



ISSN 2334-7171

ISSN 2334-7058 (Online)

DOI 10.12709/issn.2334-7058

4D 61 6E 61 67

65 6D 65 6E 74

45 64 75 63 61

74 69 6F 6E

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6F 6C 6F 67 79

MEST Journal

**Edited by
Zoran Čekerevac**

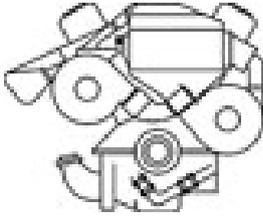
MESTE

Vol. 9

No. 1

January 2021

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ISSN 2334-7171

ISSN 2334-7058 (Online)

DOI 10.12709/issn.2334-7058

This issue:

DOI 10.12709/mest.09.09.01.00

MEST Journal

Management

Economics

Education

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Edited by
Zoran Čekerevac

MEST Journal

Vol. 9

No. 1

January 2021

CIP – Каталогизacija y publikaciji
Narodna biblioteka Srbije, Beograd

005+37+3+66

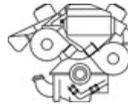
MEST Journal : Management, Education,
Science & Society, Technologies /
editor-in-chief Zoran P. Ćekerevac. –
[Štampano izd.]. – Vol. 9, no. 1 (2021) –
– Belgrade : MESTE NGO : Faculty of Business
and Law of the “Union – Nikola Tesla”
University in Belgrade ; Toronto : SZ &
Associates, 2013- (Belgrade : 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

DOI 10.12709/issn.2334-7058

Current Issue: DOI 10.12709/mest.09.09.01.00



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, CiteFactor, etc.

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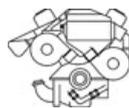
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Printed by: **ICIM+, Belgrade**

Circulation: 100 copies

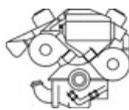
The journal was published online at URL: <https://www.meste.org/ojs/index.php/mest/index>

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 2019 =100.00), Scilit, ROAD, ERIH PLUS, CiteFactor, and in the ResearchBib (IF: 2020 Evaluation Pending).

All published papers have been internationally reviewed

Two issues of journal are published annually, on January 15th, and July 15th.

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



MEST Journal
Year IX, Vol. 9, Issue 1
DOI: 10.12709/mest.09.09.01.00

Editorial on MEST Journal 2021-1

Prof. Dr. Dr. h. c. Zoran Čekerevac¹
Editor-in-Chief

(1) Faculty of Business and Law, "Union - Nikola Tesla" University, Knez Mihailova 33, 11000 Belgrade, Serbia

Belgrade, January 15th, 2021

The year 2020 was unusual in every way. For most, the outbreak of the COVID-19 pandemic came as a complete surprise and a drastic change in lifestyle and work. Working from home, which was a rarity until then, suddenly became a common practice. Both employees and employers have realized that a large part of everyday activities can be performed online. Deeper sociological research will address the impact of isolation and quarantine, but even without that, the impact of the pandemic on developments in science and education is visible. Almost all universities have translated part of the teaching or the entire teaching into online teaching, and very few have managed to hold scientific conferences with the personal presence of the participants. In the group of those who managed to realize their planned scientific conferences, although with a reduced number of participants, are MESTE and the Faculty of Business and Law of the University "Union - Nikola Tesla". We successfully held the International Scientific Conferences "Management 2020" and "ZITEH 2020 - Information Technology Abuse and Protection". Some of the best papers submitted for these conferences, adapted according form and criteria, are presented in this issue of the MEST Journal.

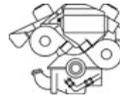
The past year has brought an increased influx of scientific papers that were suitable for publication in the MEST Journal in terms of content and quality, and we would like to take this opportunity to thank the authors for their work and trust.

This issue is published online and in paper form. In this issue, 25 of the submitted papers were published, of which six were classified in the group of original research scientific papers, and 19 in the group of review scientific articles.

This issue includes papers that analyze the opposing opinions of different authors, as well as papers that present case studies with more pronounced views of the authors. Therefore, we emphasize again that editors do not censor works that we publish, and that published works may contain and/or proclaim views that could differ from the views of the editorial board. We check articles for plagiarism, but we are not able to guarantee the accuracy of the data published in the scientific and professional papers of our authors. We believe that our authors are honorable and publish only their original works with really achieved results. We thank the authors and reviewers who did their job well and conscientiously for the quality of the works we publish.

We invite you to publish your works in the MEST Journal. We will help you with that.

Prof. Dr. Dr. h. c. Zoran Čekerevac

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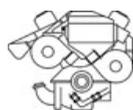
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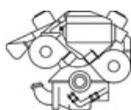
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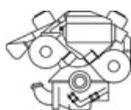
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A UNIFIED SYSTEM FOR DISTRIBUTING AND RETRIEVING INFORMATION FOR A MULTILEVEL HIERARCHY OF USERS IN AN INSTITUTION

Igor Cherevko

Yuriy Fedkovych Chernivtsi National University, Ukraine

Andriy Pertsov

Yuriy Fedkovych Chernivtsi National University, Ukraine

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JEL Category: I23

Abstract

This article presents a specific model of the distribution of the messages and retrieving information for a multilevel hierarchy of users that was recently proposed by the authors. The main channels and messengers of communication between users were analyzed and compared. A Telegram messenger bot has been developed to automate the sending of information messages, divided into hierarchical levels of recipients in educational institutions. C# programming language and .NET Core technology, Entity Framework Core, ASP.NET Web API Core, PostgreSQL database were used for development. They are implemented in the VisualStudio environment appropriate application in the form of a web application API.

Keywords: *communications, education systems*

1 INTRODUCTION

Today's society is characterized by the global use of information technology, which is seen as a means of improving the effectiveness of professional and educational activities. An important feature of our time is the rapid development of Internet technologies and their use in all areas of activity.

The availability of computers and smartphones has been the impetus for the development of new communications services. Telephone calls have been replaced by online voice and even video calls. People started using computers and the Internet to communicate. The first tool for this was email, which ideologically followed traditional letters, but was much more effective. Next, chats became popular. They were used for group communication between two or more users. It is much easier for the average user to write a text message and find out what they are interested in online. Messenger does not force an instant reply, and therefore it is more convenient for a person to reach out.

Address of the corresponding author:
Igor Cherevko
[✉ i.cherevko@chnu.edu.ua](mailto:i.cherevko@chnu.edu.ua)

The emergence of messenger programs has caused a certain revolution in messaging, and the important role here is played by bots - special programs that execute certain commands automatically or according to a given algorithm. Chatbots can simulate user communication with one or more callers. Such virtual interlocutor can be developed even without the involvement of programmers. The basic idea of using chatbots is to automate repetitive processes and interactive communication with the user. Bots are designed to assist the user in achieving their goal (regularly receiving useful information, setting reminders, etc.).

In this paper, a Telegram Messenger bot has been developed to automate the sending of hierarchical recipient-level information messages. The main purpose of the developed bot is to create a unified system through which users can subscribe to receive information messages and, depending on the role, send them to other users.

The Telegram messenger bot developed in this work consists of two parts: a web application for receiving and processing user messages and a database. The following modern technologies were used to implement the bot: .NET Core, Entity Framework Core, ASP.NET Web API Core, PostgreSQL database, and Visual Studio 2017 programming environment, which provide a high level of development of modern information systems of various sizes and complexity. The bot supports three commands: registering a new user, selecting recipients to send a new informational message, and sending feedback to the administrator. The bot lets you send messages to a specific group of users, manage registered users, set user rights by role, provides an interface for sending messages to a select group of people.

2 LITERATURE REVIEW

The main goal of modernization in the sector of education in the world is the achievement of the new quality of learning process that would correspond to new socio-economic conditions. This requires an effective organization of the educational process. Also important is the development of students' skills of the XXI century, which would be useful in their future professional activity. Society puts new demands forward for the young people, such as to be able to cooperate,

to work effectively both individually and in a team, so it becomes necessary to develop students' skills of modern information technologies usage. Note that the detailed analysis in terms of expanding communication space of globalized society, a transformation of the old, and the emergence of new practices of social interaction in different spheres of society is in the work (Pinchuk, 2015).

This approach provided in the Strategy of Information Society Development in Ukraine for 2013-2020 (2013), the National Strategy of Education Development in Ukraine for the period up to 2021 (from 25.06.2013 № 344/2013) (2013), and the Law on Higher Education (2014).

In the modern world becoming more and more popular the use of networks in education. Among a variety of networks, social networks, which reflect a diversity of people relationships, are a priority (Kolaczyk, 2009; Kosinski et al, 2015; Horkovenko, 2017; Hubanov, Novikov, & Chshartishvili, 2010; Nosova, & Sennikova, 2014; Goetz et al, 2009). The study of social networks is important since it helps understanding how our world is organized, what place each of us takes in it, how this situation affects us and how the knowledge can be used to achieve our goals. In recent years, new technologies appear for data and knowledge organization to rationalize social life.

Lately, many models of information distribution in social networks have been considered. In Bamba, Pasichnyk, Kunanets, and Turbal (2018A, 2018B) there was proposed a new approach to modeling the process of opinion spreading in a social group based on the procedures that resemble the process that reminiscent of transferring excitation in the nerve cell.

This paper examines the problem of analyzing and comparing Internet communication channels in general and existing Internet messengers (Statista, 2020; AIN, 2019; & Statista, 2016). A Telegram messenger bot has been developed to automate the sending of hierarchical recipient-level information messages, which is used at the Chernivtsi National University by the Faculty of Mathematics and Informatics (Send API, Messenger Platform, Viber REST API, Bots FAQ, and Telegram Bot API). C# programming language and .NET Core technology, Entity

Framework Core, ASP.NET Web API Core, PostgreSQL database were used for development. They are implemented in the Visual Studio environment appropriate application in the form of a web API (Freeman, 2018; Lock, 2018).

3 PROBLEM STATEMENT

There are currently quite a few information sources available at the university where students, faculty, and other staff can receive information:

- University website;
- Faculty website;
- Department website;
- Teacher's personal page;
- Curator's messages;
- Student union announcements.

Usually, each of these sources is placed on a separate website, which makes it difficult to receive timely information from all of them. Due to a large number of resources, there may also be a problem receiving notifications of new messages that may need to be responded to as soon as possible.

On the other hand, there is no common way to distribute information to different users. For each of the information sources above, you need to have separate access to add news to it.

Creating a bot for the Internet messenger aims to solve these problems by creating a unified system for information distribution and retrieval. At the same time, support for a multi-level hierarchy of users will allow sending messages only to a specific group of people, and for recipients - to receive only the information that is addressed to them, without any excess. And since Internet messenger is an instant messaging service, all recipients are guaranteed to be notified of new information as soon as possible.

3.1 Internet communication channels. Characteristics and comparison.

Today there are many different channels of communication on the Internet:

- video and audio;
- website;
- Email;
- Messenger.

Consider the following characteristics:

- Convenience/efficiency in mass communication
- Individual communication convenience/efficiency
- Speed of obtaining information
- determining the level of importance for the recipient.

For video and audio communication channels, it is quite difficult to synchronize free time among all recipients, especially if there are many of them, which complicates the distribution of information in this way. On the other hand, when making an individual call, we are guaranteed to bring information to the recipient if they pick up the handset, but they do not have the opportunity to determine the content of the call in advance and decide its importance.

It is very easy for websites to publish information to the mass media, but for individuals, it forces users to register on this website. Also, end-user information will require you to know the address of the webpage of the website where the information is posted and to periodically visit it to check for updates.

Email, unlike the previous two channels, makes it easy to distribute information to each user individually and to groups of users at the same time. However, the speed of information retrieval by users can be reduced due to a large amount of information from other resources and spam.

Table 1. Channels of communication. Comparison.

| Name | Mass communication | Individual connection | Speed of receipt | Determination of importance |
|---------------|--------------------|-----------------------|------------------|-----------------------------|
| Video / Audio | - | + | + | - |
| Website | + | - | - | + |
| Email | + | + | - | + |
| Messenger | + | + | + | + |

Internet messengers are very similar to e-mail in their characteristics, but eliminating its disadvantage - usually, messages from the messenger are automatically filtered from spam and used mostly for a personal exchange of information, which improves the speed of its receipt and user's response. As with email, every recipient has the opportunity to read the

information at a convenient time after receiving a notification of its presence.

Table 2. Features of messengers. Comparison table.

| Name | Popularity | Capacity | Open source | Opportunities for bots |
|--------------------|------------|-------------------|-------------|------------------------------|
| Facebook Messenger | № 1 | 200 requests/user | No | ~20 methods API + UI |
| Viber | № 2 | 500 requests | No | ~15 methods API, without UI |
| Telegram | № 3 | 30 requests | Yes | ~80 methods API + UI |
| WhatsApp | № 4 | - | No | There is no support for bots |
| Skype | № 8 | 10 requests | No | Microsoft Bot API |

In analyzing and comparing popular messengers, we will consider the following characteristics:

- Popularity
- Bandwidth
- The open-source protocol used
- The ability to create a bot
- The ability to add user interface elements to the created bot.

Messenger popularity will use their position in the ranking of mobile applications by the number of downloads among all free applications in the Communication category. As most of the population in Ukraine use mobile phones running Android, the popularity data can be viewed in the Google Play mobile application directory.

4 DESCRIPTION OF THE SOFTWARE PRODUCT

The project in the application implements the bot for the Telegram Internet messenger in the form of the RESTful API web application. After receiving a message from the user, the bot processes it appropriately, communicates with the remote database if needed, and sends a reply via Telegram back to the user.

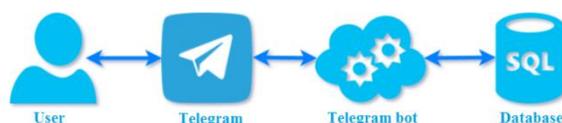


Figure 1. Scheme of user interaction with the bot.

The project is written in C# programming language in Visual Studio 2017 with the use of .NET Core technology to run a web application on Windows, macOS, and Linux

The database uses Entity Framework Core ORM technology to automatically create all the entities used in the code in the database. It is possible to immediately fill the database with the required values and, if necessary, simply change the database type by connecting the appropriate Entity Framework provider.

Bot features:

- send messages to a specific group of users
- managing registered users
- setting user rights by role
- providing an interface for sending messages to a select group of people.

Bot commands:

- /start - register a new user
- /send - select recipients and send a new informational message
- /feedback - send feedback to the administrator

User groups:

- Rector
- Dean
- Head of Department
- teacher
- group leader
- student.

The following information is stored in the database for user identification:

- Unique user ID
- Telegram's unique user ID
- Phone number hash to determine user role
- Password hash (PasswordHasher is used for hashing, which hashes the password using PBKDF2 with HMAC-SHA256, 128-bit salt, 256-bit key, and 64000 iterations)
- User status (whether the user is an admin)
- Place in the hierarchy and role of the user.

4.1 Setup and launch

To run the bot, you must install the .NET Core SDK version 2.1.500.

To configure the bot on your computer where it will run, you must set the values for the following environment variables:

- NewsfeedBot.Db - the value of connection string to the database
- "NewsfeedBot.Host" - the value of the server host from which the bot will be accessible on the Internet, through which Telegram will communicate with the bot for transmission of updates
- "NewsfeedBot.TelegramToken" - the value of the Telegram bot token received from @BotFather on whose behalf the bot will operate

You must then start the web server using the following commands from the source folder of the application:

- dotnet restore
- dotnet build
- dotnet run

4.2 Possible improvements

The software created has great potential for expanding functionality. For example, it can be supplemented by the following:

- add automatic parsing of news from already existing university information resources and their automatic distribution.
- add integration with the University's e-learning system ("Moodle") to receive and automatically send grades for student submissions and notifications to teachers about new student work.
- add automatic renaming of groups at the end of the school year.
- make it easier for new users to be added to the Admin Interface Database.
- ability to choose from which sources to receive new messages.
- create a mechanism for sending all past messages for the current academic year to users who have registered after sending them.
- create the ability to enter any user roles and set their hierarchy to send messages.

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Received for publication: 06.09.2020
Revision received: 30.11.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Cherevko, I., & Pertsov, A. (2021, January 15). A unified system for distributing and retrieving information for a multilevel hierarchy of users in an institution. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 1-7. doi:10.12709/mest.09.09.01.01

Style – Chicago Sixteenth Edition:

Cherevko, Igor, and Andriy Pertsov. 2021. "A unified system for distributing and retrieving information for a multilevel hierarchy of users in an institution." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 1-7. doi:10.12709/mest.09.09.01.01..

Style – **GOST Name Sort**:

Cherevko Igor and Pertsov Andriy A unified system for distributing and retrieving information for a multilevel hierarchy of users in an institution [Journal] // MEST Journal / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 1-7.

Style – **Harvard Anglia**:

Cherevko, I. & Pertsov, A., 2021. A unified system for distributing and retrieving information for a multilevel hierarchy of users in an institution. *MEST Journal*, 15 January, 9(1), pp. 1-7.

Style – **ISO 690 Numerical Reference**:

A unified system for distributing and retrieving information for a multilevel hierarchy of users in an institution. Cherevko, Igor and Pertsov, Andriy. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, MEST Journal, Vol. 9, pp. 1-7.



CORONAVIRUS, LOCKDOWN, AND ECONOMY

Helmuth Yesid Arias Gomez

The University College of Business in Prague, Czech Republic

Gabriela Antosova

The University College of Business in Prague, Czech Republic

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JEL Category: I15, H51, H63

Abstract

Humanity has faced an unprecedented biological threat that collapsed the global economy and engulfed the animal spirits in a severe wave of pessimism and fear. The measures of policy have combined an expansive monetary policy and an extra fiscal expenditure that was not contemplated in the budgetary planning exercise. The recuperation stage is strongly challenging and requires all efforts of economic policy. The future global economic performance relies on the breaking policy postures that can succeed in realigning the path of growth in the long run. In any case, the destruction in the economic network and employment is so hard to restore that we must avoid the risk is to align the economy in a more stagnant path of growth for the future. The concluding part of the paper states that during the pandemic we saw that the way ahead should not be headed by the market mechanism but instead by an openly interventionist economic policy. In this blatantly ominous stage of the economy, serious doubts emerged about the ability of spontaneous supply and demand forces to recover the economic structure left in shambles by this disruptive shock.

Keywords: Economic Growth, Healthcare, Economics, Epidemiology.

1 INTRODUCTION

The lethal irruption of Coronavirus in the world agenda surprised governments all around the world and put under pressure the most complete health system. The vertiginous pace of contagion was only stopped with a general rigorous lockdown, but the bound economic consequences and the destruction of thousands of labor posts came along simultaneously. This extreme measure gave a blow to sectors operating on the

knife-edge as airlines and weakened all tourism services and manufacturing sectors.

Facing such a landscape, the entire economic system must resort to outright Keynesian recipes to lift the economy. Everywhere, the collapse of the private economy has required the intervention of governments extending loans, or through outright purchasing of enterprises. It's clear that the entire origin of the crisis comes from a health problem, so no market mechanism will take the initiative for solving it, and a large scale and coordinated action must be tackled by a blatantly activist economic policy (Lustig & Mariscal, 2020).

Address of the corresponding author:

Goméz Helmuth Yesid Arias

[✉ gomez@vso-praha.eu](mailto:gomez@vso-praha.eu)

Gazing such a situation, the upshot is that a long process of locking down can lead the economy into an unforeseen depression. So, such a trade-off between the economy and public health will be

a strong headache for all governments and becomes a dilemma for the public and workers of affected countries.

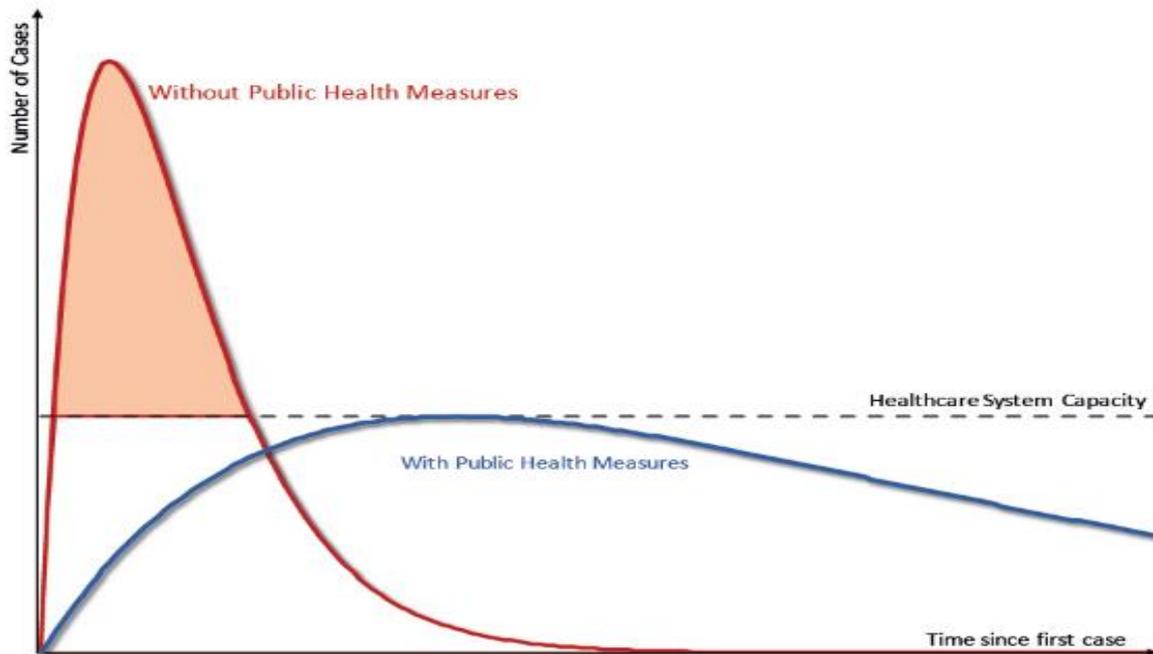


Fig. 1 Scenarios for coping with the pandemic.

Source: (Gourinchas, 2020)

In a very recent document, Gourinchas (2020) proposed the illustration that appears in figure 1.

In the first moment, the outbreak of pandemic put pressure on the health systems and the saturation of sanitary infrastructures is an indicator that the incipient stages of the disease are developing. After this, the system realizes that there is a constraint that allows the provision of health services using the available stock of equipment and premises (the flat line depicted after a while).

So far, consulting diverse documents and sources, the more effective strategy for containing the spread of disease is the general locking down, with exclusive permission for essential jobs and sectors.

