them. In the case of this strategy, an individual disregard his/her own interests, solves the conflict to satisfy the interests of another person - hence the element of self-sacrifice. Applying this strategy

emphasizes maintaining a relationship with another person at the expense of a positive outcome. Only one side always wins the second plays. Adaptation may take the form of a non-Hebrew or charity, or a form of subordination to another person, or the admission of another person's view. This strategy should be applied if you are not right when you want others to learn from their mistakes or in cases where you want to show that you are reasonable, and you can recognize the truth of another when you want to promote co-operation, harmony, or if you want to minimize losses from conflict resolution. This conflict resolution strategy is only a temporary solution to the conflict and is totally unsuitable for managers.

Cooperation – there is also an assertive and cooperative conflict resolution strategy. It is the opposite of avoiding. Collaboration involves trying to work with others to find a solution that fully satisfies their interests. The parties strive to reach their interest, and they are also interested in the position of the other party. This is an analysis of the problem to identify/highlight the essential needs of two individuals. When implementing this strategy, the understanding of the conflict is functional, both sides cooperate with one another, there is a willingness to open information exchange. Collaboration between two people can take the form of exploring disagreement, learning from each other, or trying to find a creative solution for human problems. As a result, both sides win, are satisfied and accept the solution. An advantage is a long-term effectiveness because it addresses the core of the problem (not the symptoms). The disadvantage is time-consuming, so it is not appropriate in crisis situations.

Compromise – is a slightly assertive and slightly cooperative conflict resolution strategy. The aim is to find a suitable, mutually acceptable solution that will partially satisfy both parties by giving up part of their demands. It is an "intermediate category" between competition and adaptation. In a compromise, a person gives up more than in competition, but less than in personalization. Also, in a compromise, an individual solves the problem more directly than avoiding but does not explore the problem to the depth of cooperation. The result of this strategy is to find a compromise, a common solution. Both parties are losing because they

sacrificed a lot and are disappointed. (Zupova, 2015).

The strategies are used by individuals to deal with conflict situations are of course many, depending on the specificity of the situation, the structure and dynamics of the relationship, and, last but not least, the disposition characteristics of the actors involved in the conflict. From the point of view of the nature of the contribution, the aim of the research is to map the issue of conflicts and conflict handling style in the context of selected variables.

## 2 RESEARCH

### Aim

The aim of contribution is to find out the conflict handling style most used by mayors to resolve conflicts.

### Research file

The research file was the basic set of objects. According to the Statistical Office of the Slovak Republic, to January 31<sup>st</sup>, 2018 in the territory of the Slovak Republic were 2751 municipalities. The municipal elections took place in the Slovak Republic on November 15<sup>th</sup>, 2014. The addresses were addressed by the mayors of all 2751 municipalities in the territory of the Slovak Republic.

Respondents from the research (the research sample) were mayors of the municipalities of the Slovak Republic. The respondent was sent a questionnaire electronically due to financial and time-lag. Altogether 8,209 emails were sent to 2751 municipalities in the territory of the Slovak Republic. Each of 2751 municipalities was sent at least 1 email.

A total, 787 respondents agreed with the survey, representing 28.5% return. Each respondent filled in all the questionnaire entries. In the opening text, respondents were informed of the research intention, anonymity, and request for consent to participate in the research.

The distribution of the sample by gender is in favor of men (67.6%). Only a third (32.4%) of all mayors are female mayors. The highest number of respondents has a university education (51.5%), followed by those who have completed secondary education (42.4%). Respondents were divided into nine groups based on their age. The mean

age is 49.5 years (standard deviation of 8.84) with a median age of 51 years. The youngest respondent reached 26 years and the oldest 79 years. Of the total number of municipalities involved in research (n 787), 318 are in the category of up to 500 inhabitants (40.4%) and in the category of up to 1000 inhabitants, there are 548 municipalities (69.7). Most respondents/mayors have experience with performing this feature. The mayor of the municipality has more than 3 terms in office of 334 respondents (42.4%). In the second term in office, there are 206 mayors (30.0%).