The general indicator for recognizing the state of the disease is the called reproduction number (R) that represents the number of people infected because of only one individual. In Arroyo Marioli, Bullano, Kucinskas, & Rondon-Moreno (2020) appears one method for estimating econometrically the number R , applying the Kalman Filter. For the estimation, the necessary data are the infected, the susceptible people, and the recovered.

The ratio of infection R must be slowed either by restricting stringently the interpersonal contact through teleworking, the closure of schools and non-essential business activities, and the prohibition to traveling or through the isolation in the quarantine of the infected people.

In figure 2 appears the path of the estimation of R for the world.

During January 2020, the Chinese cases increased but, in the end, the decline in the number of infected marked a reduction, interrupted at the beginning of February. On February 19th, the disease for the world exploded again including the extension of pandemic around Europe and the USA. The generalized declaration of locking down in Europe during the middle of March contributed to sharply reduce the effective contagion. However, the slope in the curve was more flattened embodying the European behavior of pandemic, than the Chinese incidences when the rate of reduction was faster. A recent second wave was demonstrated to be even more disruptive.

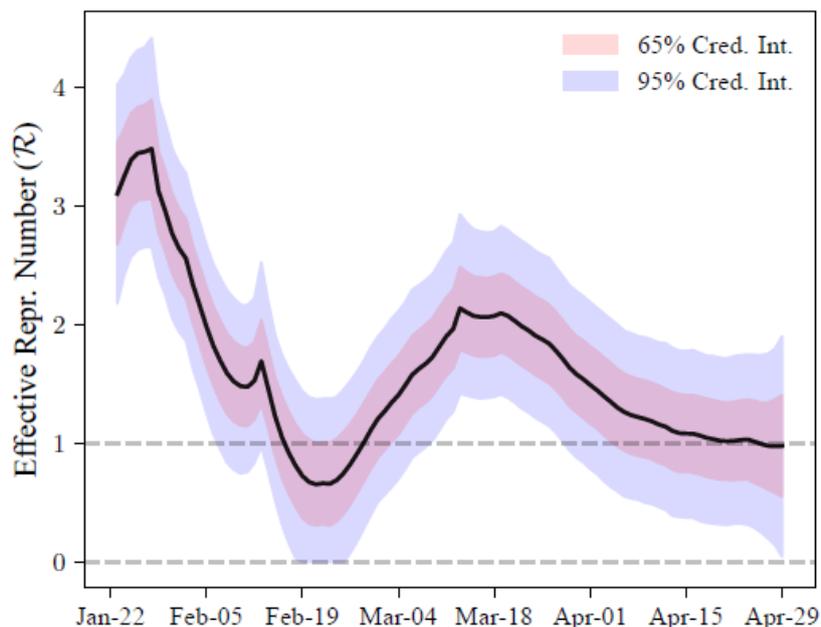


Figure. 2 Estimates for the world.

Source: Arroyo Marioli, Bullano, Kucinskas, & Rondon-Moreno (2020)

2 CORONAVIRUS IN VISEGRAD GROUP

The devastating initial effects of COVID-19, affecting in the first stage China, Korea, Iran, and Italy, became the pandemic in a more predictable social problem. The pandemic in four countries V4 had more moderate development due to the early measures of locking down. The Italian and Spanish striking increasing curve of cases, the fast pace of contagions, and the huge impact on the local health system was a shake for all neighboring European countries and precipitated the early issuance of strict measures of social distancing. The locking down was the final extreme measure after the staggering of previous preventive decisions: the closure of schools, the banning of public events, and the social distancing.

The blatant outbreak of COVID-19 shocked the markets primarily through a generalized drop in the production, hitting the supply side but, afterward, the banning of personal contact and locking down knocked down the employments of millions of people around the world, converting the global downturn into a demand shortfall as well. The general expectation weakened also as a reaction to the deterioration of financial values and the downfall in stock markets, precipitating a badly connected chain of recessive tensions (Lane,

2020). The demand contraction comes from the tough measures of social distancing as the single effective measure for containing the spread of the pandemic, and in consequence, the collapse in demand has driven by the deep retrenchment of consumers' demand (Lustig & Mariscal, 2020).

In the Czech Republic, confinement began on the 16th of March and was eased on the 11th of May, after a reduction in the incidence of disease, and similar measures were undertaken in other partners of V4. It's observed that locking down has an important effect to stop the infectious process.

In Poland, the first isolation measure was taken on the 13th of March closing the borders, and on the 24th of March started the locking down, except for essential activities. The Polish government plans to ease the confinement on 19 of May 2020.

In Serbia, in early March were reported the first confirmed cases of the virus, a situation that drove the government to close the borders and to impose closure in schools and educational institutions.

In Slovakia, during the first half of March were closed all schools and all public events were banned, while people arriving from abroad had to be submitted to quarantine. And on the 22nd of April, the restrictions gradually started to ease.

Hungary adopted a stringent strategy of control since the first cases reported at the end of February. On the 11th of March were disposed the closure of in-person classes only at Universities, a restriction that was extended to other educational levels afterward. Regarding the access from abroad, on the 16th of March was forcefully banned

the entry to any non-resident person, after that the prohibition was imposed in a selective way to visitors coming from specific affected countries.

The recent outbreak of cases during the second wave, obligate to resume the most restrictive measures everywhere

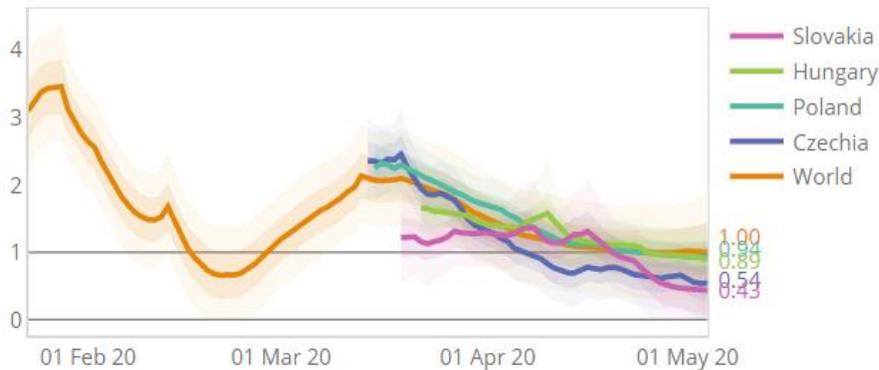


Figure 3 Effective reproduction number in V-4.

Source: Adopted by Source Rondn-Moreno & Marioli, Bullano (2020)

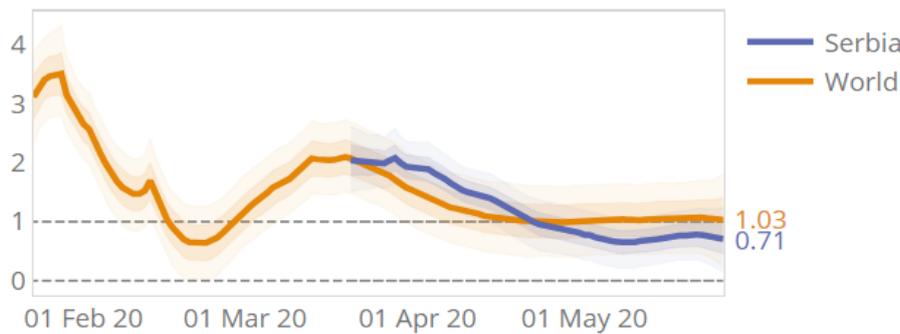


Figure 4 Effective reproduction number in Serbia.

Source: Adopted by Rondon-Moreno & Marioli, Bullano (2020)

3 PERSPECTIVE FOR THE WORLD ECONOMY

The global effects of locking down around the world have been devastating for the global economy in terms of economic growth, employment, and the rise of poverty. In the developing world, provided the preexistent poverty

and economic informality dropped into starvation a large portion of the population and in the developed world, the requirement for social subsidies has risen sharply. In Spain, previously families living a normal life and recurrent incomes, are now obligated to stand in the ques asking for food.

Table 1. Forecasted Economic Growth 2020.

| | GDP Growth 2020 | | GDP Growth 2020 | | GDP Growth 2020 |
|---------|-----------------|-------------|-----------------|-----------|-----------------|
| Austria | -5.5 | Latvia | -7.0 | Spain | -9.4 |
| Belgium | -7.2 | Lithuania | -7.9 | Cyprus | -7.4 |
| Estonia | -6.9 | Luxembourg | -5.4 | E. U. | -7.4 |
| Finland | -6.3 | Malta | -5.8 | Euro Zone | -7.7 |
| France | -8.2 | Netherlands | -6.8 | Ireland | -7.9 |
| Germany | -6.5 | Portugal | -6.8 | U. K. | -8.3 |
| Greece | -9.7 | Slovakia | -6.7 | | |
| Italy | -9.5 | Slovenia | -7.0 | | |

Source: European Commission

From economic science, a lot of scholars have issued recommendations and suggestions under severe concerns about the devastating effects of the pandemic itself and the lockdown measures. Paul Romer (2020) compared the huge cost of close mostly the economy and the inconvenience derived of enforce a massive COVID-19 test effort, aiming to isolate the infected population, but permitting the remainders to work normally. Acemoglu (2020) hinted that all social media data

can be useful for tracking the routines of the population to avoid the propagation from the infected individuals, as an invasive strategy against the privacy of people, with the caveat of recovering the privacy in the post-pandemic stage.

The hard dilemma between recession and health is deployed by Baldwin and Weder di Mauro (2020) as shown in figure 5.

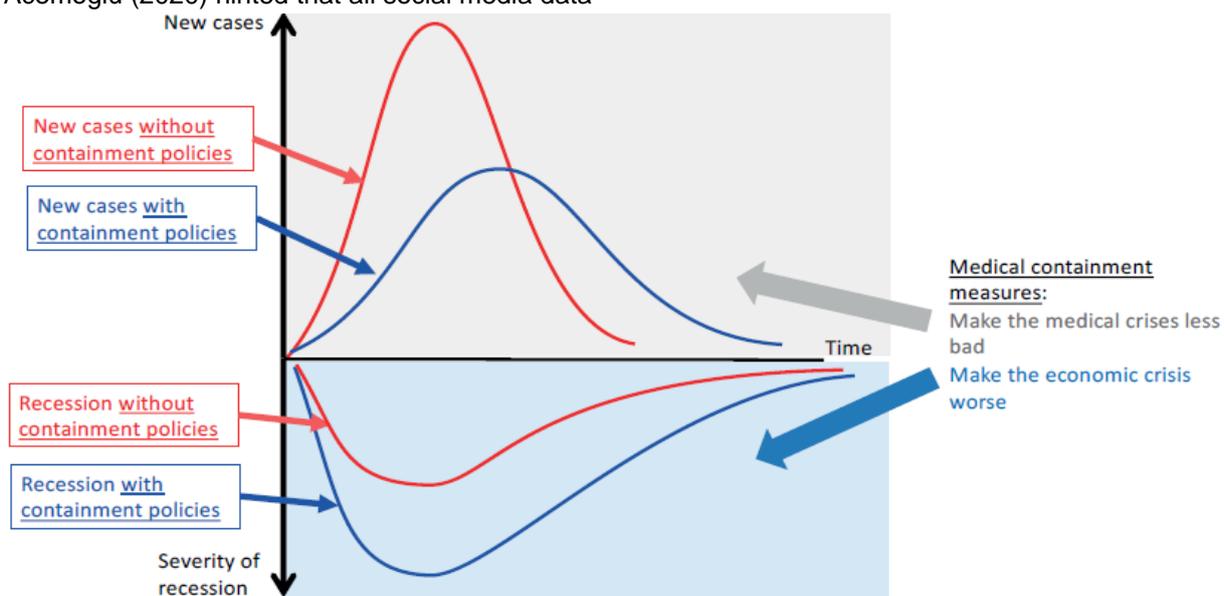


Figure 5. Containment policies and epi and recession curves.

Source: (Baldwin & Weder di Mauro, 2020)

The arguments of Romer (2020) can be understood considering other scientific opinions who consider that once the data have been collected, the statistics about the effects of the pandemic are less dramatic. The massive application of tests indicated that infected people were more manifold, and the rate of mortality is

now more reduced. And to the extent that the symptoms hound more outrightly the elderly and people with preexistent diseases. At this point, the real risk of COVID-19 is the fatal contagiousness of the virus and the prompt expansion amid the population.

Table 2. Forecasted fiscal stance in 2020.

| | Fiscal balance 2020 | Debt-GDP ratio of 2020 |
|------------|---------------------|------------------------|
| Austria | -6.1 | 78.8 |
| Belgium | -8.9 | 113.8 |
| Estonia | -8.3 | 20.7 |
| Finland | -7.4 | 69.4 |
| France | -9.9 | 116.5 |
| Germany | -7.0 | 75.6 |
| Greece | -6.4 | 196.4 |
| Italy | -11.1 | 158.9 |
| Latvia | -7.3 | 43.1 |
| Lithuania | -6.9 | 48.5 |
| Luxembourg | -4.8 | 46.4 |

Source: Adopted by the European Commission.

| | Fiscal balance 2020 | Debt-GDP ratio of 2020 |
|-------------|---------------------|------------------------|
| Malta | -6.7 | 50.7 |
| Netherlands | -6.3 | 62.1 |
| Portugal | -6.5 | 131.6 |
| Slovakia | -8.5 | 59.5 |
| Slovenia | -7.2 | 83.7 |
| Spain | -10.9 | 115.6 |
| Cyprus | -7.0 | 115.7 |
| E. U. | -8.3 | 95.1 |
| Euro Zone | -8.5 | 102.7 |
| Ireland | -5.6 | 66.4 |
| U. K. | -10.5 | 102.1 |

The economic policy runs amid two circumstances: a generalized reduction in the interest rate and an explosive expansion of public debt. The irrigation of cheap loans can contribute to staying afloat the firms that previously to crises, performed adequately.

European emergency funds are expected to relaunch the more depressed economies across the continent, particularly Italy and Spain.

The management of fiscal policy is strongly more challenging provided the acute impairment in the tax collection, the explosion of public expenditure, and the escalation of public debt. This fiscal landscape has an aggravating circumstance if highly indebted countries as Spain and Italy were hit by the pandemic head-on.

This unexpected nosedive in economic activity and employment was provoked by a sudden shock with straightforward recessive consequences, but a more disruptive concern is the risk to become this downturn in a permanent weak path of growth that in the long run can reduce the economy's potential of growth (Lane, 2020). A blatantly lasting reduction in the growth of the economy can be a latent risk to the extent that large portions of business net disappear promptly, and the reincorporation of the labor laid out by pandemic will be a hard task.

4 CONCLUSIONS

The lethal track of coronavirus in V4 countries was initially more moderated regarding other European partners (Italy, Spain, Germany, and France), due to the fast application of isolation measures, the lockdown, and the erection of border controls. The social discipline observing the restriction bolstered the general strategy of contention.

On the other hand, the rigorous measures of locking down and the social distance struck a hard

blow to the general economy and employment. The enlargement of confinement and social restrictions will deepen the economic crisis experienced by airlines, hotels, businesses, transports, and several services.

The reviving of the Keynesianism more interventionist see Keynesianism as the single feasible measure to lift the economy after the pernicious prostration left by the striking irruption of COVID-19.

On the monetary front, all the load of measures is required for avoiding a general collapse in the economy and a weakening of the banking system.

Considering the precarious equilibrium posed for businesses and enterprises in the post-pandemic, the recoument of the fiscal revenue must come from spurring the economic growth but not from the increase in taxes.

This pandemic opened our eyes to some risk ahead, that can come from climate change or biological factors.

During the pandemic, we were convinced that the way ahead should not be headed by the market mechanism but instead by an openly interventionist economic policy. In this blatantly ominous stage of the economy, serious doubts emerged about the ability of spontaneous supply and demand forces for recovering an economic structure left in shambles by such disruptive shock.

After the initial outbreak and the second wave of the pandemic, perhaps the most promising solution is the widespread implementation of the vaccine. Mass application of it could contribute to resume normality and to recoup the huge economic losses in terms of employment and output across the world.

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Received for publication: 06.09.2020
Revision received: 28.11.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Gomez, H. Y., & Antosova, G. (2021, January 15). Coronavirus, lockdown, and economy. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 8-14. doi:10.12709/mest.09.09.01.02

Style – Chicago Sixteenth Edition:

Gomez, Helmuth Yesid Arias, and Gabriela Antosova. 2021. "Coronavirus, lockdown, and economy." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 8-14. doi:10.12709/mest.09.09.01.02.

Style – GOST Name Sort:

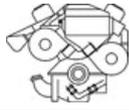
Gomez Helmuth Yesid Arias and Antosova Gabriela Coronavirus, lockdown, and economy [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 8-14.

Style – Harvard Anglia:

Gomez, H. Y. A. & Antosova, G., 2021. Coronavirus, lockdown, and economy. *MEST Journal*, 15 January, 9(1), pp. 8-14.

Style – ISO 690 Numerical Reference:

Coronavirus, lockdown, and economy. **Gomez, Helmuth Yesid Arias and Antosova, Gabriela**. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 8-14.



PRIVATE PROPERTY RIGHTS AND THE DECEASED

Cole Green

Loyola University New Orleans, New Orleans LA, USA

Alejandro Hernandez

Loyola University New Orleans, New Orleans LA, USA

Walter E. Block

Harold E. Wirth Eminent Scholar Endowed Chair and Professor of
Economics, Loyola University New Orleans, New Orleans LA, USA

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JEL Category: **D23, O30, P14**

Abstract

While the libertarian theory of property rights has been thoroughly studied, there has been minimal research done in regard to a deceased person's ability to dictate the future of the property he owned in life. In this paper, we attempt to develop a theory of the property rights of deceased people consistent with libertarian principles. We analyze the legitimacy of contracts between two individuals after one individual dies, ownership of the cadaver, the deceased's right to decide which actions are permissible to perform on the said cadaver, and the status of the deceased property when a will both has and has not been written. While there has been no explicit commentary made regarding these topics, outside from the will, the authors extrapolated current libertarian theories on property rights and applied them accordingly. While the authors of the paper ultimately do not reach a consensus agreement on some of the issues discussed in the paper, this exploratory work on the property rights of the deceased is intended to open further discussion and research on the matter to further contribute to the formulation of a concise libertarian legal theory.

Keywords: private property; rights; deceased; cemetery; necrophilia.

1 INTRODUCTION

As Benjamin Franklin famously stated, "Nothing is certain but death and taxes". While there has been an enormous amount of literature written critiquing

the latter, there has not been much discussion about the former.¹ Our discussion will not focus on the certainty of death but rather the interactions between the living and the deceased. There are vital questions regarding what should happen to a deceased person and all his belongings. Arguably, the most important question that must be addressed regarding the deceased is this: In a

Address of the corresponding author:

Cole Green

cdgreen@my.loyno.edu

¹ Exceptions include the following: Alter, Kernochan, & Darley, 2007; Benecke, 2008; Madoff, 2010; Naffine,

1999; Ochoa & Jones, 1996; Primoratz, 2001; Troyer, 2008

libertarian² society, should it be permitted for a living person to consummate with someone who is now deceased? Putting it more bluntly, should necrophilia be legal? Before discussing the legality of this despicable practice, the rights of the deceased must first be established. We will begin our exploration by tracing the ownership of the physical body after the moment of death. This will then lead to a discussion about the material property the deceased has left behind. After establishing the rights of the deceased and his property, we will get to the heart of our discussion, which is the legality of necrophilia. Before we begin our legal examination, we must say that some of the conclusions we reach will be uncomfortable, but that is the price that must be paid when searching for the truth.

In section 2 we define terms. Section 3 is given over to not very contentious claim that the dead body has no rights. The burden of section 4 is to ask who owns the body of the deceased person. In section 5 we discuss ownership of the property of the deceased Section 6 is our not to be missed conclusion.

² Rothbard, 1972, 1983

³ For a libertarian defense of homesteading, as the initial basis for property rights justification, see Block, 1990, 2002A, 2002B; Block and Edelstein, 2012; Block and Nelson, 2015; Block and Yeatts, 1999-2000; Block vs Epstein, 2005; Bylund, 2005, 2012; Grotius, 1625; Hoppe, 1993, 2011; Kinsella, 2003, 2006, 2009A, 2009B, 2009C; Locke, 1948; Paul, 1987; Pufendorf, 1673; Rothbard, 1969, 1973, 32; Rozeff, 2005; Watner, 1982

⁴ Nozick (1974) characterizes this process as any legitimate title transfer, such as barter, sale, lending, gifts, inheritance, gambling.

⁵ There are some who oppose wills, inheritance, etc. For example, Buchanan (1983) urges that a 100% tax be placed on such transfers. See also on this: Batchelder, 2009-2010; Matthews, 2014; Prabhakar, 2008; White, 2008. Were this policy implemented, the present paper would be obviated. For an alternative view, however, see Block, 2011, 2012; Rothbard, 1973; Tabarrok, 2005; Tullock, 1971; States Rothbard (1973) on this matter: "Many people are willing to concede the justice and propriety of property rights and the free-market economy, to concede that the farmer should be able to charge whatever his wheat will bring from consumers or the worker to reap whatever others are willing to pay for his services. But they balk at one point: inheritance. If Willie Stargell is ten times as good and 'productive' a ball player as Joe Jack, they are willing to concede the

2 DEFINE TERMS

As per Lockean-inspired libertarianism, material objects are acquired as property through homesteading³ or voluntary transactions.⁴

If we are to adequately discuss death in a free society from this perspective, we must discuss the nature of a will. In this paper, we will consider a will to be any legal document that makes provision for the transfer of a dead individual's property to his heirs. We assume that the property is transferred at the moment of death so that the property has continuous ownership.⁵

3 THE DEAD BODY HAS NO RIGHTS

We are adopting a secular ontology of the body in this paper.⁶ While the living is endowed with natural rights⁷ due to their consciousness, the dead body is nothing more than a material object. We believe that this is a rational and scientific assumption because the dead body is nothing more than a cluster of inanimate materials. Any duty owed to property stems from the rights of the owner. For example, I cannot throw a brick through your windshield, as that would be an attack on your property. However, if I found a car

justice of Stargell's earning ten times the amount; but what, they ask, is the justification for someone whose only merit is being born a Rockefeller inheriting far more wealth than someone born a Rothbard? The libertarian answer is to concentrate not on the recipient, the child Rockefeller or the child Rothbard, but to concentrate on the giver, the man who bestows the inheritance. For if Smith and Jones and Stargell have the right to their labor and property and to exchange the titles to this property for the similar property of others, they also have the right to give their property to foowhomever they wish. And of course, most such gifts consist of the gifts of the property owners to their children—in short, inheritance. If Willie Stargell owns his labor and the money, he earns from it, then he has the right to give that money to the baby Stargell."

⁶ We justify this on the grounds that we do not wish to quarrel with a straw man. Once religion enters the fray, the intellectual battle is over. Each denomination has its own rules on the use and disposal of dead bodies, and merely listing them would determine matters from that perspective.

⁷ The natural rights in a libertarian society are all negative: the right not to be murdered, raped, kidnapped, enslaved, stolen from, threatened; there are no positive rights in this philosophy, such as the right to food, clothing, shelter, or the right not to be discriminated against.

abandoned in an unowned field, I could assault the windshield as I please. Since the dead body is a material item, any duty owed to it is strictly due to the rights of its owner. But this raises a question, who owns the dead body?

4 OWNERSHIP OF THE PROPERTY OF THE DECEASED

Before we establish the inheritance of the dead body, we will consider the transfer of the deceased's property. First, we consider the case with a will and then discuss what happens in its absence.

At the moment of death, any property for which a provision has been made in the will is transferred to the new owner. In a free society, any conditions placed on the transferred property are null and void.⁸ First, we must note that it is definitionally impossible to have a contract with a material object. For example, Jones cannot make a contract with a stick he found in his backyard. Consequently, no one can have a contract with a deceased person because that would be an agreement with a material object.

One interpretation of the foregoing is that while a will legally transfer property, any stipulations placed on the inheritance need not be met. To best explain this claim, imagine if Person A writes in his will that Person B inherits his (A's) car only if he (B) paints it blue. Thus, the car will be transferred to B—so that he can paint it; but he need not paint it to keep it. Similarly, consider the case where Person A writes that his wife receives his body, and he wants her to bury it in their family plot. She inherits the body but may legally do whatever she pleases with it. While one hopes that people will follow the wishes of the dead for moral reasons, legally they have no such obligation.

For any property someone wishes to transfer with no conditions, a simple will should suffice. Similarly, a will works for someone who wishes to transfer property with conditions to someone that he trusts, for example to his loving wife or child.

However, what will Person A do if he does not trust Person B to paint the car blue, or his wife to bury him as he wishes, safe from necrophiliacs?

At first glance, it appears that Person A can do nothing but a hope that Person B—(his wife) will honor his wishes. This seems like a devastating blow for libertarian property theory, but fear not, the free market once again rescues us with another option!

Person A will have access to a plethora of executor businesses, which will ensure that any conditions he (A) has placed on the property (his dead body) are met. This will work as follows: Person A will hire an enforcer and he will discuss with him any conditions he wishes to place on the property in his will. Then, in that document, he will contract with the enforcer as the in effect intermediate inheritor of the property who will hold it until the final inheritor meets the condition necessary to inherit the property. For example, in his will, Person A will write that the lawyer who drew up the last will and testimony inherits the property and will transfer it to Person B only after he has painted the car blue, or in this case, she, his wife has buried his body safe from those who would abuse it. Thus, we see, once again, the will does not have an inanimate object, a stick, or a dead body as one of the signatories. The bequest either concerns the dying (but still alive) person and the beneficiary, or him and the enforcer.

That is one interpretation. Author three regards it as erroneous. In his view, enforcers are not necessary, because the contract's conditions on property transferred through will remain valid after death. Consequently, if, in his will, person A leaves a car to person B on the condition that person B paint the car blue, person B must paint the car blue to maintain ownership of the car. If person C was next in line to inherit the car and sees person B cruising around in an unpainted car, person C could take person B to court and sue him for the car for violating the conditions of inheritance.

Now, we must discuss what happens when there is no will, that is if the person dies intestate. Here is a typical explanation:⁹

"Every state has laws that direct what happens to property when someone dies without a valid will and the property was not left in some other way (such as in a living trust). Generally, only spouses,

⁸ Deitman, 2002; Evers, 2014; Rothbard, 2007; Terrell, 2002

⁹ <https://www.nolo.com/legal-encyclopedia/how-estate-settled-if-theres-32442.html>

registered domestic partners, and blood relatives inherit under intestate succession laws; unmarried partners, friends, and charities get nothing. If the deceased person was married, the surviving spouse usually gets the largest share. If there are no children, the surviving spouse often receives all the property. More distant relatives inherit only if there is no surviving spouse and if there are no children. In the rare event that no relatives can be found, the state takes the assets.”

Author three believes this is highly compatible with libertarianism. In focusing on spouses and blood relatives, the law is attempting, reasonably too, a contrary to fact conditional: what *would* the deceased have wanted, while still alive. Since most people operate in such a manner, the law makes that the default position. If the property owner wanted something different, it would have been up to him to specify. The only divergence from typical law is about the government seizing these assets. There is already far too much of that already taking place.¹⁰ Rather, we claim, the assets should be ruled abandoned, and given over to the first homesteader.¹¹

The first two authors do not agree that this is the proper default position. In a libertarian society, we cannot use the status quo as a justification for a law. As an example, it is a status quo to pay taxes, yet libertarian doctrine views taxation as theft. It is the opinion of the former authors that all libertarian laws must be justified through the NAP and property rights. The former authors believe that in

cases where there is no will, libertarian law needs a solution derived solely from the NAP and property rights. One possible solution is that property not transferred by a will is abandoned at the moment of death. This is consistent with the libertarian principle that property cannot be owned by a material object (i.e. a dead body). In this case, the property would be open for homesteading.

There is but one exception to this general rule: the friends of bum’s case. If there are private charitable organizations that have been contributing to the upkeep of intestate folk, then it is they who would be the legitimate titleholders to their (physical) property.

5 WHO OWNS THE BODY?

At the instance of a person’s death, the most immediate problem that arises is how to deal with the body. Since we have established that the body is nothing more than an immaterial object at this point the course of action depends if the recently deceased has left a will or not.

Let us start with the assumption that the deceased did have a will set up at the time of death. Thus, the deceased individual had ownership of his body until the moment of death. In this instance, just as with his material property¹², ownership of the remains must be transferred to the new owner, determined through the will. In other words, the inheritor(s) of the deceased becomes the proprietor of the physical body.¹³

and two believe that the body is also open to homesteading, since it is reduced to a material good post mortem.

¹² In regard to the functionality of wills regarding ~~with~~ deceased property, please refer to supra

¹³ Just as nature abhors a vacuum, the libertarian legal code abhors the state of non-ownership. Our motto is, if it moves, privatize it; if it does not move, privatize it. Since everything either moves or does not move, privatize everything. See on this: Anderson and Hill, 1996; Block, 2002, 2009, 2015, 2017A, 2017B; Block and Nelson, 2015; Butler, 1988; Carnis, 2003; Ebeling, 2013; Hanke, 1987A, 1987B; Hannesson, 2004, 2006; Hoppe, 2011; Karpoff, 2001; Megginson, 2001; Moore, 1987; Moore and Butler, 1987; Motichuk, Block and Johnson, 2008; Nelson and Block, 2018; Ohashi, 1980; Ohashi, Roth, Spindler, McMillan and Norrie, 1980; Pirie, 1986; Rothbard, 2018; Savas, 1987; Walker, 1988; White, 1978

¹⁰ On the case against asset forfeiture, see Baicker and Jacobson, 2007; Chi, 2002; Doyle, 2008; Moores, 2009; Naylor, 2000; Pimentel, 2012; Rothschild and Block, 2016A, 2016B; Rulli, 2001; Warchol and Johnson, 1996; Williams, Holcomb and Kovandzic, 2010, 2011. In the view of Rothbard (1982, 162): "Taxation is theft, purely and simply, even though it is theft on a grand and colossal scale which no acknowledged criminals could hope to match." Schumpeter (1942, 198) states: "The theory which construes taxes on the analogy of club dues or of the purchase of the services of, say, a doctor only proves how far removed this part of the social science is from scientific habits of mind." For further support for the notion that "taxation is theft," see Bagus, et. al., 2011; Block, 1989, 1993, forthcoming; Block and Barnett, 2003; Chodorov, 1962, 2017; DeJasay, 1997; Feser, 2000; Hoppe, 2008, 2011; Huemer, 2013, 2017; McGee, 2003; Portillo and Block, 2012; Rothbard, 1978, 1981, 1982; Schumpeter, 1942; Spenser, 1995; Spooner, 1870; Tame, 1989; Vance, 2006, 2007

¹¹ According to author three, this refers to the physical goods, of course, not to the person’s body. Author’s one

Since this new person is now the proprietor of the physical body, he has the legal jurisdiction as to its status. For example, let us say that Person A has recently passed away. In his will, he left person B as the sole proprietor of his possessions. Also assume that in our free society, the social norm was that recently deceased bodies must be burned in a giant fire pyre within 48 hours. Would B be obligated to burn the body of person A within the allotted time frame? The answer to this question should come as no surprise to any true follower of libertarianism. It all depends on whatever action person B has a higher preference for. He could follow the social norm and burn the body, or he could do whatever he sees fit with it, such as donating it to science, trading it, displaying it, etc. The important thing is that it is unimportant what B ends up deciding to do. Since it is now his property, he can do whatever he sees fit with it just like he could decide what to do with the shirt in his closet. It is important to note that this is only analyzing their choice through legal analysis. While we are claiming B can legally do whatever he wants with the body, we are taking no moral stance on his decision. He may still face social repercussions for disregarding the norm, but that is outside the scope of the present paper. Of course, A may well have stipulated that B is to cremate his body or place it in a cemetery. For an elaboration on this case, please refer to section IV

Now consider the case in which A dies on someone's property, C, who is not the heir expressed in the will. Must he give up the body? At present, as a matter of fact, there are of course laws concerning this sort of thing, and they will be followed. But, we ask, what *should* the law provide under these circumstances under the private property, free society. Presumably, libertarian laws would eventually cover this situation. Here, the opinions of the authors diverge. According to author three, at present, we can only rely on the doctrine of implicit contracts (Kern, 2019). If you go to a restaurant, order and drink a cup of coffee, and they present you with a bill for \$1 million, you are not at all obligated to pay anything like that amount. There is an implicit contract in operation such that they will charge a "reasonable" price. If they wish to engage in astronomical pricing, they must obtain your explicit agreement.

Authors one and two disagree with the previous analysis. We hold that two conditions are

necessary for a contract in libertarian society: First, there must be a meeting of the minds between the two parties, i.e. both parties must comprehend the terms of the contract and agree to them in an appropriate state of mind. Second, the terms of the contract must be laid out in a written (or some other form which can be revisited at a later date) document signed (or the equivalent act for the form used) by both parties. This requirement] We believe that in a libertarian society, implicit contracts have no legal authority.

In general, we reject the ability of two parties to form an implicit contract and only accept the validity of explicit contracts. This relies on the assumption that the consumer thinks he will be charged a reasonable price for the cup of coffee. This reasonable price, in turn, is based on the production costs of the cup of coffee. In our view, this defense is highly problematic. Only explicit contracts count. It is essential that an explicit contract be signed before any transaction is considered valid in the libertarian society. For example, let us assume that no explicit contract was signed before the barista brings the customer the coffee, whereupon the customer drinks the coffee and is then presented with a \$1 million bill. If the customer believes this price to be absurd, he has no obligation to pay for the coffee because no explicit contract was signed. He may simply walk out of the store without penalty. In practice, in cases where no explicit contract is signed, the barista will present a reasonable bill which the customer will pay so that he may continue to return to the store; or he may do so out of good manners. However, since we cannot rely on all patrons and customers to act reasonably if two parties wish to avoid the absurd \$1 million coffee bills and dine-and-dash customers, they must sign an explicit contract before the exchange occurs. Only in this way can both parties be sure that they will receive a reasonable bill and make reasonable payment.

The erroneous justification of an implicit reasonable price relies on the aggregate marginal utility cost for a cup of coffee. To define what a reasonable price is, one must look through all of the industry's coffee cup transactions and create a scale to determine what the average costs were. Aside from this tedious task, it is also incompatible with the Austrian view of the source of pricing (Mises, 2006). For the seller, the materials needed to produce the cup of coffee may very well have

been cheap, but he could have valued their labor at only slightly less than \$1 million. The seller would only sell the cup of coffee at a minimum of \$1 million because anything lower than that, he would gain more value from keeping it than selling it. According to the implicit contract argument, this would nullify the value that the coffee seller and also is incompatible with the libertarian principle of the free association since the seller is allowed to set a price on his property. Aside from this, if the coffee owner did value the cup at \$1 million, then there would not be an instance where the buyer would not know the cost of the coffee because it is too big of a risk for the seller to not disclose it in some way (on the menu, verbally, charge before providing the product, etc..) to his potential buyer. In addition to these notifications, the explicit contract signed by both parties would clearly state the terms of the transaction. If the buyer did not wish to pay, which price the seller presented in the explicit contract, and still bought the beverage thinking he was merely kidding, this would be pure negligence on the part of the buyer. He should still be required to pay the full \$1 million price to the seller because all explicit contracts are binding (assuming both parties are in a proper state of mind, i.e. sober, mentally fit, etc.) The seller should not be punished for the negligence of the buyer.

In like manner, if A dies on C's property unless there is an explicit agreement to the contrary. We still believe that this claim is not needed to conform to libertarian law. It's not a disagreement but rather we see this has no fit in our paper as it is a moral claim of doing the right thing instead of if they are required to.

Must we acquiesce to the radical claim that a dead person's body, without a will, is immediately open to acquisition through homesteading? That is, horrors if a necrophiliac were the first person to happen upon this piece of inanimate flesh, could he properly wreak his evil will upon the remains? We need not make any such thing concession. We

need not assent to any such scenario. Remember, in a fully free society, *all* surfaces of Earth, without exception, will be privately owned.¹⁴ There would be implicit contracts in all of these cases, presumably, to prohibit necrophilia.¹⁵

The only exception would be land owned by the "Necrophilia Society." Under the libertarian legal code, they would be allowed to engage in these abominable practices, since they do not constitute an explicit rights violation when performed upon the bodies of people who in effect bequeath themselves to preposterous such goings-on. Normal people will avoid such territory as if there were a plague infecting them there.

Lastly, like any other property, the body can be abandoned¹⁶. If so, the above considerations would apply.

Now consider a normal burial. As long as the grave plot is maintained as private property, the body cannot be disturbed without the owner's permission just as a car left in a garage is protected by property rights. The body interred in the grave may not be pillaged by gravediggers. The owner could revoke the dead body as his property or could leave the body for so long that it is considered abandoned. In this case, anyone who stumbles across the abandoned grave can homestead the body. What if a cemetery is abandoned by its owner; would the bodies interred in the graves become fair game for grave robbers? Not a bit of it. In the free society, this possibility would be anticipated, and reasonable accommodations made to obviate any such occurrence. Presumably, insurance firms would prevent it.¹⁷

6 CONCLUSION

We have attempted in this paper to confront a complicated issue, rarely discussed in the literature, at least not from a libertarian private property rights perspective. No doubt we have erred in several areas. But, better to start

¹⁴ This includes roads, streets and highways (Block, 2009) as well as bodies of water such as lakes, rivers, oceans (Block, and Nelson. 2015.)

¹⁵ The first two mentioned authors maintain the invalidity of implicit contracts in all contexts, this one included. For their reasoning, see fn. 11, supra.

¹⁶ See on this Block, 2004, 2015; Block and Nelson, 2015; Kinsella, 2003, 2009A, 2009B, 2009C, 2011; Long, 1993; Wisniewski, 2010.

¹⁷ For the role insurance companies would play in obviating all sorts of unlikely occurrences, for challenges to the free society refuted see Block, 1998; Hoppe, 1999, 2006; Murphy, 2002; Semmens, 1995

somewhere, than not at all in taking on difficult challenges. We hope that this paper will lead to a fuller discussion and we will thus have started down the path of arriving by that proverbial one-millionth of an inch closer to the Truth on this matter with a capital T.

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Received for publication: 09.06.2020
Revision received: 28.11.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Green, C., Hernandez, A., & Block, W. E. (2021, January 15). Private property rights and the deceased. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 15-27. doi:10.12709/mest.09.09.01.03

Style – Chicago Sixteenth Edition:

Green, Cole, Alejandro Hernandez, and Walter E. Block. 2021. "Private property rights and the deceased." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 15-27. doi:10.12709/mest.09.09.01.03.

Style – GOST Name Sort:

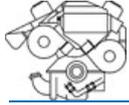
Green Cole, Hernandez Alejandro and Block Walter E. Private property rights and the deceased [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 15-27.

Style – Harvard Anglia:

Green, C., Hernandez, A. & Block, W. E., 2021. Private property rights and the deceased. *MEST Journal*, 15 January, 9(1), pp. 15-27.

Style – ISO 690 Numerical Reference:

Private property rights and the deceased. **Green, Cole, Hernandez, Alejandro and Block, Walter E.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 15-27.



THE IMPORTANCE OF INSTITUTIONAL INVESTORS DIVERSIFICATION IN THE DEVELOPMENT OF THE GOVERNMENT SECURITIES MARKET

Rodica Hincu

Faculty of Finance, Academy of Economic Studies, Chisinau, Republic of Moldova

Ana Litocenco

Faculty of Finance, Academy of Economic Studies, Chisinau, Republic of Moldova

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JEL Category: **D47, G21, G23**

Abstract

The development of a government securities market is a complex process that is interrelated with the financial and market system development of each country. For many countries, this implies huge challenges that often are amplified by economic issues. For instance, some government securities markets rely on a few domestic banks for funding, which makes competition scarce, and transaction costs high. In addition to this, the lack of a sound market infrastructure may make specific actions to develop a government securities market premature and ineffective. At the same time, the insufficiency of institutional investors, low domestic savings rates, and lack of interest from international investors generate a small, highly homogeneous investor group, contrary to the diversity needed for an efficient market. Furthermore, economic instability, often accompanied by high fiscal deficits, rapid growth of the money supply, and a deteriorating exchange rate, weakens investor confidence and increases the risks associated with the development of a market for government securities. This article aims to describe the importance of a diversified investor base in developing a government securities market and to show the experience of the Republic of Moldova in this regard.

Keywords: *government securities, market development, state policy, institutional investors, banks, insurance companies, pension funds, investment funds, individual investors*

The address of the corresponding author

Rodica Hincu

[✉ rodica.hincu3@gmail.com](mailto:rodica.hincu3@gmail.com)

1 INTRODUCTION

The situations of a deficient budget balance at a certain stage in time impose the need for the state to develop alternative sources of financing to ensure efficient management of public finances capable of providing financial coverage to the

economic sectors. One of these alternative sources of financing is the government securities market (GS). The prerequisites for the development of an efficient GS market are a stable and credible government, adequate fiscal and monetary policies, tax infrastructure, efficient justice and regulators, and a liberalized and well-developed financial system. Both domestic and foreign investors are reluctant to purchase/ invest in GS, especially medium- and long-term instruments when in the economy is expected high inflation, significant devaluations, or considerable risks of default. Thus, the existence of a macroeconomic policy framework with a credible commitment to prudent, sustainable, and stable fiscal and monetary policies reduces government financing costs in the medium and long term.

However, these measures are not sufficient to ensure the efficient development and functioning of the GS market. Government securities, like any other product, require buyers, and the state must identify and apply the measures that lead to stimulating demand for the securities issued.

To assure government funding, over time, many states have taken advantage of their powers, including from a fiscal and prudential point of view, to secure the demand for GS issued, which often results in situations when financial institutions were forced to finance the government financial needs given the imposed prudential and liquidity requests.

This practice has not always achieved its goal of reducing the cost of financing, and one of the results of this forced financing has been economic inefficiency given the misallocation of resources and obtaining lower interest rates than market interest rates. Although most developed countries have abandoned this practice of forcing financial institutions to procure GS, in some developing countries it is still a key element in financing budgetary needs.

An alternative to this flawed practice, increasingly used by developed countries, is to form a volunteer investor base. Thus, through appropriate reform, licensing, regulatory and supervision programs, some states are increasingly encouraging the development of

wholesale investors and other entities investing in GS for revenue, hedging, or repo transactions. At the same time, some developed countries are also interested in developing a retail investor base for issued GS, with its expansion and diversification by opening the market for foreign investment.

A diversified investor base in GS, with different trading horizons and risk preferences, contributes significantly to ensuring high liquidity and stable market demand. On the other hand, even liquid markets may become illiquid in periods when a single group of investors leaves or enters the market in a short time and where there is no balancing of flows from other groups of investors.

Therefore, the state, as the issuer of the GS, must understand the factors that generate interest in their product, identify the investment groups in the market, develop types of instruments with characteristics that match those sought/expected by different types of investors, as well as to organize massive campaigns for their promotion/marketing. Stimulating demand for GS is as important as developing market infrastructure to ensure an efficient transaction. At the same time, through its policies, the state must reorient itself from forcing investors to keep their assets in GS, to interesting them in voluntary investments.

The benefits of diversifying investors on the GS market are the following:

- reducing the costs of financing state debt.
- ensuring the stability and efficiency of the GS market.
- increasing the financing capacity of the national economy's needs.
- fostering the emergence and use of financial technologies and innovations.

Potential investors in the GS market are grouped into 2 major categories: domestic investors and foreign investors. These 2 categories, in turn, are divided into 2 other groups:

- financial investors - banks, insurance companies, pension funds, collective investment undertakings.
- non-financial investors – enterprises, non-financial institutions, and individual investors.

2 THE PARTICULARITIES OF DIFFERENT TYPES OF INVESTORS ON THE GOVERNMENT SECURITIES MARKET

Regarding *financial investors*, one of the most important categories of investors in the GS market is *commercial banks*. These are institutional investors that invest in government bills, bonds, and other debt instruments to meet liquid asset requirements, obtain a stable interest income, manage efficiently their short-term liquidity. GS also represents an opportunity to hedge their interest rate positions and to provide collateral for repo transactions with customers and the borrowing relations with the central bank. Commercial banks have been in many countries the largest captive source of government funding. By setting high minimum reserve and liquid asset ratio requirements and ensuring that government securities are the only eligible assets that satisfy these requirements, governments have been able to borrow substantial amounts at below-market rates of interest. While commercial banks are a major investor source for GS, their strong presence in this market may reflect some fundamental shortcomings in their commercial banking operations. Heavy investments in GS by commercial banks may imply weaknesses in their primary function, which is lending. Such operating weaknesses as ineffective screening and monitoring capabilities of loans, uncertainty related to the creditworthiness of the borrowers and projects, and weak legal systems may determine the banks to find safeness in GS. Once these operating deficiencies are corrected, banks may become less significant holders of GS.