### Methods and Methodology

The research was carried out using a set of methodologies, which included the following parts:

1. basic demographic issues (gender, age, education, the term in office, size of municipality)
2. The questionnaire was designed to identify an individual's tendency to resolve conflicts in challenging situations, one of the conflict resolution styles. The questionnaire contains 29 statements judged on the 7 - point Likert scale (1 - strongly disagree to 7 - strongly agree). To identify a preferred conflict handling style, the questionnaire includes 6 items for avoidance, 6 adjustment items, 5 competition items, 5 cooperation items, and 7 compromise items. The reliability of the individual factors calculated by Cronbach's alpha is: avoided ( $\alpha = 0.69$ ), compromise ( $\alpha = 0.82$ ), cooperation ( $\alpha = 0.87$ ), dominance ( $\alpha = 0.81$ ), adjustment ( $\alpha = 0.69$ ). The questionnaire reliability is  $\alpha = 0.86$  (Cai, Fink, 2001).

### Statistical analysis

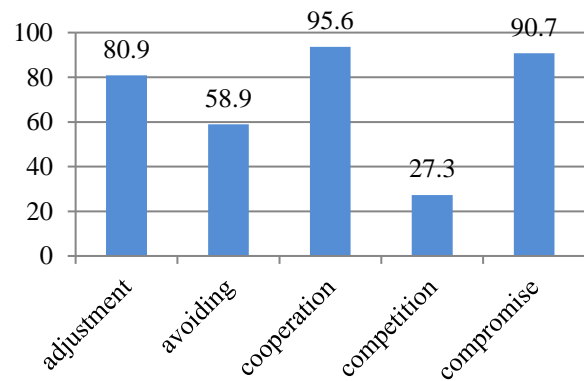
The results of the research were processed using statistical software SPSS 21. Basic analysis of the obtained data was realized using methods of descriptive statistics

### Conflict handling styles used by mayors

Each conflict is situational and content-specific. The mayor must have the skills and abilities to help him identify the problem, assess the situation, and apply an appropriate conflict handling style in conflicting situations. The best way to resolve the conflict is to cooperate with people to understand the problem properly, to make an acceptable

decision for the parties involved. The mayor's aim is to be a joint solution to the problem that meets the expectations of all parties - the mayor, the people, the staff of the office, the deputies, the business entities and others.

According to the results presented in graph 1, the preferred style of conflict resolution among municipal mayors is a cooperation style (n 737, 93.6%), and the least used style (n 215; 27.3%) is the dominant style (competition). The results are in line with the theoretical knowledge of conflict management. The most appropriate conflict resolution style is cooperation, as it involves trying to work with others to find a solution that will fully satisfy the interests of both sides.



Graph 1 Conflict handling style (% frequency)

Mayors who prefer cooperation seek to achieve their interest and are also interested in the position of the other party. This is an analysis of the problem to identify and highlight the substantial needs of the two parties. When applying this style, the understanding of the conflict is functional, the mayor cooperates with each other, there is a willingness to exchange information openly. This conflict handling style is the best and brings satisfaction to the mayor as well as the other side.

The dominant conflict handling style (competition) is based on the position of the mayor of the municipality. The Mayor has a keen interest in achieving his own goals. This style should be applied, for example, unpopular measures, or if the mayor is quick to resolve the conflict - but such a solution is only appropriate for the mayor. In the long run, the relationship between the parties and the loss of mutual trust are distorted, which the mayor cannot afford because it would affect his credibility with the environment. Mayors (n 215;

27.3%) use the dominant conflict handling style at least.

In the case of adjusting style, the mayor disregards his or her own interests. Applying this style emphasizes maintaining a relationship with another person at the expense of a positive result. This conflict handling style is only a temporary solution to the conflict and is totally inappropriate for all managers, including the mayor of the municipality. Mayors prefer this style (n 637; 80.9%). A self-confessing element acts on them to satisfy the interests of the other.

Mayors favoring the compromise handling style (n 714, 89.7%) solve the problem directly, but it does not study it in depth. Its aim is to find a suitable, mutually acceptable solution that will partially satisfy both the party and the other side by giving up some of its demands - resulting in a loss for both parties and for the mayor.