When it comes to *pension funds and insurance companies*, the main objective of the first one is to provide accessible and lasting benefits, and the second one is to offer efficient insurance products. The specific needs of these types of institutional investors are not limited to adequate profits and prudence. These investors are interested in greater transparency and market integrity, both primary and secondary market of GS. They need to ensure lower trading costs and efficient trading and settlement procedures. At the same time, these investors stimulate innovations both in terms of financial products and business

practices, which are adapted to more efficient management and protection against risks.

Referring in particular to pension funds, in promoting policies aimed at activating their participation in the GS market, the state should pay attention to the general organization of the social security system and the roles of the public and private components, and those funded and unfunded. Thus, if within a state the system of compulsory private pensions is implemented (Pillar II) and a part of the contributions of the public retirement system will be administered by private entities, it must very carefully assess the costs of transition to this system to avoid exposing the public pension system to unsustainable financial obligations. The promotion of private pension funds (Pillar III) requires the application of a robust and effective regulatory framework that resembles the regulatory framework imposed on other types of financial institutions (banks, insurance companies, and investment funds). Given that pension plans involve long-term contracts that extend to 60 years or more, their regulatory and supervisory framework must be rigorous and effective. Regulations relating to the activity of pension funds should provide clear criteria for obtaining a license for the non-admission of unqualified entities, the prudent diversification of assets/investments, the valuation of assets, the frequency of actuarial reviews and audits, and how to ensure transparency in the business.

Similar features apply to the development of the insurance sector. In the case of both pension funds and insurance companies, opening up the local markets to foreign investors and integrating them into global markets facilitates the transfer of financial technologies, efficient and prudent operation, and contributes to the capitalization of these institutions.

At the same time, it is important to note that in many countries, institutional investors are promoted through tax incentives. In the case of pension funds, tax incentives often involve tax exemptions on annual contributions and investment income, with retirement benefits taxed when received. This approach avoids double taxation of long-term savings and provides incentives for retirement savings. In the case of life insurance, similar incentives are sometimes

offered for premiums paid for long-term life insurance products.

Another category of financial entities that may provide financing for the budgetary needs is the *collective investment companies*. These companies offer professional management and asset diversification with high liquidity and low cost. Some of the collective investment firms serve other institutional investors, but the vast majority focus on retail investors. The primary purpose of these entities is to invest in marketable securities-equities and bonds on behalf of the public. The collective investment funds are dependent on efficient and well-functioning GS markets. Unlike pension funds and insurance companies, which maintain well-diversified portfolios, investment funds are usually created with specialized investment objectives. They, therefore, consciously carry unbalanced portfolios, with a heavy concentration in bonds (either corporate or government) or equities (either diversified or sector-specific). In this context, investment funds play an active role in government markets and provide a good source of government funding. An interesting feature of this type of entity for developing countries is that their development does not depend on complex social security and insurance sector reforms. They can, therefore, grow fast, if they operate in a robust regulatory framework that promotes market integrity and protects the interests of small investors. Their rate of growth usually depends on the conditions supporting disintermediation from traditional bank products (bank deposits) to capital market instruments.

Concerning *non-financial investors*, taking into account the practice in many countries, non-financial corporations, such as commercial and industrial companies, are not investing in long-term GS, and are using this market only to effectively manage their liquid assets. When it comes to the *individual investors*, another category of *non-financial investors*, complying with the investment needs of individual investors is a key component in the diversification strategy of the GS market investor base, given that they are considered relatively stable holders of GS. However, the state must consider the operating and distribution costs of working directly with

individual investors. In this context, banks appear in most states as intermediaries between the issuer of the GS and the institutional investor. Over time, many countries in the world (both developed and developing) have issued special products to individual investors, often called national savings certificates. The basic objective of these certificates is to encourage population-saving skills, especially among people with limited access to financial institutions, but also to help finance the needs of the national economy. Savings certificates are usually sold through post offices or banks, with maturities not exceeding five years and with tax-exempt interest income. To encourage long-term investment, the interest rate increases in proportion to the duration of the certificate.

3 THE INVESTOR BASE OF THE GOVERNMENT SECURITIES MARKET OF THE REPUBLIC OF MOLDOVA

According to the national framework of the Republic of Moldova, as an investor on the internal GS market of the country may be any individual or legal person, resident or non-resident of the Republic of Moldova, on whose behalf the primary dealer submits the offer to participate in the GS auction of sale and/or performs transactions on the secondary market. The issuance of GS, as well as payments and transfers related to the GS purchase and redemption on the domestic market, are made only in national currency, and transactions are carried out only through primary dealers, which are represented by banks that have been accepted by the Ministry of Finance of the Republic of Moldova and have concluded agreements with the National Bank of Moldova to carry out GS operations on the domestic market as a result of meeting the selection criteria and which may conduct operations on behalf of itself or behalf of its clients (investors). At the same time, the Government of the Republic of Moldova issues GS instruments with a maturity of 5 years.

According to the statistical data published by the Ministry of Finance of the Republic of Moldova, a major part of the investments in the domestic GS market are made by the banking sector (see figure 1).

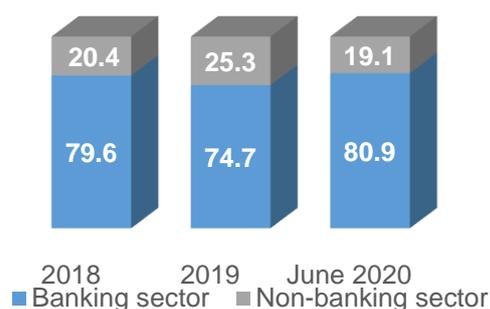


Figure 1. Types of investors holding government securities that were in circulation on the domestic primary market of the Republic of Moldova from 2018 to June 2020, [%]

Source: Made by authors based on statistical data of the Ministry of Finance of the Republic of Moldova (www.mf.gov.md)

As of 30th of June 2020, around 81% (with 6.2 p.p. more comparing to the situation on 31st of December 2019) of the GS that was in circulation on the GS domestic market of the Republic of Moldova were held by banks. Other 19% were held by other entities that are outside the banking sector, and in 6 months of the current year, this proportion decreased. At the same time, in mid-2020 only 0.03% of the total amount of GS available on the domestic market of the Republic of Moldova were held by non-resident investors.

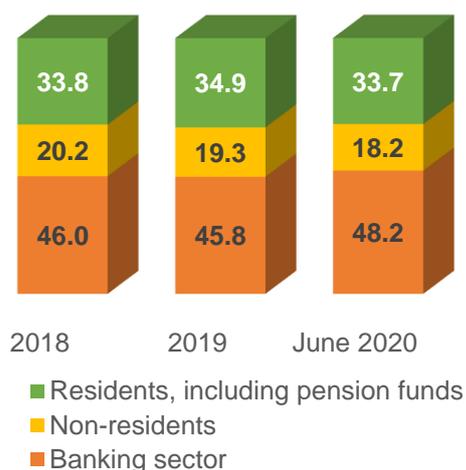


Figure 2. Types of investors holding government securities that were in circulation on the internal primary market of Romania from 2018 to June 2020, [%]

Source: Made by authors based on statistical data of the Ministry of Public Finances of Romania (www.mfinante.gov.ro)

Comparing the investor base of the domestic GS market of the Republic of Moldova with the one in Romania (see figure 2), it may be concluded that the banking institutions in Romania are one the major investors as well in the domestic GS market of the country.

However, Romania has a more diversified investor base of the GS market, and other investors besides banks are quite active in investing in Romanian GS. About 1/3 of the GS available on the domestic market as of 30th of June 2020 were held by the residents. In the category of residents are included the pension funds as well, and these financial entities hold 19.4% of the GS domestic market of Romania. Non-resident investors hold roughly 1/5 of the GS domestic market.

In Romania, the Government issues GS instruments both, in national and foreign currency, and their maturity can reach more than 15 years. At the same time, it is worth mentioning that Romania has developed and is implementing 2 Programs especially designated for individuals and their investment needs.

Under the 1st Program, „Fidelis”, which was launched in 2015 and redeveloped in 2020, the subscription of the titles is done through the commercial banks, without charging certain commissions in this respect. At the same time, since this year, the GS may be issued in foreign currency (euro) as well. The maturity of these GS is 2 and 4 years for issuance in national currency with an interest rate of 4 and respectively 4.5%, and 5 years – for issuance in euro, with an interest rate of 2%.

The 2nd Program, “Tezaur”, was launched in 2018 and aims at assuring the accessibility of GS investment instruments all over the country, including in the rural regions. The subscription of the titles is made directly by the individuals at territorial State Treasury offices as well as at the post offices. GS available to the public under this Program have maturities of 1, 2, 3, and 5 years, at an interest rate of 3.5%, 4%, 4.25%, and 4.75%, respectively. Both programs have proven to be of great success, individuals subscribing all the GS proposed by the Government for issuance.

In the Republic of Moldova, there are no savings programs based on GS available for individuals,

and even if this category of nonfinancial investors is interested in investing in this type of instrument, it must apply to a bank (primary dealer). This procedure is quite difficult for individuals, especially for those from the rural zones, and therefore it makes Moldovan GS unattractive for them.

Regarding the financial investors on the domestic GS market of the Republic of Moldova, the strong presence of the banks is explained as in many countries by the prudential and liquidity requirements imposed by the regulatory framework of the National Bank of Moldova. Another reason is that the banks are the major players in the national financial market. The presence of other financial investors on the GS domestic market of the Republic of Moldova is quite modest due to the poor development of the financial market itself. Therefore, as a result of different assessments made by the World Bank, it was stated that the insurance market of the Republic of Moldova is fragile, underdeveloped (including with stagnation and vulnerabilities), to a significant extent dependent on payment obligations, and the insurance companies are facing the problem of low capitalization and weak position towards solvency requirements. The collective investment sector and pension funds are almost inexistent. Even if few entities were authorized by the regulators, they did not carry out any activity.

However, in the context of signing the Association Agreement with the European Union in 2014, the Republic of Moldova assumed the engagements to approach its national framework with the EU *acquis*. Thus, in the financial sector, the national authorities consolidated all the efforts to develop a new framework related to the insurance sector, pension funds, and collective investment.

Therefore, the necessary framework for collective investment entities was designed and adopted in 2012 (Law of the Republic of Moldova no. 171/2012 on the capital market) and it contains provisions related to instituting and performing the activity of collective investment companies in securities. Afterward, at the beginning of this year, the Parliament of the Republic of Moldova adopted a second Law on collective investment (Law no. 2/2020 on alternative collective investment entities) and it

contains a rigorous regulation on establishing and functioning of the alternative investment funds (such as investment funds, venture funds). The Law transposed the following EU framework: The EU Directive 2011/61/UE on Alternative Investment Fund Managers; the Commission Delegated Regulation (EU) No 694/2014 supplementing Directive 2011/61/EU concerning regulatory technical standards determining types of alternative investment fund managers; the Regulation (EU) 2015/760 on European long-term investment funds; the Regulation (EU) 345/2013 on European venture capital funds.

Another policy reform that is in the process of being adopted by the Parliament of the Republic of Moldova is related to the pension funds. In Moldova, there are no compulsory private pensions (Pillar II) and there is no legal framework related to it. However, the authorities have prepared the necessary framework for the Pillar III pension system since 1999, under which were authorized few pension funds that did not perform any activity. According to the Association Agreement, the Moldovan authorities have drafted a new Law on private pension funds that transposed the provisions of the Directive (UE) 2016/2341 on the activities and supervision of institutions for occupational retirement provision (IORPs). The Law was approved by the Government of the Republic of Moldova on the 10th of June this year and was examined in the First Reading of the Parliament on the 9th of July 2020.

The insurance sector of the Republic of Moldova is also passing a period of policy reforms. With the support of the World Bank, the national authorities have drafted a new Law on insurance and reinsurance and exposed it for public consultations at the beginning of this year. The draft is transposing the provisions of the Solvency II Directive (Directive 2009/138/EC on the taking-up and pursuit of the business of Insurance and Reinsurance). The draft is expected to be adopted by the end of this year. However, due to the weak level of insurance market development in the Republic of Moldova, the new Law on insurance is not transposing the quantitative (capital and solvency) requirements of the Directive. These requirements will be transposed and applicable after an evaluation of the insurance companies and after consolidating the market.

By drafting all this new framework, the Moldovan authorities aim to implement the best practices and international standards related to the activity on the financial market. The new Laws in comparison to those that existed previously come with several innovative elements and more rigorous regulations on some issues, especially those related to:

- the organization, functioning, and regulation of the activity - the new Laws provide more complex regulations on the mandatory requirements that need to be met by the entities (administrators, depositors, members of their governing bodies, prohibitions in activity, situations when the financial entity may not act without the regulations permission/ approval), as well as the levers/instruments of the intervention of the regulator in the process of supervising the activity. Also, there are clear regulations on the need of establishing internal control and risk assessment functions, as well as the obligation of the financial entities to conduct a periodical external audit on financial statements and for other specific purposes.
- protection of participants/beneficiaries - the new framework stipulates that the assets of the financial entities cannot constitute guarantees and cannot be used for granting loans or borrowings and that they are not included in the amount of the debt mass in case of bankruptcy and/or liquidation of the depositary, administrator or employer. Also, to increase the protection of the beneficiaries, the new laws provide establishing Guarantee Funds which will be made up of contributions from financial entities and will be used to pay the rights of participants and beneficiaries in case of impossibility to insure them by administrators.
- investment policy - the new drafts/ regulations provide a more prudent investment policy, designed to ensure, and satisfy the interests of participants, diversified directions and investment instruments, and stricter investment limits and prohibitions. At the same time, the investment policy, and any changes to it are made with the prior approval of the regulator. In this context, it is necessary to mention that all the new Laws provide one

of the highest limits for investments made in Moldovan GS.

- transparency in the activity and informing the participants and beneficiaries - unlike the current regulations, the new draft laws provide tougher informing requirements for participants, namely: information and data that need to be made available to participants (investment profile, the investment policy, the profits obtained from the investment activity), as well as the publication of the information on the official website.

4 CONCLUSIONS

The GS market development of a country is interrelated with the development of its financial system. A poor financial market generates a very homogenous investor base on the GS market, and the experience of the Republic of Moldova is one of the countries that testify this assumption. In comparison to the Republic of Moldova, Romania has a more diversified investor base (nonresidents, individuals, financial investors which are represented not only by banks but by pension funds as well and in quite a significant proportion), which generates a more balanced GS market in comparison the Republic of Moldova and makes it less vulnerable in front of a certain category of investors.

To increase the development of the financial sector, and therefore the GS market, the Moldovan authorities started and are in the full process of an ambitious reform which is performed at the policy level for now. Implementing new regulations that are inspired by the international practices means establishing the same rules as on the international financial market that foreign investors are acknowledged and used to, which will increase their confidence in the financial sector of the Republic of Moldova and determine them to invest in this country.

However, after establishing a good and strong legal framework, the national authorities will have to take concrete measures at the macroeconomic level to stimulate the appearance of such players on the financial market and the GS market as well. It is necessary to mention that a challenge that the Moldovan authorities will have to face and to deal with, related to attracting/ diversifying the investors on the GS market, is the fact that

beginning with 2021 the income obtained after holding GS instruments is going to be taxed. Such a fiscal policy may have a negative impact on attracting and diversifying the investors base on the Moldovan GS market, and the national authorities will have to make extra efforts in addressing this issue.

Besides creating financial investors, the Moldovan authorities should also stimulate the participation

of individuals as investors on the national GS market. A good example from this perspective is Romania, the neighboring country that managed to develop 2 savings programs for its population that proved to be a great success. Such programs are a win-to-win incentive. The population gets diversified savings options and the state will get the necessary financial resources for its budgetary planning.

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Received for publication: 22.09.2020

Revision received: 01.12.2020

Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Hincu, R., & Litocenco, A. (2021, January 15). The importance of institutional investors diversification in the development of the government securities market. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 28-36. doi:10.12709/mest.09.09.01.04

Style – Chicago Sixteenth Edition:

Hincu, Rodica, and Ana Litocenco. 2021. "The importance of institutional investors diversification in the development of the government securities market." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 28-36. doi:10.12709/mest.09.09.01.04.

Style – GOST Name Sort:

Hincu Rodica and Litocenco Ana The importance of institutional investors diversification in the development of the government securities market [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 28-36.

Style – **Harvard Anglia:**

Hincu, R. & Litocenco, A., 2021. The importance of institutional investors diversification in the development of the government securities market. *MEST Journal*, 15 January, 9(1), pp. 28-36.

Style – **ISO 690 Numerical Reference:**

The importance of institutional investors diversification in the development of the government securities market. **Hincu, Rodica and Litocenco, Ana.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 28-36.



USE OF OPEN SOURCES OF INFORMATION IN THE INTERESTS OF INTELLIGENCE AND ENSURING INFORMATION SECURITY

Olena Ivanenko

Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

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JEL Category: **F52**

Abstract

The study of the experience of using open sources of information in the interests of intelligence-by-intelligence services studied the methodology and organization of the use of open sources of information in the interests of intelligence and information security of the country. Methods of collecting, analyzing, and processing information are considered, sources for information use are clarified. Information security is an integral part of national security and is closely linked to open-source intelligence. Nowadays, this type of intelligence is relevant because sometimes the ability to obtain intelligence through closed sources is significantly limited. The information obtained in this way should be carefully checked and analyzed, compared with the information obtained through intelligence and vice versa. The considered advantages of open sources of information are that the risk of failure of the agent is excluded or considerable means and efforts for the search of such are saved. The information provided by the World Wide Web is truly inexhaustible. In total, more than two-thirds of the intelligence obtained is obtained through open sources of information. The studied methods of working with information obtained from open sources have shown that analytical intelligence is a component of intelligence activities, which consists of identifying, evaluating, forecasting various political, economic, and social processes, events, activities based on information, mostly obtained from open sources, extracted by an exploration of other types (agency, technical).

Keywords: *open sources of information, World Wide Web, information security of the country, analytical intelligence.*

1 INTRODUCTION

Actuality. It consists of concentrating the efforts of the country's foreign intelligence service on priority areas of activity, ensuring the adequacy of measures to counteract existing and potential risks and threats to the country's national security,

The address of the corresponding author:

Olena Ivanenko

[✉ e_ivanenko@ukr.net](mailto:e_ivanenko@ukr.net)

focusing on performance only and the result. The use of open sources of information in the interests of intelligence is one of the most important components of ensuring the national security of any country in the world. The vital activity of the entire state mechanism and often the existence of the state as such depends on how intelligence works. According to various experts, from 80 to 90% of the information needed for decision-making can be obtained from open sources and only 10% from closed sources.



The goal of this research is to study the experience of using open sources of information in the interests of intelligence by foreign intelligence services and the application of their experience by the country's foreign intelligence service.

Research methods and ways to use open sources of information on the example of foreign experience include:

- analysis of the American experience of using open sources of information.
- research of the experience of using open sources of information by European secret services.
- study of the organization of collection and analysis of information based on OSINT.

2 THE ROLE AND IMPORTANCE OF ANALYTICAL INTELLIGENCE THROUGH THE INTERNET

One of the most promising areas of work of the security service of a certain state entity to ensure national security is analytical intelligence (search) using the Internet. Many experts also call this set of measures of computer intelligence. Its essence is to search for and transmit information from computer systems and networks of the "World Wide Web" with its subsequent verification and analytical processing.

Both state and non-state special services are showing great interest in analytical methods. This is because the Internet contains huge amounts of information that are of operational interest to both the former and the latter.

Therefore, in many countries around the world, including law enforcement agencies in Russia (MIA and FSB), the United States (FBI), and Germany (BKA), special units of analytical intelligence have been created via the Internet.

The sphere of activity of these state structures is legal intelligence in the global network, organization of communication channels with the agency, collection of materials on operationally significant situations, active activities in the network, the study of personal characteristics of politicians, scientists, military, and collection and analysis of information. is of interest from the point of view of state security. Similar units operate in transnational corporations, which are increasingly becoming states within states.

Also, there are independent research centers that specialize in finding the right data in the "digital ocean" of information. In Western Europe and the United States, gathering information through the Internet has long been a lucrative business. According to the open press, in France alone there are now more than a dozen companies whose task is to study documents, including tables and figures that exist on the Internet. An example is the linguistic engineering company MAAG, which focuses on information and analytical support for such key sectors of the French economy as the aerospace industry, transport, and energy.

Special "data collection processors" are used for global research on the Internet. In this particular context, the term "processor" has nothing to do with a microprocessor, it is part of a program that defines how the program itself manages and manipulates data. The data collection processor uses software called "robot": "robot" obtains the necessary information using a whole arsenal of linguistic, semantic, and statistical analysis. Acting autonomously, data collection processors intercept any requested information as soon as it appears on the Internet. The first to be declassified was the French processor Taiga (Traitement automatique d'information geopolitique d'actualite - "automatic processing of current geopolitical information"). This software package was initially developed for the needs of French intelligence, where it then worked fruitfully for 11 years, after which it was transferred for commercial use. The tasks now set for him by civilian experts have remained the same, namely monitoring the Internet to extract valuable information from patent databases, news agency reports, and scientific conference publications.

The method of conducting analytical intelligence using this software is as follows: processing open access materials available on the Internet, the program of statistical analysis is the so-called maps of work in various fields of science. In turn, this allows analysts to identify the most promising research in industries where competition is still relatively small. The results of quantitative and qualitative analysis of the results of scientific laboratories make it possible to assess the degree of the creative atmosphere of research teams. It can also be quite useful in identifying "promising fliers", ie researchers who in a relatively short time can change some research centers of interest,

and thus who are familiar with the results of these research centers.

It is worth mentioning another French development. To conduct a semantic analysis of large information arrays, Acetic, together with scientists from the University of Paris, has developed a package of Tropes applications. The necessary information is selected according to keywords and concepts that are related in meaning. For example, the name of the aircraft "Mirage" is associated with the words "airplane", "fighter", and the set of words "US Secretary of State" is automatically associated with the words "minister", "politician". This software allows one to simultaneously analyze two text pieces of information with a volume of several dozen book volumes. Also, "Tropes" allows one to create the necessary information scenarios, based on which is automatically not only the search but also the target grouping of the necessary data.

Technological progress does not stand still in the city, and therefore it is obvious that if the state intelligence services provide such developments for commercial use, it can only mean that they have received something much more powerful.

Noemic, which replaced Taiga at the battlefield, not only scans but also automatically "combines sources", processing the received information at a rate of 1 billion characters per second, regardless of whether it exists as a ready-made database or, for example, transmitted by an open news agency in any language in the form of a complete text. This semantic data processor is also capable of processing concepts, metaphors, and a set of ideas that deserve its attention. If, for example, they are tasked with identifying all the links between Hong Kong and American microelectronics companies in the last five years, it will only take a few hours.

The American analog of these software packages, called "Topic", was also developed from the beginning for intelligence purposes. This system was born as a result of long-term research carried out under the control of the CIA. Today, it is also transferred to commercial use and all rights to it belong to the California firm "Verity", the world leader in documentary data collection.

Verity and its competitors are not far behind. For example, the American company "Intelligent

Search Solutions" has launched a software package "InfoTracer", which is designed to collect economic intelligence on the Internet. To filter the information, the specified software uses keywords and phrases, after which messages of the necessary content for users are automatically composed. They may contain, for example, data on the business operations of a particular company and its partners, the technologies they use and manufactured products, as well as the names of management.

In this regard, I would like to note that the emergence of new information technologies has almost equalized the ability of competitors to obtain the necessary source information. Now the key is search speed and proper analysis. This is exactly what data collection processors will help, which allows one to "extract" and analyze the necessary information from large arrays of information. Professionals are well aware that economic intelligence can be conducted without computer hacking, simply by processing a huge algorithm of huge amounts of information available to every Internet user. According to experts, today in the United States alone there are about 150 companies that specialize in the analysis of data obtained from the Internet. And new companies appear like mushrooms after the rain.

But at the same time, it should be noted that analytical intelligence utilizing the Internet is a stick at two ends. The fact is that if one track and analyze the subject of data of interest to a particular entity available on the Internet, it is quite easy to build a causal relationship and identify long-term intentions of the company, the level of its encroachments, which in turn it will be possible to assess the level of its development. For this purpose, special "robots" have been developed, which intercept data on the operation of the system, which is engaged in a purposeful collection of information.

The most advanced corporations actively use disinformation technologies to mislead about their business contacts, developments, financial, and marketing plans. With the participation of industry experts and with the help of special software packages, which also operate on the principles of linguistic and statistical analysis, from pieces of already published texts and some complex terms

are created and published on the Internet various materials that frankly do not correspond to the true state of affairs: "industry reviews", "scientific" articles, and sometimes entire databases and data banks.

The effectiveness of disinformation measures is assessed by ordering analytical reports for oneself through fictitious companies from network intelligence providers. In the future, the controlled leak of these reports to the press acts as a "circle on the water" and is the material of "secondary consolidation" of the necessary stereotypes in the objects of disinformation attack.

Previous material has been able to convince most readers that the use of analytical techniques opens ample opportunities to quickly obtain the necessary data from both professional databases and data banks, and unstructured information available on the Internet.

These circumstances naturally allocate analytical intelligence to the independent direction of business units, and in combination with other technologies of analytical information processing, which will be described below, allow us to talk about a range of intelligence activities based on modern information technology.

In this section of scientific work, we will focus on the information retrieval component of analytical intelligence, as in the method we are researching, searching the Internet is only a preliminary search for information.

About 10-15% of the necessary information is available on the Internet already in the finished form (only verification is required), and the other 85-90% are obtained as a result of the comparison, analysis, and synthesis of disparate and scattered from different sources of facts, which can be a fully fragmented image of reality. Naturally, the information obtained in this way needs clarification and verification.

First, the efficiency of providing information to some extent compensates for its incompleteness. Secondly, as a rule, at the initial stage of acquaintance and this volume satisfies the customer. Third, if there is further interest in the subject, this preliminary information will help the customer to place emphasis and set guidelines for further work. The advantage of this type of

intelligence is to minimize labor, moral, and financial costs.

The following examples are successful examples of the use of the Internet in competitive intelligence. The security service of one of the enterprises, collecting information about the alleged partner in one of the remote subjects of the Russian Federation via the Internet, went to the official website of this subject of the Federation. The official press represented there, painted a possible partner, without sparing creative forces and budget funds. But the analysts went further and through a link on the official website of the administration we got the website of the Chamber of Commerce and Industry, and from there to the website dedicated to local media. This site published materials of one of the newspapers in opposition to the head of the region's administration and thus significantly expanded their knowledge about the object under study in terms of the "negative" available to it.

It is worth noting that with the right approach, even the official websites of businesses, businessmen, politicians, and public figures will be able to report a lot of interesting information.

For example, on the eve of a major industry fair, one of the largest Western companies on the website of its main competitor noticed information about a massive company to stimulate its product. This allowed to timely revise the price list prepared for the exhibition and deprive the competitor of the opportunity to play on a clear price advantage.

For example, other information may appear. For example, a competitor's announcement about finding a specialist in a new field has appeared on the Internet, so this can be a signal to us about a change in the priorities of the competitor's business. Similarly, if one need information on potential foreign partners, then with the appropriate approach and knowledge of a foreign language, this is also not a problem. On Western servers, there are a lot of available sites with interesting information. It is important to know where, how, and what to look for.

In the same way, information with evidence of participation in separatist riots in eastern and southern Ukraine appeared on the Internet many times, allegedly on behalf of Ukrainian citizens, citizens of the Russian Federation. The issue of

the information war against Ukraine and the nature of threats will be discussed in more detail in the next section.

In early 2005, the ZabaSearch service was launched online for public testing, which is one of the most complete and comprehensive information search servers for people living in the United States.

ZabaSearch has an advantage over conventional free search engines such as Yahoo People Search, whose functionality is limited to information from phone directories.

The ZabaSearch database contains all unpublished phone numbers, personal information for the last ten years, and satellite photos of the apartment. ZabaSearch builds its index databases by processing thousands of sources on the Internet. Currently, the index of this system contains more than 2 billion records - an average of 10-12 records per US citizen.

With a free search query, if one correctly identifies the name and residence of the wanted person, he/she can get the name, date of birth, and home phone number of any American. If pays \$25, one will be provided with a complete dossier, which will include information about the person involved in the police, his tax debts, and bankruptcies. The trade-in personal information in the United States is a multibillion-dollar market operated by a variety of organizations, including banks and government agencies. Thus, all customer information is sold by the US Postal Service.

The main disadvantage of "free" information is the lack of guaranteed completeness and reliability of data, as well as the significant time required to find the necessary information. Often the data presented on the sites are not updated at all or are updated very irregularly.

Information obtained from open sources can be of great value in the decision-making process. It is important to use different sources of open information and take into account the degree of objectivity of each source. Based on an array of information obtained from several sources, a vision of the situation is created. It will not be superfluous to use various analytical reviews and blogs on the Internet, as they may also contain valuable information. Such blogs are run by

various politicians and public figures, journalists, political scientists, experts, etc.

In the conditions of growing interrelations and interdependence of the states at the preservation of many global dangers and threats, national security becomes a component of the general world safety, efforts of all people in the preservation of the world, democracy, humanization of modern relations. Information is the basis for decision-making in the field of public policy and national security. It is no secret that the information space is also used for information warfare.

Open sources of information are not only a channel for obtaining information but also a source of various threats to the country's national security.

2.1 Information security as an integral part of national security

The information security of the country is an organic component of the national, so its consideration is necessary for the formation of basic knowledge and ideas about national security.

Given this, we can state a new understanding of information security issues. Thus, B. Kormych interprets information security as a state of protection of the norms and parameters of information processes and relations established by law, which provides the necessary conditions for the existence of the state, man, and society as subjects of these processes and relations.

Some scholars consider information security as a state of protection of vital interests of the individual, society, and the state, which minimizes damage due to incompleteness, lateness, inaccuracy of information, or negative information impact, due to the negative consequences of information technology, as well as unauthorized dissemination information.

Information security of society is also defined as the impossibility of harming its spiritual sphere, cultural values, social regulators of human behavior, information infrastructure, and messages transmitted through it.

The development and implementation of almost all areas of information technology significantly change the structure of society, as well as

transforms international relations. One of the most important directions of this transformation is the realization of national interests in ensuring national security.

Since the middle of the twentieth century, the rapid development of information technology, which has acquired a global character. The global information industry in the early '90s of the last century reached 2 trillion. US dollars, and at the beginning of the XXI century increased by an order of magnitude. Based on this, we can say that the world is rapidly forming an information society. Its main feature is that the strategic resource is information that can interact not only with the material but also with the spiritual world of man.

Thus, we consider the problem of information security in the context of the formation of the information society.

The urgency of this issue is due to many factors:

- now the main strategic national resource, the basis of economic and defense power of the state is information and information technology.
- information in the modern world is an attribute on which the efficiency of modern society depends.
- information technology has fundamentally changed the volume and importance of information that circulates in the technical means of its storage, processing, and transmission.
- general computerization of the main areas of activity has led to a wide range of internal and external threats, non-traditional channels of information loss, and unauthorized access to it.
- mass equipping of state institutions, enterprises, organizations, and individuals with computer equipment and their inclusion in the world information spaces involves a real threat of creating extensive systems of regular unauthorized control over information processes and resources, deliberate interference in them.
- the reality of today has become the use of information weapons and information wars.
- the imperfection of legal regulation of public relations.

In the field of information, security leads to serious negative consequences that make it difficult to

maintain the necessary balance of interests of the individual, society, and the state, the formation of competitive local news agencies and media:

- unfair use of information space within the state leads to a decrease in the level of internal information security of Ukraine, the direct consequence of which is the destabilization of the socio-political situation, actions of resistance to the adoption of certain state decisions.
- constitutional rights of citizens to privacy, personal and family secrets, correspondence do not have sufficient organizational, legal, and technical support.
- the situation with ensuring the preservation of state secrets is deteriorating, mechanisms for ensuring official and commercial secrets are insufficiently developed.
- significant damage is caused to the personnel potential of the teams of those enterprises that operate in the field of information technology.
- lag of domestic information technologies forces the creation of information systems to purchase imported equipment and attract foreign firms, which increases the likelihood of unauthorized access to processed information, increasing dependence on foreign manufacturers of computer and telecommunications equipment, software.

As a result, the process of informatization of society is developing rapidly and partly unpredictable.

3 CLASSIFICATION AND DESCRIPTION OF OPEN SOURCES OF INFORMATION

Given the rapid technological development of the information society and new communication opportunities, the number of potentially possible both open and relatively open and closed electronic sources of information has recently expanded significantly.

The modern world of information technologies and the comprehensive informatization of society integrate every citizen into the network, whether he wants to or not. The database of any enterprise or organization is contained on electronic media, which are transmitted to government agencies and institutions for accounting or control.

There are many types of sources of information. Open sources of information include print media, television and radio, the Internet, various

professional and analytical publications, and more.



Figure 1 Open sources of information (adapted by authors)

One of the most promising areas is analytical intelligence through the Internet. This set of measures is referred to by many experts as computer intelligence. Its essence is to find and transmit information from computer systems and networks of the "World Wide Web", followed by verification and analytical processing.

Both state and non-state special services are showing great interest in analytical intelligence methods. This is because the Internet contains large amounts of information that may be of operational interest to both the former and the latter. Of course, information about a person has previously been subject to accounting in various bodies or institutions.

From the end of the twentieth century until today, new developments in the field of computer technology allow us to bring to a qualitatively new level the work of processing data contained in a computer network. Modern systems based on the analysis of the obtained data can predict actions or events. After all, modern information systems can form an information file on the requested object with data that were not only entered by the subject of the application (government agency or organization) but also by other subjects knowingly or even accidentally. It is possible to obtain personal information from sources such as the Internet, including financial history and video surveillance.

Analysis of social networks is recommended by banks when deciding on a loan. The practice of human resources departments of many private organizations to check a candidate by analyzing his profile on social networks is widespread. After all, at the meeting, the candidate will show himself as the best side, often hiding the negative aspects of his personality. Whereas social networks

contain information over a long time and can show different aspects of the personality, from friends on the network to tags (likes) of specific news, photos or videos, and so on.

Analytical intelligence is the study and systematization of information that can be obtained both within the method itself and using other methods of ORD (visual observation, reconnaissance surveys, operational installations, electronic control).

Recently, specialized computer intelligence programs have been used to conduct computer intelligence. Due to their specific functions, intelligence programs, in comparison with other search and analytical programs, allow to expand the search area, reduce the search term, identify latent connections, increase the value of the received information. Intelligence computer programs are the most versatile and therefore the most widely used analytical intelligence tool. S. Ovchinsky emphasizes the extremely important role of modern methods of processing a variety of information for the formation of analytical intelligence as an "independent activity".

Computer intelligence is an activity that involves finding and retrieving real-time information from computer systems and networks. The need for this event is due to the peculiarities of modern crime. According to O. Demyanchuk, computer networks, first, the Internet, are increasingly used by criminals to create illegal markets for weapons, drugs, human organs, pornographic products, explosive devices, offers to provide killer "services", as well as a way to disseminate information on the manufacture of improvised explosive devices, the propaganda of national hatred and calls for war.

It should be noted that open sources should include not only those to which public access is possible but also those to which access is technically possible due to, for example, unprofessionalism or negligence of the information protection service or system administrator. There are leaks of valuable and confidential information in the public domain. Such a leak may be aimed at deliberate misinformation or may contain reliable information, as the perpetrators may be prosecuting their property.

4 CONCLUSIONS

The result of counteracting external threats to the national security of the state is intelligence activities to participate in the fight against terrorism, international organized crime, drug trafficking, illegal trade in weapons and their technology, illegal migration.

Monitoring of special information operations of macro- and micro-level planned to achieve a certain goal allows to counteract external threats to the national security of the state and to carry out systemic measures, namely:

- prevention of several real terrorist acts against Ukrainian diplomatic missions abroad.
- assisting in the evacuation of several thousand citizens from conflict zones and increased terrorist activity Palestinian-Israeli, Georgian-Ossetian, from Iraq, Syria, Lebanon, Libya, and other countries.
- in cooperation with the state authorities of the country and foreign partners to implement measures to assist ship-owners in the release from piracy of several ships and their crews, etc.

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Received for publication: 06.09.2020
Revision received: 23.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – **APA Sixth Edition:**

Ivanenko, O. (2021, January 15). Use of open sources of information in the interests of intelligence and ensuring information security. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 37-45. doi:10.12709/mest.09.09.01.05

Style – **Chicago Sixteenth Edition:**

Ivanenko, Olena. 2021. "Use of open sources of information in the interests of intelligence and ensuring information security." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 37-45. doi:10.12709/mest.09.09.01.05.

Style – **GOST Name Sort:**

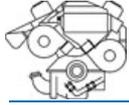
Ivanenko Olena Use of open sources of information in the interests of intelligence and ensuring information security [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 37-45.

Style – **Harvard Anglia:**

Ivanenko, O., 2021. Use of open sources of information in the interests of intelligence and ensuring information security. *MEST Journal*, 15 January, 9(1), pp. 37-45.

Style – **ISO 690 Numerical Reference:**

Use of open sources of information in the interests of intelligence and ensuring information security.
Ivanenko, Olena. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 37-45.



DEVELOPMENT OF CHILDREN'S RIGHTS IN POLAND – SELECTED ASPECTS

Malgorzata Kmak

Pedagogical University of Cracow, Faculty of Social Sciences, Institute of Political and Administrative Sciences, Cracow, Poland

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JEL Category: **K36**

Abstract

Children's rights are human rights, they result from the personal dignity and uniqueness of the child as a person. They apply to every child, they cannot be stripped away or renounced. It also means that if a child has a right, the state must ensure that it can be exercised. Further, if the child has a certain right, it means that there must also be procedures to enforce it. The beginning of the international movement for the protection of children's rights dates back to 1874, when the first organization for the protection of children's rights, the New York Society for the Prevention of Cruelty to Children, was founded in the United States. In Europe, at a similar time, since 1880, international societies of criminologists, youth court judges, care for abandoned and homeless children were being established to work on relaxing the criminal law for minors or establishing educational and care facilities for children. It was in the 19th century when the rights of the child were discussed in Poland for the first time. Moral, religious, or customary norms regulated children's place in the community. However, the development of these rights was a long process that had started in Poland much earlier. The article aims to present selected historical situations affecting the development process and the current state of children's rights in Poland.

Keywords: *child, rights, freedoms, system, family, Children's Ombudsman.*

1 INTRODUCTION

In Poland, the rights of the child began to be discussed for the first time in the 19th century. The child is one of the basic subjects of the family, the status and importance of which have been included in the supreme legal act in force in Poland, which is the Constitution of the Republic of Poland. Poland also provides care and full protection of the family. That is why it is so

Address of the corresponding author:
Malgorzata Kmak 
malgorzata.kmak@up.krakow.pl

important to know the legal basis defining the rights of children and the duties of guardians and institutions providing care for them, to identify and determine the occurring infringements, negligence, and more dramatic pathologies in the child's environment. The legal protection of the child and the whole family is determined by numerous laws, the most important of which are contained in the Constitution of the Republic of Poland of 2 April 1997 (Journal of Laws 1997 No. 78, item 483).

The Constitution, despite the provisions relating to children's rights, does not define the term "child". This definition was included in Article 1 of the

Convention on the Rights of the Child of 20 November 1989 (Journal of Laws 1991 No. 120, item 526), which Poland ratified in 1991. According to the text of the above article, "a child means every human being below the age of eighteen years unless, under the law applicable to the child, the majority is attained earlier". The definition takes into account the criterion of majority is also contained in the Act on the Children's Ombudsman in Article 2 paragraph 1. Thus, it may be noted that the definition of a child in Polish law is identical to the definition contained in the Convention on the Rights of the Child. Additionally, in the Preamble to the Convention on the Rights of the Child, the very need to protect the children and their rights has already been indicated, stating that: "the child, because of his physical and mental immaturity, needs special safeguards and care, including appropriate legal protection, before as well as after birth".

2 GENESIS OF CHILDREN'S RIGHTS IN POLAND

Before the rights of the child were discussed in Poland, it was moral, religious, and customary norms that determined the attitude towards the child in the community. One of the first important documents created on Polish lands was the Wiślica Statute from the XIV century. The document was one of the first written legal regulations on Polish lands, which came into force in the middle of the 14th century. The norms and customary laws were codified by the then king of Poland -Casimir the Great. The process of shaping children's rights was long and uneven, but the situation of minors was gradually improving. Descendants whose parents had died were provided with a guardian, so the institution of adoption was developing. The state began to protect the family. It imposed penalties for the ill-treatment of minors and murder. Orphans had a special place in the Wiślica Statute. Unfortunately, the quality of life of illegitimate offspring deteriorated (Balcerek, 1986, pp. 168-171). In the Middle Ages, children were usually neglected. The youngest offspring were taken care of exclusively by women. Girls were prepared for adult life by mothers, boys by fathers (Korczak, 2004, p. 43).

At the end of the Middle Ages, the father's power was limited, although he was still the head of the family. The state's care of the family was

strengthened - children gained few rights. The illegitimate children had no rights at all. In the 16th century, marriage was only possible through the institution of the Church. If a child was born outside of marriage, he or she could not bear the father's name or inherit from him and was called a bastard. In the Church, there was no place for illegitimate descendants, and they had difficulties finding employment. The life situation of the bastards was dramatic, and they usually formed a socially excluded group. The youngest got help only from sensitive people. The state began to supervise the performance of the guardian's duties at the turn of the 16th and 17th centuries (Balcerek, 1986, pp. 173-174).

The breakthrough came on 14 October 1773, when the Sejm appointed the Commission of National Education (KEN). It was the first Polish and European educational institution acting on behalf of the state (Bartnicka, 1973). The education and upbringing of children from all social classes were the basis of the reform. It covered the education of girls. The introduction of education at parish, higher and main schools was another postulate (Miszczak, 2018). KEN tried to provide the youth with a sense of security, dignity, care, while at the same time being strict about upbringing. The institution used corporal punishment (Janeczek, 2017).

The Commission's activities were interrupted by the partitions of Poland. It was a period in the history of Poland and Lithuania in the years 1772-1795, when the Polish-Lithuanian Commonwealth ceded part of its territory to neighboring states: Russia, Prussia, and Austria (invaders), as a result of a lost war or under a threat of use of force. At the end of the 18th century, aid mechanisms for the neediest, including children, were launched. However, the partitioners suppressed the reforms. Polish children found themselves in a difficult situation (Balcerek, 1986, p. 183). In villages, they helped at home and on the farm from an early age. The youngest children of the working families had to work. Obedience was enforced by beating (Kałwa, 2004, p. 260). Under occupation, very bad treatment of children from extramarital relationships continued.

For example, in the Russian partition, the law was different for a legitimate and an illegitimate child. A child born to married parents was given the

father's name and was in the parents' custody. This child had the right to inherit. However, an illegitimate child had no rights. According to the German Civil Code, parents were to take care of minors (Balcerek 1986, pp. 186-199).

German legislation did not give them many rights. Schools did not teach in Polish and subjects like Polish history and culture were prohibited. Children were separated from their parents and given away to German families (Balcerek 1986, pp. 186-199).

In the Austrian partition, the situation of minors was the best. The Austrian Civil Code was in force there. The parents had many obligations, as well as prohibitions. They were to take care of the upbringing. Their right to punish was limited. Parents who did not fulfill their duties could lose their parental authority. The main difference from the other partitions was that the father had to take care of an illegitimate child. In Galicia, young people had access to education (Balcerek 1986, pp. 186-199).

After the regaining of independence, many political parties paid attention to the rights of the child in their political programs. They called for universal and free education of children, protection of underage labor, material aid for the poor, and state care for motherhood. They also proposed meals in schools, summer camps, and the establishment of kindergartens and nurseries. In the Polish People's Party "Wyzwolenie" (Liberation) program of 1921, a separate section on education was created, which included, among others: "We are striving to implement a universal school, one for all children, without any difference of state, nationality or religion". (<http://lewicowo.pl/program-psl-wyzwolenie/>).

On March 21, 1921, the March Constitution was adopted in Poland (Journal of Laws 1921 No. 44, item 267). Under this document, children were guaranteed the right to education, as well as state aid. In the following part, the Constitution dealt with the subject of juvenile labor and forbade the employment of school-aged children. The provisions on children's rights contained in the March Constitution were only implemented in the Polish People's Republic (the official name of the Polish state in the years 1952-1989).

In the interwar period (the period between the end of World War I - in November 1918 and the beginning of World War II - in September 1939) the creation of family and guardianship law failed. At that time, Janusz Korczak was a precursor of the idea of children's rights and the author of the famous words: "There are no children, there are people." (Korczak, 1958, pp. 210-211; Theiss, 2012). As a practitioner, Janusz Korczak had a thorough knowledge of the child's development, its somatic, mental, and social aspects. Based on years of research and documented observation, he created his concept and his educational system, based on the assumption that the child "is already human". (Korczak, 1984, p. 337). He taught tolerance, respect, and love for the child.