Mayors with an avoiding preferred style of conflict resolution (n 464; 58.9%) are not interested in resolving conflict and are not interested in meeting the requirements of the other party. Thus, the mayors do not deal with the conflict and ignore the passive problem.

Table 1 Conflict handling style according to age

conflict handling style	age					
	number					
	≤46 years n=270		47-54 y. n=259		≥55 years n=258	
	n	%	n	%	n	%
adjust	224	83.0	202	78.0	211	81.8
avoiding	163	60.4	144	55.6	157	60.9
cooperation	249	92.2	244	94.2	244	94.6
competition	76	28.1	75	29.0	64	24.8
compromise	245	90.7	238	91.9	231	89.5

Table 2 Conflict handling style according to gender

conflict handling style	gender			
	number			
	man n=532		women n=255	
	n	%	n	%
adjusting	423	79.5	214	83.9
avoiding	288	54.1	176	69.0
cooperation	496	93.2	241	94.5
competition	154	28.9	61	23.9
compromise	480	90.2	234	91.8

Table 3 Conflict handling style according to education

conflict handling style	education			
	number			
	secondary school n=382		university n=405	
	n	%	n	%
adjusting	310	81.2	327	80.7
avoiding	234	61.6	230	56.8
cooperation	352	91.1	385	95.1
competition	84	22.0	131	32.3
compromise	340	89.0	373	92.1

We were interested in preferred conflict resolution styles according to socio-demographic characteristics (age, gender, education, the term of office and size of the municipality) of mayors. Differences are presented in Tables 1 to 5.

Table 4 Conflict handling style according to term in office

conflict handling style	term in office					
	number					
	first n=217		second n=236		third n=334	
	n	%	n	%	n	%
adjusting	179	82.5	175	74.2	283	84.7
avoiding	143	65.9	120	50.8	201	60.2
cooperation	208	89.8	212	95.9	317	94.9
competition	62	24.6	58	28.6	95	28.4
compromise	198	91.2	211	89.4	305	91.3

Table 5 Conflict handling style according to the size of the municipality

conflict handling style	size of municipality					
	number					
	≤500 inhabitants n=324		501-1000 inhabitants n=224		>1000 inhabitants n=239	
	n	%	n	%	n	%
adjusting	267	82.4	177	79.0	193	80.8
avoiding	193	59.6	138	61.6	133	55.6
cooperation	305	94.1	205	91.5	227	95.0
competition	76	23.5	60	33.1	79	26.8
compromise	293	90.4	203	90.6	218	91.2

According to the age differences in table 1, cooperation is the most appropriate conflict handling style for mayors in the 55+ category (n 244; 94.6%). Older mayors, because of their life and work experience, have the problem solved constructively. Mayors under 46 prefer to adapt to

conflict situations (n 224, 83.0%). Such a solution to the conflict is only temporary, for the mayor as a manager inappropriate.

The results were also considered in terms of gender differences. From table 2, in women, worries dominate conflict resolution - competition (n 241; 94.5%) or compromise (n 234; 91.8%). They use a cooperation style to maintain interpersonal relationships and prefer to avoid direct negative confrontation. Men use a dominant style (competition) to resolve the conflict (n 154; 28.9%). Men are known to tend to give their strength and dominance. According to Mikulastik (2008), men feel uncomfortable in working with women. Thomas and Kilmann (1988) report the same results in their research. Men managers prefer dominant access to employees, while employee management prefers authoritarian style, which results in their conflict handling style. Men are oriented towards achieving the goals at the expense of positive interpersonal relationships at the workplace.

From the point of view of education (table 3), cooperation (n 385; 95.1%) predominates as a preferred conflict resolution style and a compromise (n 373; 92.1%) for university-educated mayors. The results are in line with Saeed's research (2013), which states that more educated individuals use a collaborative style of conflict resolution.