The Second World War brought with it the extermination of first Jewish and then Polish children. The Nazis' hatred for the weak, sick, and handicapped was particularly damaging. Children were deprived of the right to life and education (Balcerek, 1986, pp. 221-223). In one of the German memorials entitled: "The issue of treating the population of former Polish areas from the racial-political point of view", it was decided to take away children up to the age of 10 from Polish families to "bring up the racially valuable children in the old Reich". (http://pl.auschwitz.org/lekcja/9_m_pamieci/kurs/s404/fragmenty.pdf). Another way was to force children to work in the General Government.

A number of rights (civic and human) were only included in the Constitution of the Polish People's Republic (PRL) adopted by the Legislative Sejm on July 22, 1952 (Journal of Laws 1952 No. 33, item 232 as amended). Article 61 of the Constitution of the People's Republic of Poland gave an equal right to free and compulsory education. It guaranteed state scholarships and halls of residence available for children from a peasant, worker, and intelligentsia families. Article 66 of the 1952 Constitution, in addition to providing mother and child with care, promised to expand nurseries and kindergartens. Article 67, which gave rights to children born out of wedlock, who until then had been in a tragic situation, was an important change. In accordance with Article 68 of the Basic Law, the Polish People's Republic took care of young people and provided them with comprehensive development. The rights of minors were strengthened in 1976 due to a partial

amendment of the Constitution of the Polish People's Republic. According to Article 3 point 7 of the Act of 10 February 1976 on the amendment of the Constitution of the People's Republic of Poland (Journal of Laws 1976 No. 5, item 29 as amended) - the state "in the interest of the development of the nation shall take care of the family, motherhood, and upbringing of the young generation", and according to paragraph 9 it "shall develop and promote education". Articles 78 and 79 were also related to the state's care for the child and the family. They imposed an obligation on parents to raise their children. They introduced maintenance rights and obligations. Article 73 ensured the education of young people guaranteed by the state and as well as opportunities for their development. It created conditions for the participation of young people in social, cultural, and political life (Journal of Laws 1976 No. 7 item 36 as amended).

The rights of the child were clarified in 1964 with the announcement of the Law of 23 April 1964-Civil Code (Journal of Laws 1964 No. 16 item 93 as amended), Law of 17 November 1964. - Code of Civil Procedure (Journal of Laws 1964 No. 43 item 296 as amended) and the Law of 25 February 1964 - Family and Guardianship Code (Journal of Laws 1964 No. 9, item 59 as amended).

According to the Civil Code, adults have full legal capacity, and persons under 13 years of age do not have it at all. Natural persons between 13 and 18 years of age have limited legal capacity. Book four - "Inheritances" provides a minor with the right of inheritance by virtue of the law and will, regardless of being a biological child or an adopted child (<https://www.gandalf.com.pl/files/products/texts/325949.pdf>, pp. 11-13).

Under Polish law, a child is a human being from conception to adulthood (Article 2, paragraph 1 of the Law of 6 January 2000 on the Children's Ombudsman, Journal of Laws 2000 No. 6 item 69 as amended). This means that a child is protected by law from the moment of conception. The Convention on the Rights of the Child defines that "a child means every human being below the age of eighteen years unless, under the law applicable to the child, the majority is attained earlier". (Journal of Laws 1991 No. 120, item 526 as amended). The "child" has a specific meaning in

legal terms. Additionally, the legislator - to specify a group of children (e.g. taking into account their age or situation) - uses terms such as "nieletni" [*minor*] (Law of 26 October 1989 on juvenile justice, Journal of Laws 2018, item 969 as amended) or "młodoletni" [*underage*] (Law of 23 April 1964. Civil Code, Journal of Laws 1964 No. 16 item 93 as amended). "Młodociany" [*juvenile*] is a person up to 21 years of age who committed a crime and until the conviction of guilt is pronounced, has not turned 24. This term is used in the Penal Code (Olszewski, 2011, p. 210).

At the time of birth, children have human rights but their civil rights are incomplete. They must have a legal guardian who represents them and looks after them at the same time. Biological parents are usually legal guardians. When a child does not have a legal guardian, the state becomes one. The rights of the child are a set of rights that children receive because of their specific social status, different from that of adults. Children need special treatment and attention from adults. The role of the state is to secure children in the law-making process. These rights aim to create development opportunities for a young person (Balcerek, 1986, p. 6).

3 CHILDREN'S RIGHTS AND THEIR PROTECTION IN THE LIGHT OF THE CONSTITUTION OF THE REPUBLIC OF POLAND OF 1997

The Basic Law of 2 April 1997 in several articles contains regulations concerning children. According to Article 18, the state provides special care to the family and parenthood. According to Article 34 of the Constitution of the Republic of Poland - a child born to Polish parents cannot be refused Polish citizenship. Paragraph 2 of Article 48 guarantees that only a court may take a child away from the family. Article 65 paragraph 3 unequivocally prohibits the employment of children under the age of 16. In Article 68 paragraph 3 the Constitution guarantees children as well as pregnant women exceptional access to medical care. Paragraph 5 refers to the promotion of the physical activity. Article 70 constitutes an important provision, which ensures the right and obligation to study until the age of 18. Further provisions point out that education in public schools is free of charge (Article 70, paragraph 2) and that parents are free to choose their child's

school (Article 70, paragraph 3). In Article 71 the Basic Law pays special attention to single-parent families with many children in a difficult financial situation. Article 72 particularly protects a minor from violence, demoralization, and cruelty (point 1). If the parents cannot provide care, the State has to ensure it (Article 72, paragraph 2). The minor's best interests must be a primary consideration and their opinion must be heard (Article 72, paragraph 3). The last paragraph mentions the Children's Ombudsman, referring to the law on the competencies and manner in which he or she is appointed (Article 72, point 4).

The Basic Law states that the family is the most important environment for the upbringing of a young person. Therefore, the family has a special position in the Constitution, just like motherhood. A child should not be taken away from its parents without important reasons. The Constitution assumes state aid for poor or large families. Support for multi-children families is often also regulated by local law. The authorities of many cities decide, among other things, to provide free transport for the youngest. Government aid programs, such as "500+" (The "Family 500+" program is the financial foundation of family support. The program entered into force on April 1, 2016, and has contributed to the improvement of the financial situation of families. From July 1, 2019, a parental benefit is granted for every child up to the age of 18, regardless of the income of the family (<https://www.gov.pl/web/rodzina/rodzina-500-plus>). Children cannot be exploited, there is a prohibition of labor for children under 16. The rules on the employment of minors are regulated by the provisions of the Labour Code (Journal of Laws 1998, No. 21, item 94, as amended), the Civil Code (Journal of Laws 1964, No. 16, item 93, as amended) and the regulation of the Council of Ministers of 24 August 2004 on the list of jobs prohibited for adolescents, Journal of Laws No. 200, item 2047, as amended.

The state places emphasis on the physical development of the child, each school should have a gym and a sports field. To ensure the physical culture, sports clubs have been created where young people can practice a sport according to their interests. Most Polish municipalities have their own sports clubs and pitches. To ensure adequate medical care, the state builds children's

hospitals, children's wards, and educates doctors specializing in the care of minors. The state should develop education at various levels: kindergartens, primary, vocational, secondary, and higher schools. Children can start education according to their interests and abilities.

4 INSTITUTION OF THE CHILDREN'S OMBUDSMAN

The world's first office of the Children's Ombudsman was established in Norway in 1981, and it is a prototype of this institution in other countries around the world. The institution of the Children's Ombudsman was indicated in Article 72, paragraph 4 of the Constitution of the Republic of Poland of 2 April 1997. The scope of competence and manner of operation is also regulated by the Law of 6 January 2000 on the Children's Ombudsman (Journal of Laws 2000 No. 6 item 69 as amended). The Ombudsman is the guardian of children's rights as defined in the Constitution of the Republic of Poland, the Convention on the Rights of the Child and other legal provisions (Article 1, point 2 of the Act of 6 January 2000 on the Children's Ombudsman, Journal of Laws 2000 No. 6, item 69 as amended). The office was first filled in June 2000.

The Ombudsman shall take action to ensure the full and harmonious development of the child with respect for their dignity and subjectivity (Article 3, point 1, Journal of Laws 2000 No. 6, item 69 as amended). He or she promotes the protection of children's rights, in particular: the right to the protection of life and health, the right to education within the family, the right to education, and the right to a decent social environment (Article 3, point 2). The Ombudsman acts in favor of all children but special attention is paid to children with disabilities. His or her tasks also include protecting minors from exploitation, violence, and neglect. The Children's Ombudsman takes action on his or her initiative, taking into account, in particular, information from citizens or their organizations indicating a violation of children's rights or well-being (Article 9, point 1, Journal of Laws 2000 No. 6, item 69 as amended). He or she requests explanations, information, or requires the proper undertaking of tasks. The Ombudsman cooperates with associations, citizens' movements, other voluntary associations, and foundations working to protect children's rights

(Article 11a, Journal of Laws 2000 No. 6, item 69 as amended). He or she is also responsible for promoting children's rights through social campaigns: "Love. Do not hurt. Help", "Beating is stupid", "There are no children - there are people", "React. You have the right." Social campaigns aim to educate society on how to react to the use of violence against the youngest and to sensitize to children harm. The Ombudsman may request that the law concerning children's rights be improved.

The Office ensures the performance of the Ombudsman's tasks specified in the Act of 6 January 2000 on the Children's Ombudsman. At his or her side operates the Ombudsman's Child Helpline. It is a telephone line operating around the clock and it is free of charge. Children and young people with various problems call the Child Helpline. Young people can dial 800 12 12 12 and share their difficulties related to violence, problems with their peers, family, or school. This institution is also an intervention agency. Adults call when they witness violence against the youngest. Specialized educators, lawyers, and psychologists work there. The office of the Children's Ombudsman is located at 6 Chocimska Street in Warsaw.

5 CONCLUSIONS

1. It seems that nowadays children in Poland are legally "equipped" enough to be able to exercise their rights and freedoms or to assert rights in case of their violation.
2. The Convention on the Rights of the Child, which is in force in Poland, together with other human rights and children's rights standards, such as those adopted by the Council of Europe, serve as a basis for guaranteeing children's rights and freedoms.
3. In Poland, the Constitution of the Republic of Poland is the most important legal act relating to the protection of these rights. It guarantees the protection of the child against violence, demoralization, cruelty, or exploitation. Also, the Constitution appoints the Children's Ombudsman to guarantee the observance of children's rights and their protection. Such place of the Children's Ombudsman in the system of Polish law is the recognition of children's rights and their protection as a unique area which should be dealt with entirely by a specialized institution.
4. Poland has several bodies, institutions, and organizations whose efforts focus on children's rights and their protection. However, they often operate only in a specific social environment or area, sometimes the situation of the child is not the main subject of their activities. From this point of view, the establishment of the Children's Ombudsman as an independent institution supports the state's efforts to maximize the protection of children's rights. The Ombudsman does not replace specialized services and associations dealing with child protection but intervenes in situations where existing procedures have proved ineffective or have been abandoned. The establishment of the office of the Children's Ombudsman, together with its powers, has significantly enriched the scope of protection of the rights of the youngest citizens. The Ombudsman's activity facilitates a constant and systematic analysis of problems concerning both the child and the family.
5. The question of the actual implementation of children's rights and raising the standards of such protection, i.e. the practical application of legal regulations, remains relevant.

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Received for publication: 07.09.2020
Revision received: 06.10.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – **APA Sixth Edition:**

Kmak, M. (2021, January 15). Development of children's rights in Poland – Selected aspects. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 46-53. doi:10.12709/mest.09.09.01.06

Style – **Chicago Sixteenth Edition:**

Kmak, Malgorzata. 2021. "Development of children's rights in Poland – Selected aspects." Edited by Zoran Cekerevac. *MEST Journal (MESTE)* 9 (1): 46-53. doi:10.12709/mest.09.09.01.06.

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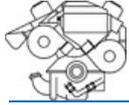
Kmak Malgorzata Development of children's rights in Poland – Selected aspects [Journal] // MEST Journal / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 46-53.

Style – **Harvard Anglia:**

Kmak, M., 2021. Development of children's rights in Poland – Selected aspects. *MEST Journal*, 15 January, 9(1), pp. 46-53.

Style – **ISO 690 Numerical Reference:**

Development of children's rights in Poland – Selected aspects. **Kmak, Malgorzata.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, MEST Journal, Vol. 9, pp. 46-53.



THEORETICAL ASPECTS OF THE STUDY OF CORPORATE ETHICS

Oksana Korolovych

Department of Accounting, Taxation, and Marketing, Mukachevo State University, Mukachevo, Ukraine

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JEL Category: **F65, G23, G28, H63, O16**

Abstract

The article examines some approaches to the understanding of the concept of corporate ethics. The author interprets corporate ethics as a set of moral principles and standards of corporate relations. Corporate ethics is the key element that unites all members of the corporation in a single social organism. Corporate ethics acts as a form of social consciousness inherent in both entrepreneurs and employees who share common goals of their professional activities. It is a non-economic factor having an effective impact on corporation activities. The author analyzes why large organizations characterized by anonymous relations (corporations) establish ethical regulation with all its structural elements (code, ethical committees, etc.). The author makes a distinction between the direct immediate duties of the employee and his/her discretionary duties. Corporate ethics does not hinder efficiency, and it can inspire workers to achieve the organization's main goal. Also, corporate ethics implements in the corporation such functions as the function of protecting the moral prestige of the corporation, the function of defending the interests of members of the corporation, the function of coordinating competing interests, the ambitions of the members of the corporation to ensure cohesion, unity of the group. The implementation of the above functions of corporate ethics can be a competitive advantage for the organization. The author concludes that it is important for the organization to create such a system of moral regulation (structures, institutions) that motivate employees to act morally, in which it would be beneficial to be socially responsible, but that would simultaneously take into account and protect the interests of workers.

Keywords: *Corporate ethics; corporation; moral regulation of relations; corporate ethos.*

1 STUDY

At the end of the twentieth century, important changes took place in the economies of developed countries, which entailed essential changes in corporate governance. In the theory of management, for a long time, the understanding

of the competitiveness of an enterprise, associated exclusively with its economic efficiency, that is, whether the company is capable of making large profits, was leading. This understanding of the main goal of the organization was outlined in the 18th century by A. Smith in *The Wealth of Nations*, as well as in the late 19th and early 20th centuries in the works of F. Taylor and G. Ford. During the twentieth century, various techniques (approaches) have been formed in the management of organizations. For example, in

The address of the author:

Oksana Korolovych

oxyk_k@yahoo.com

scientific management, they tried to destroy informal relations between team members, but when this turned out to be impossible, a new way was opened in the theory of human relations - to organize, not destroy informality. The result of these approaches in Western economies has become a hierarchical, vertically integrated large industrial corporation. The dominant spheres of management in such a corporation were the issues of rational organization of the organization, finance, and production technology.

With the development of technologies, the growth of competition, the increasing requirements of consumers, the nature of the external and internal environment of the enterprise begins to change. A modern enterprise is now forced to consider not only the external but also the internal environment, not only the requirements of consumers but also the needs and dignity of employees. Today, there is an increasingly active and obvious break away from the purely economic motivation of human activity (Ageev, 2011). Labor relations are becoming an integral part of the corporate culture. An enterprise forms a specific form of culture - corporate culture, which can be defined as a community of values, norms, expectations that are stable for a given organization, which determine the behavior of its team members. For quite a long time, the axiological components in the motivation of an employee's work activity were assessed as a secondary resource, and the creation of a cultural environment in an organization was more often spontaneous, although the attention to organizational culture on the part of managers and researchers was constantly increasing. But, starting from the 80s-90s of the last century, the influence on the cultural elements of the organization's life becomes continuous, being, for the most part, a well-coordinated strategy of the company's management to form corporate ethics (Kuznetsov, 2003).

Thus, it can be noted that recently there has been a significant increase in interest in corporate ethics issues not only of scientists but also of business representatives. Strengthening the role of corporate ethics in management and the system of modern economic relations determined the relevance of the topic of this work.

Corporation translated from English *corporation*, from lat. *corporiu* - association, community)

means a society, union, group of persons united by a community of professional or class interests (Avdasheva, S., et al., 2008). At the same time, the understanding of the corporation in a broad and narrow sense should be distinguished. So, in a broad sense, a corporation is an association of people to perform a task. In the narrow sense, "a corporation is large enterprises and their associations, in which business entities voluntarily combined their resources (financial, real estate, information, labor, ability to innovative risky activities, etc.) into consolidated capital and created an economic system based on free division and labor cooperation, the general strategy of entrepreneurship to sustainably generate entrepreneurial income" (Inozemtsev, 2007). The most important difference between a corporation and other forms of collective activity is "the formation of a so-called legal entity, that is, such entity that does not exist physically, but which at the same time can carry out actions, appear in court, own and manage property" (Inozemtsev, 2007). Also, the owners of the corporation (shareholders) are most often separated from operational management, but the corporation is run by professional managers.

Within the framework of this topic, it is important to understand that a corporation is a form of organizing industrial relations that also presupposes a new form of cooperation - largely anonymous relations. If in small companies the relationship is quite transparent and rather personal, in large corporations, employees most often do not know each other personally, personal management is replaced by rules and organizational structures. It is in corporations as large organizations that regulation is established, which is called ethical, with all the relevant infrastructure, codes, committees, etc. Only this way of streamlining relations can direct the behavior of a large number of people working in one company into a unified channel, contribute to the creation of a single organizational culture. In small collectives, codes are optional, here everyone knows each other personally, they can agree, here the norms of personal morality and the morality of interpersonal relations are applied.

Corporations present themselves as transparent organizations. Corporations are closed organizations, the so-called "states within a state," which do not allow interfering in their internal life"

(Kunda, 1992). The degree of disclosure of information (financial, commercial, etc.) is strictly regulated. Thus, financial information is disclosed strictly by national and international standards, and relationships within the organization and interaction with external partners, the specifics of company management, which allow achieving greater efficiency, are most often classified as commercial secrets. According to the National Corporate Governance Report, corporations prefer to classify most information about themselves and their activities as trade secrets.

Relations in the corporation are structured vertically, strictly hierarchically. Corporate relations are characterized by a strict internal order, a clear distribution of functions and rules of conduct, regulated by administrative and service documents, as well as strictly defined powers, responsibility, and reporting (each employee knows what for and to whom he/she is accountable).

Moral relations in organizations (corporate ethos) are relations that develop between employees in the process of joint activities to achieve a common goal. Some authors divide moral obligations arising in business relations into direct (immediate) and discretionary (from the Latin "discretio" - "separation", "difference"; discretionary - left to one's discretion). Direct duties are the obligation to perform the functions that a person assumes when hiring, these are the duties that are spelled out in the employment contract. By signing an employment contract or job descriptions, the employee thus agrees to the terms of the organization and promises to perform his/her functions. Special services monitor the fulfillment of direct duties by the employee. In case of violation by an employee of his/her direct, immediate, duties, certain sanctions are applied to him/her (bringing to administrative responsibility, fines, in some, especially egregious cases, dismissal, or criminal prosecution). Discretionary duties are actions that are performed by an employee voluntarily (for example, helping a co-worker, training newcomers, participating in the public life of the organization, etc.). Performing discretionary duties improves the morale and psychological atmosphere in the team, while if employees do not fulfill their immediate responsibilities, the organization's activities will cease. Therefore, in case of conflict between

direct and discretionary duties, preference should be given to the direct duties of the employee.

The relationship between employees in an organization is governed by law, morality, administrative, and other social norms. Communication, direct interaction of partners, is governed primarily by the norms of morality and etiquette. One of the main tasks of the moral regulation of relations in a corporation is to create harmonious relations between employees based on agreement and mutual understanding. The most important goal of moral regulation is justice, which ensures social peace and the satisfaction of the legitimate interests of everyone.

Corporate ethics is a special way of regulating relations in corporations. (It should be noted that E. Durkheim was the first to pay special attention to the role of moral regulation in corporations and described it. Durkheim makes a great contribution to the study of forms of collectivity, developing the idea of creating professional corporations as new elements of social solidarity. According to the sociologist, the main structural element of future society will become a corporation that can act as a collective person (since the corporation is composed of individuals whose interests are in solidarity), being a certain "moral environment" for its members. According to E. Durkheim, the corporation should take on a wide range of social functions (from production to moral and cultural)). The concept of "corporate ethics" in a narrow sense appears relatively recently, in the theory of the so-called "cultural management" (for the first time they started talking about the culture of organizations as a new perspective of their consideration in the 70s of the XX century, but, to be more precise, the research of corporate ethics itself appeared in the United States only in the 80s and 90s). The main idea of this approach is to use the moral potential of the organization to create a cohesive organizational culture, to better integrate employees into this culture, to make them more interested in the results of the organization's work and thereby make the organization more efficient and competitive. An example of "cultural management" was the Japanese organizational culture, which was associated with the outstanding economic success of Japan in the 60s and 80s of the XX century. These ideas were supposed to be implemented based on the Western economy.

In modern literature, there are not many definitions of the concept of "corporate ethics", and in general they do not contradict each other. "Corporate ethics in the broadest sense of the word is understood as a system of universal and specific moral requirements, and norms of behavior, implemented in the process of functioning of corporate structures." Or "Corporate ethics (Latin *ethica* - custom, character) is a system of norms of moral corporate behavior of management, personnel within the corporation-community and in relations with representatives of the external environment" (Kochetkoov & Supyan, 2005). In most foreign sources, the term "corporate ethics" is identical to the terms "business ethics" and "organizational ethics (organization ethics)" (Entine, 1996). Here is the definition of the terms "organizational ethics" and "business ethics", which the American Wikipedia (2020B) gives: "Organizational ethics expresses the values of the organization concerning its employees and/or other objects, regardless of state and/or regulatory laws"; "Business ethics - (also known as corporate ethics) is a form of applied ethics or professional ethics that addresses ethical principles and moral and ethical issues that arise in the business environment. It applies to all aspects of business behavior and relates to the behavior of individuals and business organizations in general" (Wikipedia, 2020A). Note that the definition of the term "business ethics" given above is rather confusing: it is business ethics and corporate and professional. However, it can be noted that such confusion can serve as proof that the topic "corporate ethics" is new and insufficiently developed for both Ukrainian and foreign science. Also, it can be noted that in the English-language literature the concepts of "corporate ethics", "business ethics", "organizational ethics" are interchangeable.

The meanings in which the term "corporate ethics" is used should be clarified. First, in everyday speech and non-specialized literature, corporate ethics is understood as the compliance of intra-organizational relations with high moral standards or these standards themselves. Second, in a broad sense, corporate ethics is understood as organizational ethics. Third, from the point of view of management theory, corporate ethics is a tool for regulating moral relations in large organizations with anonymous relations

(corporations). And, finally, fourth, corporate ethics is a discipline of applied ethics that studies the mechanism of regulating moral relations in large organizations (corporations).

Corporate ethics is institutional ethics. Institutions "are more than individual norms (conventions, laws); they are, as it were, a bundle of such norms, cultural and social structures with the goal of long-term regulation and normalization of certain social relations, which are repeated as the main processes of social life and therefore require a certain stabilization... Thus, institutions are normative structures that normalize the repetitive events in social life, asserting them for a long time. They set boundaries for individuals and set orientation thus imparting a certain regularity and confidence to the coexistence of people" (Kunda, 1992).

The decisive factor in corporate morality is not personal morality, but objectified moral values and norms of the organization. The compliance of the employee's actions with these corporate norms should be guaranteed "not by external command and control "from above", but by ensuring (modeling and constructing in practice) such circumstances in which the individual himself/herself wants to act according to the generally accepted norms and principles in the organization" corresponding to the values of this corporation. These norms and principles, corporate values should be able to change the behavior of employees and should shape socially desirable behavior.

It should be noted that the attitude towards corporate ethics is rather ambiguous. In the past two decades, there has been a fair amount of critical research, one way or another affecting corporate ethics. For example, K. Gray in his work "Organizations. Theories, conflicts, and managers" believes that in many ways "cultural management" touches upon a serious problem since the subject changing, in this case, is "not work, but an employee". The scientist believes that corporate culture is created and managed by managers to increase labor productivity. "Cultural management seeks to intervene and control a person so that there is no distance between his/her personal goals and the goals of the organization" (Prokof'ev, 2009). Thus, the employees of the organization must have such

goals and values that are directed towards the goals of productivity, or quality, or quantity, that is, the profit of the company. These should be shared values, that is, the employee must sincerely adhere to them, otherwise he/she will be fired.

According to K. Gray, the main problem is to find and form such cultural values that would meet the goals of not only the corporation but also the employee. However, more often "values", notes K. Gray, are formed "from above", by a small group of managers and are not shared by employees. The employee has a dilemma - either adapt or quit. The challenge for a manager is maintaining the necessary culture, with oversight and control being the most common use. The conclusion that K. Gray makes, relying on some research, for example, on the research of H. Wilmot, is that culture is not so easy to manage (cultural management should be taken seriously), that a culture is a special form of control, the task of which is "not external regulation of the behavior of workers, but the formation of their inner world and identity".

In general, speaking of cultural management, Gray emphasizes that culture is directly related to the development of self-governing and self-disciplined people".

But more common are studies in which opinion prevails about the advantages of a corporation, which cares about the moral component of its activities, where there are several arguments for the "supposed payback of ethics":

1. the ethical reputation of the corporation is quite attractive to investors and partners.
2. socially responsible activity and the implementation of general and professional and ethical standards by the corporation's managers reduce financial and image losses from sanctions imposed by the state.
3. compliance with ethical standards by employees of all levels reduces financial losses associated with negligence and fraud, reduces the cost of personnel supervision, and also eliminates some difficulties for coordinated joint activities to achieve the

economic goals of the company (Landa, 1993). Based on these arguments, the author of the article concludes that corporate ethics helps to preserve the company's reputation and gives advantages in organizing activities.

However, a problem arises - with this approach morality becomes not a goal but a means. That is, when introducing ethical programs, company managers begin to treat moral principles not as external restrictions on their activities, but as one of the means of making a profit. Besides, for management, morality can act in a dual capacity: on the one hand, as an instrument of corporate governance (since the manager creates corporate institutions, controls, and regulates their implementation), on the other, as an intrinsic moral guideline (since the manager is a member of the team himself/herself). Based on the research of social psychologists, it can be stated that this situation can lead to the fact that the higher the position of a manager in the corporate hierarchy, the more inclined he/she is to moral hypocrisy, to the presentation of stricter moral requirements to others and more loyal to himself/herself (Sutor, 2001).

According to many modern researchers, corporate ethics not only does not interfere with efficiency but can also inspire employees to achieve the main goal of the organization. Besides, corporate ethics in the corporation implements such functions as the function of protecting the moral prestige of the corporation, the function of protecting the interests of the members of the corporation, the function of coordinating competing interests, the ambitions of the members of the corporation to ensure cohesion and unity of the group. Implementation of the above functions of corporate ethics can be a competitive advantage of the organization. Summing up, we can conclude that it is important for an organization to create a system of moral regulation (structures, institutions) that would motivate employees to act morally, in which it would be beneficial to be socially responsible and it would be risky not to be, but which would simultaneously take into account and protect the interests of employees.

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Received for publication: 07.09.2020

Revision received: 22.09.2020

Accepted for publication: 30.12.2020

How to cite this article?

Style – **APA Sixth Edition:**

Korolovych, O. (2021, January 15). Theoretical aspects of the study of corporate ethics. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 54-60. doi:10.12709/mest.09.09.01.07

Style – **Chicago Sixteenth Edition:**

Korolovych, Oksana. 2021. "Theoretical aspects of the study of corporate ethics." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 54-60. doi:10.12709/mest.09.09.01.07.

Style – **GOST Name Sort:**

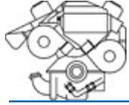
Korolovych Oksana Theoretical aspects to the study of corporate ethics [Journal] // MEST Journal / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 54-60.

Style – **Harvard Anglia:**

Korolovych, O., 2021. Theoretical aspects of the study of corporate ethics. *MEST Journal*, 15 January, 9(1), pp. 54-60.

Style – **ISO 690 Numerical Reference:**

Theoretical aspects of the study of corporate ethics. Korolovych, Oksana. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 54-60.



COVID-19 AND LABOR MIGRATION OF NEED, DESPAIR, POVERTY FROM UKRAINE TO EUROPE

Oksana Koshulko

Alfred Nobel University, Dnipro city, Ukraine

Sergii V. Dzholos

Bohdan Khmelnytsky National University of Cherkasy, Cherkasy, Ukraine

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JEL Category: **J61, J65, J71, J81, J83**

Abstract

The article presents the results of research concerning the current issues of Ukrainian labor migrants to Poland and other European countries before and during the pandemic, as well as results of the analysis of the actions of the current Ukrainian Government's attempts to stop migration flows from Ukraine. Primary and secondary sources of information have been used in the process of preparing the article. Primary data was collected using qualitative case studies conducted among labor migrants in Poland and Ukraine from 2018 to 2020. Secondary data was taken from Ukrainian, Polish, and other international sources of information. In particular, the secondary data of information was taken from open publications and open sources. Also, in the article, the four categories of need, which pushed Ukrainian labor migrants to work abroad, have been identified and characterized. Besides, an evaluation has been given of the Ukrainian Government's performance, at the time when it was attempting to stop the migration flows from Ukraine to other countries of Europe but left no alternatives for its workers within the country. In general, analysis of challenges of Ukrainian labor migration to other countries of Europe during the international COVID-19 pandemic is a topical and timely subject for research.

Keywords: COVID-19, Ukrainian labor migration, Ukraine, Poland, Europe, immigration policy

1 INTRODUCTION

This article is an analysis of current issues of Ukrainian labor immigrants in Poland and other European countries, who are accepting Ukrainian labor migrants when COVID-19 is spreading throughout the world. The article is timely and topical.

The address of the corresponding author:
Oksana Koshulko
[✉ oksanakoshulko2015@gmail.com](mailto:oksanakoshulko2015@gmail.com)

According to the evaluation of an expert on Ukrainian migration,

'Ukrainian migrants are a huge source of labor across Europe, making up the largest group of migrant workers on the continent' (Melanovski, 2020).

The article is also an analysis and evaluation of the manipulative activity of the current Ukrainian Government, which is forcibly stopping migration flows from Ukraine to other countries of Europe



without offering any alternative or re-integration strategy.

The methodology of the research consisted of primary and secondary sources of information. The primary data was collected from qualitative case studies conducted among Ukrainian labor migrants in Poland and Ukraine from 2018-2020, before and during the pandemic. The research was conducted during 2018-2019 in Poland and during 2020 in Ukraine. Twenty former and current Ukrainian labor migrants participated in the face-to-face research from 2018-2019 and online during 2020.

The secondary data for the article was taken from Ukrainian, Polish, and other international sources of information.

In particular, the secondary data of information was taken from open publications and open sources, such as:

- The Ministry of Family, Labour, and Social Policy of Poland.
- The Service of the Deputy Prime Minister of Ukraine.
- The Central European Institute (in Polish: Instytut Europy Środkowej).
- The EWB Project - Europe Without Barriers.
- The National Bank of Poland (in Polish: Narodowy Bank Polski).
- The Outsourcing Portal.
- From other sources of information.

The article is prepared based on earlier research by the author conducted in recent years in Poland and other countries. Other examples of publications by the author on this topic are - 'Exploring Women's Migration from Ukraine to Other Countries from the end of the 1980s to the 2020s' (Koshulko, 2020); the article 'Field Studies on Female Immigrants in their Host Countries: Challenges and Prospects' (Koshulko, 2019); the article 'The role of Ukrainians in the economic growth of Poland' (Koshulko, & Koshulko, 2016); the article 'The "Value of Life and Labor" of Ukrainian Migrants Abroad' (Koshulko, 2015) and the article 'The Importance of Medical Insurance and Social Security for Ukrainian labor migrants in Poland' (Koshulko, 2018), among others.

This article is ideologically close and like recent papers by Ukrainian, Polish, and scientists of other nationalities, who have explored this topic.

For example, the Polish scientist B. Skoczyńska-Prokopowicz conducted statistical research of Ukrainians in Poland in recent years (Skoczyńska-Prokopowicz, 2018).

In 2020 a group of Polish scientists, including P. Strzelecki, J. Growiec, and R. Wyszynski from the National Bank of Poland, published a paper on the contribution of immigration from Ukraine to economic growth of Poland (Strzelecki, Growiec, & Wyszynski, 2020).

Also, in 2020 the Ukrainian scientists, R. Minich, and P. Kravchuk wrote a research paper on the impact of the pandemic on the activity of Ukrainian Labor Migrants in Hungary, Poland, the Czech Republic, and Italy. Their paper was entitled 'The Impact of COVID-19 on Ukrainian Labour Migrants in Czechia, Hungary, Poland, and Italy' (Minich, & Kravchuk, 2020).

The current article explores two important goals. The first is an analysis of the situation of Ukrainian labor migrants before and during the pandemic in Poland and other European countries.

The second goal is an evaluation of the actions and efforts of the Ukrainian Government, which tried forcibly to stop the migration flows from Ukraine through manipulating the situation with COVID-19.

2 UKRAINIAN LABOR MIGRATION TO POLAND BEFORE THE PANDEMIC

Migration flows from Ukraine to Poland became unprecedentedly high in recent years. Among the immigrants were students, marriage partners, scientists, businesspeople, cultural visitors, and, of course, labor migrants. This article only considers labor migration from Ukraine.

The results of case studies, conducted in Poland and Ukraine among Ukrainian labor migrants, show four categories of need that have pushed Ukrainians to work abroad. These categories are defined and combined under the title 'Labor Migration due to Need, Despair, and Poverty.'

The first category of 'need and poverty' consists of those labor migrants pushed to work abroad due to the extreme poverty of their families in Ukraine. These people did not have a job in their native

Ukraine, had only minimum savings for survival, and lacked any opportunity to meet basic needs in their home country.

The second category of 'despair' consists of the migrants who sought work abroad to hide from the war and mobilization in Ukraine. This category excludes real refugees and asylum seekers who, as shown in case studies, sometimes survived miraculously during the first stages of occupation and war in Ukraine.

The third category of 'needs' is the category of those migrants, who had a job in Ukraine before, but went to work abroad seeking better job and higher earnings in Poland or other European countries.

The fourth category of 'need' is the migrants, who seek not only higher pay in European countries but also want to enrich their lives by traveling in Europe and other interesting places worldwide.

Previous research by the author (Koshulko, & Koshulko, 2016) and data of the Ministry of Family, Labor, and Social Policy of Poland (Ministry, 2020), make it possible to analyze the number of work permits issued to Ukrainian labor migrants from 2010 to 2020 in Poland (excluding illegal workers from Ukraine) (Table 1).

Table 1. The number of work permits issued in Poland for Ukrainian labor migrants (the data for the first half of the 2010-2020 years), in persons and percentages

| Years | The total number of work permits issued in Poland | The total number of work permits issued to Ukrainians | The difference between the numbers |
|------------------------|---|---|------------------------------------|
| The first half of 2010 | 15 839 | 4 957 | 10 882 |
| | 100 % | 31 % | 69 % |
| The first half of 2015 | 25 289 | 19 079 | 6 210 |
| | 100 % | 75 % | 25 % |
| The first half of 2020 | 198 301 | 145 067 | 53 234 |
| | 100 % | 73 % | 27 % |

The data: Ministry of Family, Labor, and Social Policy of Poland (Ministry, 2020).

Table 1 shows that migration from Ukraine to Poland has systematically increased during the first two decades of the 21st century.

In the second decade of the 21st century, the number of works permits for Ukrainians in Poland was over 30 times greater than in the period 2010 to 2020 (from 4 957 permits in 2010 to 145 067 in 2020).

From 2015 to 2020, the number of works permits for Ukrainians in Poland was over 7 times greater (from 19 079 work permits in 2015 to 145 067 in 2020).

As a result, during the second decade of the 21st century, the percentage of total work permits issued to Ukrainians in Poland more than doubled from 2010 to 2015 (from 31 % in 2010 to 75 % in 2015).

The growth curve of work permits for Ukrainians in Poland during 2010-2020 is shown in Figure 1 using the data of the Ministry of Family, Labor, and Social Policy of Poland (Ministry, 2020).



Fig. 1 The total number of works permits for Ukrainians in Poland during 2010-2020
 Source: (Ministry, 2020)

Research by the authors, conducted in Poland (Koshulko, & Koshulko, 2016) and the data of the Ministry of Family, Labor, and Social Policy of Poland on labor migrants (Ministry, 2020) confirm that Poland became one of the most active recipient countries for Ukrainian labor migration during the first two decades of this century.

3 UKRAINIAN LABOR MIGRATION TO POLAND DURING THE PANDEMIC

Since the spring of 2020, during the period of quarantine, borders have been closed at home and abroad to international labor migration.

This means families of Ukrainian labor migrants have lost the means of survival. This was most difficult for the first category of the migrants, who are the most vulnerable of the Ukrainian labor migrants.

The characteristics of the first category of 'need and poverty' are as given above:

'labor migrants pushed to work abroad due to the extreme poverty of their families in Ukraine. Those who had no job in their native Ukraine, who had minimum savings and lacked any opportunity to meet their basic needs in their native country'.

In the opinion of J. Melanovski, in his article entitled 'Millions of Ukrainian migrant workers forced to search for employment in Europe under unsafe conditions,' Ukrainian labor migrants searched abroad for 'much-needed work' (Melanovski, 2020).

The Outsourcing Portal confirmed that even in the pandemic period, Polish employers wanted to employ Ukrainian workers and Ukrainians wanted to work in Poland (The Outsourcing Portal, 2020):

'The Coronavirus epidemic has reduced the number of jobs offers for employees from Ukraine. Companies in Poland withheld recruitment or decided to employ Poles. It turns out, however, that it was only a temporary lull. Already, employers' activity on our application is even greater than before the epidemic. This is good news not only for Ukrainians, among whom the interest in working in Poland has not decreased but also for the Polish labor market, which still needs staff from the East. Manufacturing, logistics, and service companies show the greatest interest.'

As a result, during the pandemic Ukrainian labor migrants continue to work in Poland, even when they faced many difficulties there due to 2-week quarantine and other barriers.

Not only do the migrants need jobs and are ready to face the difficulties and barriers but Polish employers want to employ Ukrainians because their labor is much cheaper than that of Poles.

4 IMPORTANCE OF UKRAINIAN LABOR MIGRATION FOR OTHER EU COUNTRIES DURING THE PANDEMIC OF 2020

During the pandemic of 2020, it became clear how important Ukrainian labor migrants are to the economies of other European countries as well as Poland.

In the opinion of J. Melanovski, *'Millions of Ukrainian migrant workers who returned to their native country at the beginning of the coronavirus pandemic are now searching for opportunities to return to Europe for much-needed work as quarantine measures are relaxed both in Ukraine and across Europe'* (Melanovski, 2020).

These labor migrants resumed their search for opportunities to work in EU countries because the pandemic showed very clearly how important the Ukrainian labor migrants are to the European economy.

Also, J. Melanovski confirmed the opinion of the author concerning the importance of Ukrainian labor migrants to employers in Poland, the Czech Republic, Germany, and other countries of the E.U. during the pandemic (Melanovski, 2020): *'Approximately 2 million Ukrainian migrant workers reside in nearby Poland where they account for 2.5 percent of the country's GDP. Large numbers also work in Italy, the Czech Republic, Finland, and Germany'* (Melanovski, 2020).

As a result, to employ Ukrainian labor migrants in Finland, the Czech Republic, Germany, and other countries of the E.U. employers in these countries were ready to organize charter flights to bring migrants from Ukraine for seasonal jobs during the pandemic.

To attract Ukrainian labor migrants, the employers in European countries were ready to bear the cost of COVID-19 tests and the 2-week quarantine for arriving Ukrainian labor migrants. They did this because Ukrainian labor migrants are extremely important to them, particularly for seasonal work.

It was of paramount importance to solve the challenge facing international employers and Ukrainian labor migrants in 2020. It was solved by the Ukrainian Ambassadors, in particular the Service of the Deputy Prime Minister of Ukraine,

and Ambassadors in the countries receiving Ukrainian labor migration.

An example is the Finnish employers (mostly farmers), who needed Ukrainian seasonal labor workers, where the problems were resolved at the level of Ambassadors of Ukraine and Finland.

The data of the Service of the Deputy Prime Minister of Ukraine, the Ambassador Extraordinary, and Plenipotentiary of Finland to Ukraine shows that farmers of Finland expected 15,000 Ukrainian workers in 2020. His opinion about the labor of the Ukrainian labor migrants in Finland was cited as (The Service, 2020):

'Finland is facing a severe shortage of seasonal employees. Ukrainian workers have shown themselves to be responsible, honest, and hardworking and we look forward to the opportunity this year to have them back to work in agriculture and forestry, as well as other sectors (The Service, 2020).

The analysis of evaluations of international employers from countries of the E.U. conducted in 2020 showed that, despite the pandemic, Ukrainians are still very much welcome at the labor markets of many E.U. countries as seasonal and non-seasonal workers.

5 CONFRONTATION BETWEEN UKRAINIAN LABOR MIGRANTS AND THE CURRENT UKRAINIAN GOVERNMENT IN 2020

The recent confrontation between Ukrainian labor migrants and the current Ukrainian Government, who were attempting to forcibly stop the migration flows from Ukraine to other countries, in particular the E.U. countries, showed very clearly that this Government is unable to cope with both the pandemic and the flow of migrants from Ukraine.

As soon as the Government realized it was unable to control the situation, it decided to close the borders, so creating a new 'Iron Curtain' around Ukraine in 2020.

What does that mean? Ukraine is a poor country due to incompetent management by the government, which means that the population remains poor and the number of migrants leaving the country remains remarkably high.

During the pandemic, the situation in the country became worse. It appears that the reasons for leaving given by all migrants in 2020, until then having fallen into four categories as explained above, now all fell into the first category.

The Ukrainian Government, having made Ukrainians one of the poorest nations in Europe, finding themselves in 2020 with no strategy for the survival of the nation or the control of labor migration, decided to prohibit all migration from Ukraine to work abroad. Ukrainian workers wishing to migrate became hostages due to the pandemic and the incompetency of the Government, and as a result, remained in Ukraine without means of subsistence.

The Government failed to create opportunities for employment for Ukrainian workers within their own country.

They were also unable to offer realistic plans for the employment of Ukrainian workers at home and so decided to close the borders to prevent people from leaving to work abroad.

These actions of the Government revealed its incompetency, which, rather than finding a solution, merely created a new 'Iron Curtain' between Ukraine and the developed world.

In the opinion of J. Melanovski, the situation was solved only because of a 'widespread outcry' (Melanovski, 2020):

'In April the Ukrainian government attempted to stop charter flights leaving for Finland and the United Kingdom. Due to widespread outcry over the lack of work within the country and the inability of workers to leave the country, the Zelensky government announced it would allow workers to leave only with a guaranteed three-month minimum contract, health insurance covering coronavirus, housing, and transportation to their work country and back'.

The evaluation of actions and efforts of the Ukrainian Government is extremely negative, following its attempts to stop the flow of migrants from Ukraine under the guise of managing COVID-19, so leaving the workers with no alternative other than to work at home.

What could the Government have done before closing the borders of Ukraine?

Before creating a new 'Iron Curtain 2020' in the country the Government could have considered the following steps:

A fresh impetus to restart the economy, which is failing due to the high level of corruption in all fields of economic activity, a lack of investment, and a lack of opportunities for the development of small and medium-sized businesses.

Measures to put a stop to the ever-growing share of business within the black economy of the country.

Systems to give guarantees and attractive credits for residents and non-residents, so encouraging and assisting all kinds of small and medium-sized businesses in the country.

Measures to stabilize the national currency to prevent the systematic impoverishment of the population and other important changes for the effective management of state institutions.

6 CONCLUSIONS

In this article, the results of research concerning the current situation and issues of Ukrainian labor migrants in Poland and other countries of Europe before and during the pandemic is analyzed and explored.

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Received for publication: 10.09.2020
Revision received: 27.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Koshulko, O., & Dzholos, S. V. (2021, January 15). COVID-19 and labor migration of need, despair, poverty from Ukraine to Europe. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 61-67. doi:10.12709/mest.09.09.01.08

Style – Chicago Sixteenth Edition:

Koshulko, Oksana, and Sergii V. Dzholos. 2021. "COVID-19 and labor migration of need, despair, poverty from Ukraine to Europe." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 61-67. doi:10.12709/mest.09.09.01.08.