The differences in the term of office of mayors are presented in table 4. The mayors in the first term use avoiding as a preferred conflict resolution style (n 143; 65.9%). We expected such a finding. Mayors prefer to passively ignore the problem because they are the mayor for the first time and need to maintain good relationships - otherwise, their success in the second election does not have to be repeated. The mayor in the second term of office dominates cooperation (n 212, 95.9%). It is also a group of mayors dominated by the dominant style - competition (n 58, 28.6%) of conflict resolution. We believe that this is caused by the

fact that the mayor is in the position of being certain and is aware of the social environment of the municipality. It is also possible to claim dominance from the position of power.

In his research, Copley (2008) presented the results of his preferred conflict handling style to managerial positions with regard to the size of the organization. According to his findings, managers of small organizations prefer cooperation and compromise, and managers of large organizations prefer competition. If the number of inhabitants in which the mayor is acting perceives the size of the organization, the results of our study are different. Mayors in small municipality prefer adjusting as the preferred conflict resolution style (n 267; 82.4%). We think this is because the mayor is known in the municipality, trying to maintain good interpersonal relationships in a smaller community.

*Based on the results, we note that co-operation is the preferred conflict handling style by older women mayors, university graduates, in the second term of office, and in municipalities with over 1001 inhabitants.*

### 3 CONCLUSIONS

The contribution focused on conflict issues. It tried to clarify what types of conflicts the respondents most often encounter and with whom they enter the conflicts. As it turned out, most of the conflicts that covered the field of affairs were solved. As an effective conflict handling style, respondents chose, in particular, a compromise. It is a constructive way of resolving a conflict.

We consider it important to address the problem of conflict handling style within the mayors. Each conflict is situational and content-specific. The mayors should have the skills and abilities to help him/her identify the problem in conflict situations, assess the situation and apply the appropriate style of conflict resolution, not only in personal but also in working life.

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Received for publication: 16.02.2018

Revision received: 28.08.2018

Accepted for publication: 27.12.2018

### **How to cite this article?**

Style – **APA Sixth Edition:**

Zupova, E. (2019, January 15). Conflict handling styles within local self-government managers in the Slovak Republic. (Z. Čekerevac, Ed.) *MEST Journal*, 7(1), 156-163. doi:10.12709/mest.07.07.01.18

Style – **Chicago Sixteenth Edition:**

Zupova, Eliska. 2019. "Conflict handling styles within local self-government managers in the Slovak Republic." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 7 (1): 156-163. doi:10.12709/mest.07.07.01.18.

Style – **GOST Name Sort:**

**Zupova Eliska** Conflict handling styles within local self-government managers in the Slovak Republic [Journal] // *MEST Journal* / ed. Čekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2019. - 1 : Vol. 7. - pp. 156-163. doi:10.12709/mest.07.07.01.18.

Style – **Harvard Anglia:**

Zupova, E., 2019. Conflict handling styles within local self-government managers in the Slovak Republic. *MEST Journal*, 15 January, 7(1), pp. 156-163.

Style – **ISO 690 Numerical Reference:**

*Conflict handling styles within local self-government managers in the Slovak Republic.* **Zupova, Eliska.** [ed.] Zoran Čekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2019, *MEST Journal*, Vol. 7, pp. 156-163.

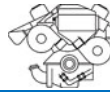


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**SECTION III**

Please rate it from one of: (1 = Excellent) (2 = Good) (3 = Correct) (4 = Poor)

Originality	
Scientific contribution	
Technical quality of the article	
Clarity of presentation	
Depth of study	

**SECTION IV – Recommendations for publication:**

(Please select one of the options with an X)

Accept the article "as it is"	
The work requires minor repairs	
The work requires small-scale changes	
The work requires large-scale changes	
The work is good but it is not for publishing in the MEST Journal. It could be published in another journal, for example (make the proposal)	
Work has to be rejected because (please specify particular reason)	

**SECTION V: Additional comments**

This part of the review is confidential and will be available only to editors of the MEST Journal. If you have any special comment to the editors, you can enter it here.



## Templates

All templates for the MEST Journal articles preparing and submission can be found at the web address:

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ISSN 2334-7058 (Online)  
DOI 10.12709/issn.2334-7058