Style – GOST Name Sort:

Koshulko Oksana and Dzholos Sergii V. COVID-19 and labor migration of need, despair, poverty from Ukraine to Europe [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 61-67.

Style – Harvard Anglia:

Koshulko, O. & Dzholos, S. V., 2021. COVID-19 and labor migration of need, despair, poverty from Ukraine to Europe. *MEST Journal*, 15 January, 9(1), pp. 61-67.

Style – ISO 690 Numerical Reference:

COVID-19 and labor migration of need, despair, poverty from Ukraine to Europe. **Koshulko, Oksana and Dzholos, Sergii V.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 61-67.



ENVIRONMENTAL TAXES AND EMISSIONS OF POLLUTANTS IN THE EU: EMPIRICAL ANALYSIS

Viktor Koziuk

Ternopil National Economic University, Department of Economics and Economic Theory, Ternopil, Ukraine

Oleksandr Dluhopolskyi

Ternopil National Economic University, Department of Economics and Economic Theory, Ternopil, Ukraine

Kazymyr Voznyi

Ternopil National Economic University, Department of Economics and Economic Theory, Ternopil, Ukraine

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JEL Category: **Q52, Q57, Q58**

Abstract

The system of environmental taxes in EU countries is expected to have an impact on reducing greenhouse gas emissions. Since 2010 the emphasis on environmental regulation has shifted towards the EU 2020 strategy. This research continues the previous author's studies about the environmental measurement of welfare economics. The article tests the hypothesis of the inverse effect of the environmental taxation level on CO₂ emissions. The method of cross-correlation analysis was used to confirm the hypothesis. As the dependent variables were chosen emission indicators (CO₂, PM2.5mg), and as the independent variables were selected environmental taxes, the share of renewable energy, the number of businesses in the country that have an environmental certificate ISO 14001. The level of environmental taxation has a significant impact on the amount of CO₂ emissions in the direction of their reduction. The share of renewable energy in final consumption also has a significant impact on the dynamics of changes in the amount of CO₂. The analysis of environmental tax revenues in the EU showed the dominance of their fiscal component over the regulatory one.

Keywords: *environmental taxes, EU member states, pollution, public good, welfare economics, correlation analysis, energy tax, transport tax, pollution tax, resource tax*

1 INTRODUCTION

Environmental policy in EU countries in the context of ecological taxes should help the society to achieve the priority of providing the "clean

The address of the corresponding author:

Oleksandr Dluhopolskyi

[✉ dluhopolsky77@gmail.com](mailto:dluhopolsky77@gmail.com)

ecology” as a public good in the XXI century’s welfare economy.

There are several challenges to Environmental Tax Reform in the EU, and many of them are capable of influencing household behavior. Low-income households are particularly sensitive in this context. Some EU countries are pursuing policies that are based on “tax punishment” or aimed at raising additional funds to invest in environmental issues (Koziuk et al., 2020). The system of gross environmental taxes (TET) in the sense of improving the efficiency and protection of natural resources includes energy (ET), transport (TT), pollution (PT), and resource tax (RT). Since 2010, the emphasis on environmental regulation has shifted towards the EU 2020 strategy (Stec, Grzebyk, 2016), the main goal of which is to achieve greater consistency in the implementation of economic, social, and environmental programs.

2 LITERATURE REVIEW

The theoretical background of environmental taxation is based on the A. Pigou concept about using taxation to correct negative externalities, such as pollution (Pigou, 2013). A taxation is a powerful tool for tackling complex environmental issues such as climate change (Merko et al., 2018). This is especially true for developed and developing countries since environmental taxation itself is a significant element of economic growth (He et al., 2019; Kuralbayeva, 2019).

The importance of taxation as a tool to change environmental behavior is directly dependent on its effectiveness (Costantini, Mazzanti, 2012). When tax revenues are used for environmental expenditures or other taxes, these taxes are considered effective and officially supported (Anita et al., 2016). The modern development of civilization is increasingly paying attention to education and taxation, as an element of financing measures aimed at improving the environmental situation (Fullerton et al., 2010; Heine et al., 2012; Koziuk et al., 2019a).

Environmental degradation necessitates institutional reforms that would force private consumers of natural resources to bear the full burden of social costs caused by their activities (Dasgupta, Mäler, 2000).

The Paris Climate Agreement 2015, revised by the

Kyoto Protocol, with its emphasis on strengthening environmental standards, has increased interest in the topic of climate change through the likely relocation of manufacturing and foreign investment to countries with less stringent government regulation, i.e. environmental taxes (Druzin, 2016). A lot of works (Cole et al., 2017; Birdsall, Wheeler, 1993; Dunning, 1998; Panayotou, 2003) emphasize, that capital and trade will flow from countries with strict rules and high environmental taxes to countries with less stringent environmental standards and low environmental taxes, however, liberalization and openness of international trade will have a significant impact on both investment attractiveness and environmental degradation. The deregulation of environmental policy, which most often has a detrimental effect on the environment, is encouraged by “race to the bottom” in developing countries for which attracting foreign direct investment is more important than preserving the environment. In this context, it is a “short game” (Koziuk et al., 2019b). In general, environmental policy tools (subsidies, taxes) in the context of their stringency can be divided into market and non-market. Market-oriented policies are designed to combine the additional costs of market forces associated with the interaction of economic agents with pollutant containment tools, rather than setting clear guidelines, standards, or restrictions (Stavins, 2006; Koziuk et al., 2019b). In this article, we’ll try to find the relationship between the stringency of environmental regulation policy (example of environmental taxes) and emissions of pollutants.

3 METHODOLOGY

To evaluate the connections between environmental taxes and emissions of pollutants, the article uses the method of cross-correlation analysis. This research continues the previous author’s studies about the environmental measurement of welfare economics (Dluhopolskyi et al., 2019a; Dluhopolskyi et al., 2019b; Koziuk et al., 2019a; Koziuk et al., 2019b; Коziuk et al., 2019; Koziuk et al., 2020).

In continuation of the previous study (Koziuk et al., 2020), we used a different methodological approach and built a regression of panel data with a fixed effect, considering the features (constants) within each EU country. Similar emission

indicators (CO₂, PM2.5mg) were chosen as the dependent variable (Y), and environmental taxes in millions of euros (TET, ET, TT, PT, & RT) were selected as the independent variables (X), as well as additional environmental indicators – RE (an indicator of the share of renewable energy in final consumption in the country) and ISO (number of businesses in the country that have an environmental certificate ISO 14001 for the period 1995-2018).

4 RESULTS

Environmental taxes are those designed to tax behavior that is harmful to the planet's health (Environmental taxes make way to protect the environment, 2018). They are based on a principle – those who pollute need to pay.

As mentioned in (Koziuk et al., 2020), according to the level of environmental taxes, all EU countries can be divided into few groups:

1. Countries in which the share of environmental taxes reaches 10% or more of the total tax revenue (Slovenia, Latvia, Greece).
2. Countries in which the share of environmental taxes ranges from 6 to 9% of the total tax revenue (Netherlands, Cyprus, Estonia, Denmark, Bulgaria, Malta, Italy, Romania, Czech Republic, Poland, Hungary, Lithuania, Slovakia).

3. Countries in which the share of environmental taxes is 5% or less of the total tax revenue (Austria, Spain, Belgium, Germany, Luxembourg, Sweden).

The model of the relationship between the gross environmental tax (TET) and carbon dioxide (CO₂) emissions are presented in Table 1. The empirical basis of the model included 553 observations and contained 28 groups with a general chronology of indicators for 24 years. The obtained model is statistically significant because Fisher's F-test is 36.87 with $F_{tab.0.01} = 7.68$.

According to the results of regression analysis with panel data, we found that gross environmental taxes have an inverse statistically significant relationship with the amount of CO₂ emissions into the atmosphere. An increase in the mass of fiscal revenues from all environmental taxes by €1 million results in a reduction in carbon dioxide emissions per capita of 0.0001034 tons (or 0.103 kg). This ratio is statistically significant at a 0.1% level of test significance. The 95% confidence interval is within [-0.0001383, -0.0000685]. The coefficient of determination of R² within countries is equal to 0.0927, i.e. the variation of the dependent variable (CO₂ emissions) by 9.27% is due to the variation of the independent variable (in our case – revenues from environmental taxes).

Table 1. Regression model of the dependence between gross environmental taxes (TET, million euros/year) and carbon dioxide emissions (CO₂, tons per capita) in the EU countries

| | | | | | |
|---|------------|------------------|---------|------|---|
| Fixed effects (within) regression | | Number of obs. | = 553 | | |
| Group variable: country | | Number of groups | = 28 | | |
| R-sq: | | Obs. per group: | | | |
| within = 0.0927 | | min | = 13 | | |
| between = 0.0013 | | avg | = 19.8 | | |
| overall = 0.0002 | | max | = 20 | | |
| | | F (1,27) | = 36.87 | | |
| corr (u _i , X _b) = -0.4277 | | Prob > F | = 0.00 | | |
| (Std. Err. adjusted for 28 clusters in-country) | | | | | |
| CO ₂ emissions | Coef. | Robust Std. Err. | t | P> t | [95% Conf. Interval] |
| TET | -0.0001034 | 0.0000170 | -6.07 | 0.0 | -0.0001383 -0.0000685 |
| _cons | 9.098317 | 0.1688549 | 53.88 | 0.0 | 8.751856 9.444779 |
| sigma_u | 3.82477 | | | | |
| sigma_e | 0.88366771 | | | | |
| rho | 0.94932628 | | | | (fraction of variance due to u _i) |

Source: author's calculations based on (Environmental tax revenues, 2020; EUROSTAT, 2019)

The overall indicator R² between countries is at the level of 0.0013, which is logical since the

variance of values within individual countries is high due to the presence of individual effects of

these countries. That is, each of the countries has a certain list of unobserved data that fall into the category of permanent individual effects in this model of panel regression, and these individual effects for countries by 94.93% determine the variance of the dependent variable (CO₂ emissions).

Similarly, the relationships between the volumes of certain types of environmental taxes (ET, TT, PT, & RT), the share of renewable energy in final consumption (RE), the number of businesses in the country with an ISO 14001 (ISO) environmental certificate and the volumes of carbon dioxide (CO₂) emissions were analyzed (Table 2).

Table 2. Regression model of dependence between the certain types of environmental taxes (ET, PT, RT, & TT), the share of renewable energy in final consumption (RE), the number of certified facilities (ISO), and carbon dioxide (CO₂) emissions in the EU countries

| Fixed effects (within) regression | | | Number of obs | = | 317 | | |
|---|------------|---|------------------|-------|----------------------|------------|--|
| Group variable: country | | | Number of groups | = | 20 | | |
| R-sq: | | | Obs per group: | | | | |
| within = 0.4756 | | | min | = | 13 | | |
| between = 0.0242 | | | avg | = | 15.9 | | |
| overall = 0.0467 | | | max | = | 16 | | |
| | | | F (6.19) | = | 43.19 | | |
| corr (u _i , X _b) = -0.4265 | | | Prob > F | = | 0.00 | | |
| (Std. Err. adjusted for 20 clusters in-country) | | | | | | | |
| CO ₂ emissions | Coef. | Robust Std. Err. | t | P> t | [95% Conf. Interval] | | |
| ET | -0.0000381 | 0.0000388 | -0.98 | 0.339 | -0.0001193 | 0.0000432 | |
| PT | -0.0030217 | 0.0011756 | -2.57 | 0.019 | -0.0054822 | -0.0005612 | |
| RT | 0.0012553 | 0.0009872 | 1.27 | 0.219 | -0.0008111 | 0.0033216 | |
| TT | 0.0003930 | 0.0001530 | 2.57 | 0.019 | 0.0000727 | 0.0007133 | |
| RE | -0.1430046 | 0.0316366 | -4.52 | 0.000 | -0.2092207 | -0.0767884 | |
| ISO | -0.0000484 | 0.0000220 | -2.20 | 0.041 | -0.0000945 | -2.28e-06 | |
| _cons | 9.8336850 | 0.5198172 | 18.92 | 0.000 | 8.7456950 | 10.92167 | |
| sigma_u | 2.6281104 | | | | | | |
| sigma_e | 0.65554558 | | | | | | |
| rho | 0.94142601 | (fraction of variance due to u _i) | | | | | |

Source: Author's calculations based on (Environmental tax revenues, 2020; EUROSTAT, 2019)

The domestic indicator R² is 0.4756, i.e. the variation of the dependent variable (amount of CO₂ emissions) by 47.56% is due to the variation of the independent variables included in our model. The total R² between countries is 0.0467. The correlation coefficient between individual errors within each country and independent variables in the regression is -0.4265, i.e. it is high enough to use a model with fixed effects, as opposed to a model with random effects. Thus, we have a situation in which the largest impact on the dynamics of changes in the amount of CO₂ has an indicator of the share of renewable energy in the final consumption of RE.

The growing demand for the public good “clean ecology” raises the question of how the economy with the given technological parameters can provide it. In this sense, environmental taxes

should be primarily corrective in content. Their fiscal role should take a back seat. However, the analysis of environmental tax revenues in European countries (in terms of volume and structure) showed the dominance of their fiscal component over the regulatory one (Koziuk et al., 2020; Environmental tax revenues, 2020; EUROSTAT, 2019). Among the most important instruments of environmental policy in most EU countries, among taxes on energy, transport, environmental pollution, and resources, remain taxes on energy and vehicles, the collection of which is mainly aimed at preventing climate change.

The general trend of increasing the total value of environmental taxes in the EU for more than twenty years is accompanied by almost constant emissions of pollutants. Significant differences in

the dynamics of fiscal revenues and emissions may hide the risk of the political and economic discrediting of environmental taxation. Difficulties in evading such taxation with a high probability of shifting the burden of such taxation to end-users lead to a change in the structure of tax revenues. But this does not guarantee that the correction of “environmental behavior” will achieve environmental preferences (Koziuk et al., 2019a; He et al., 2019). Most likely, fiscal revenues compensate for “environmental losses” indirectly, which makes environmental policy more sensitive to the overall efficiency of the public sector, breaking the clearer link between environmental taxation and the public good “clean ecology”.

5 CONCLUSIONS

As a result of the study, it was empirically proved that the level of environmental taxation has a significant impact on the amount of CO₂ emissions in the direction of their reduction ($R^2 = -0.4277$). However, the share of renewable energy in final consumption also has a significant impact on the dynamics of changes in the amount of CO₂ ($R^2 = 0.143$).

It should be noted that the “pollution tax” model has some limitations. It does not consider many other potentially important explanatory variables (GDP, population size and density, poverty level, level of ecological culture, education, forest, and green area dynamics, etc.).

Acknowledgment

The authors acknowledged the study was conducted within the [Project 0117U000412] “Ecologization in a new paradigm of the welfare state” 2017-2019.

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Received for publication: 12.09.2020
Revision received: 29.11.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – **APA Sixth Edition:**

Koziuk, V., Dluhopolskyi, O., & Voznyi, K. (2021, January 15). Environmental taxes and emissions of pollutants in the EU: Empirical analysis. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 68-74. doi:10.12709/mest.09.09.01.09

Style – **Chicago Sixteenth Edition:**

Koziuk, Viktor, Oleksandr Dluhopolskyi, and Kazymyr Voznyi. 2021. "Environmental taxes and emissions of pollutants in the EU: Empirical analysis." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 68-74. doi:10.12709/mest.09.09.01.09.

Style – **GOST Name Sort:**

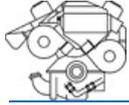
Koziuk Viktor, Dluhopolskyi Oleksandr and Voznyi Kazymyr Environmental taxes and emissions of pollutants in the EU: Empirical analysis [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 68-74.

Style – **Harvard Anglia:**

Koziuk, V., Dluhopolskyi, O. & Voznyi, K., 2021. Environmental taxes and emissions of pollutants in the EU: Empirical analysis. *MEST Journal*, 15 January, 9(1), pp. 68-74.

Style – **ISO 690 Numerical Reference:**

Environmental taxes and emissions of pollutants in the EU: Empirical analysis. Koziuk, Viktor, Dluhopolskyi, Oleksandr and Voznyi, Kazymyr. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 68-74.



FINANCIAL LITERACY OF THE MANAGEMENT STUDENTS – CZECH AND SLOVAK EXPERIENCE

Ales Kozubik

Dpt. of Mathematical Methods and Operations Research, Faculty of
Management and Informatics, University of Zilina, Zilina, Slovakia

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JEL Category: G53

Abstract

Financial literacy is becoming one of the key competencies in the 21st century. In its absence, it is virtually impossible to navigate the market for financial products and services and thus ensure financial stability throughout the whole life. The author presents the results of a survey of the financial literacy of young future managers who are currently university students. Based on a questionnaire survey among full-time and part-time students, the author detects the positive impact of the practical experience of external students on their financial literacy. The author uses an innovative metric in the form of a personal finance index to assess financial literacy. In addition to overall success, this approach also makes it possible to analyze knowledge from the eight components of financial literacy. By comparing the results in individual areas, the author reveals that risk management is Achyla's heel of financial literacy. In addition to the knowledge component, the author also deals with the respondents' access to information sources. Based on these findings, the author formulates conclusions for the content of financial education. There is a need for a stronger link between the development of probabilistic thinking and the development of general numeracy with practical financial subjects. An important part of financial education is also the recognition of credible information sources.

Keywords: financial education, financial literacy, financial management, questionnaire survey, decision making,

1 INTRODUCTION

The beginning of the new millennium is associated with the massive dynamic development of new technologies, especially in the field of electronics and digitization. Against the background of this development, it is impossible to overlook how these technologies allow the emergence of new

financial instruments. A characteristic feature of these tools is their growing complexity and sophistication, but also easy accessibility for everyone. It is this easy accessibility that underlines the growing importance of financial literacy. A low-literate or even financially illiterate individual will then easily drown in a sea of pitfalls of complex financial products.

The current post-COVID period confirms the importance of financial literacy. It is not easy to navigate the maze of government support programs, loans, or repayment deferrals. Their

The address of the author:
Aleš Kozubík
✉ alesko@frcatel.fri.uniza.sk

wrong choice can easily lead to the financial instability of an individual, his family, or company in the future, and even bankruptcy.

Also, we need to realize that people make the most long-term and vital financial decisions at a young age having insufficient experience. As an example of such decisions, we can mention the choice of a suitable way of housing financing or a suitable pension plan. It is, therefore, necessary to pay attention to financial education at all levels of the education system.

In this article, we present the results of a financial literacy survey of university students. In doing so, we focused on the students of the managerial departments of the study, as in their case the importance of financial literacy is amplified by the fact that in the future, they will decide not only on their private financial situation but also on the financial stability and well-being of companies and thus the economy as the whole. To assess the impact of practical experience, we surveyed students of both forms of study: full-time and part-time. Based on the results of the research, we will conclude about improving the level of financial education.

2 LITERATURE SURVEY

Several authors approach the content of the concept of financial literacy differently. However, it is generally perceived as the ability to understand finance. Let us document the variability of the understanding of financial literacy on at least a few examples. Kim gives a relatively simple definition of financial literacy: „Financial literacy is the basic knowledge that people need to survive in a modern society.” (Kim, 2001). (Mandell, 2007) characterizes financial literacy in a little more detail: “It is the ability to evaluate the new and complex financial instruments and make informed judgments about both: choices of instruments and extent of use that would be in their own best long-run interests”. Some approaches seek to define financial literacy as a set of competencies that an individual should have to make informed financial decisions. We can meet with this, for example, at work (Giesler & Veresiu, 2014). They define financial literacy as: “The ability to understand how money works in the world: how someone manages to earn or make it, how that person manages it, how he/she invests it (turn it into more) and how that person donates it to help others.” Remund

says that financial literacy “is a measure of the degree to which one understands key financial concepts and possesses the ability and confidence to manage personal finances through appropriate short-term decision-making and sound, long-range financial planning, while mindful of life events and changing economic conditions” (Remund, 2010). In this research, we adopt the definition of the financial literate person by (Kozubíková, 2015): “A person who uses his ability to make a qualified judgment based on the knowledge, skills and experience gained thus enabling him to smooth financial security throughout life”.

The measurement of financial literacy is usually based on a questionnaire survey. It is not easy to compile a suitable questionnaire, the results of which could be easily transformed into financial literacy metrics. Lusardi and Mitchell characterized the basic principles in (Lusardi & Mitchell, 2014). These principles are simplicity, relevance, brevity, and the capacity to differentiate. Simplicity is a requirement that questions should examine knowledge of the basic elements of financial decision making. Relevance reflects the requirement that issues be focused on elements of financial decision-making throughout life. Brevity takes into account several questions, which must not be too many, which would prevent wider acceptance of the survey. Finally, the capacity to differentiate represents the requirement that questions be conceived in a way that allows financial knowledge to be differentiated across people. How Lusardi recalled in her conference keynote: “One must assess not only what people know but also what they need to know and then evaluate the gap between those things.” (Lusardi, 2019).

Other authors highlight the significant impact that financial literacy has on the correctness of decision-making and see it as a prerequisite for good financial decisions in personal finance. A strong positive relationship between financial literacy and wealth of households is reported in (van Rooij, Lusardi, & Alessie, 2012): “Our findings provide evidence of a strong positive association between financial literacy and net worth, even after controlling for many determinants of wealth.” Furthermore, this work found that “Financial knowledge increases the likelihood of investing in the stock market, and [is] positively related to

retirement planning, and the development of a savings plan." It may facilitate individuals' accumulation of wealth.

Several international studies confirm the positive impact of financial education on the growth of financial literacy. For example, (Fornero & Monticone, 2011) confirmed that the most important factor influencing the differences in financial literacy is the level of attained education. Similarly, (Lusardi & Mitchell, 2007) state "Worldwide financial education has become an important tool to surmount the growing complexity of financial decisions, especially in the life of the last generation". The positive impact of financial education on the level of financial literacy was also confirmed by a study. (Kozubíková Z. , 2017). Moreover, it has been detected that "An important factor influencing the progress in financial literacy during education is the importance that the respondents attribute to the financial literacy."

3 METHODS

Data for the present research was collected using a questionnaire survey method at two universities located in the Slovak Republic and, in the Czech Republic. The research focused on the management students. As a metric for financial literacy measuring we applied an innovative measure introduced in (Lusardi, Jakoboski, & Oggero, 2017) as a personal finance index (shortly P-Fin index). They designed this P-Fin index to completely cover the eight areas of financial literacy that an individual commonly encounters in managing personal or corporate finances. Thematically, we can characterize these areas as:

- earnings, determinants of wages and income,
- consuming, budgeting and spending,
- saving, comprehension the accumulation factors,
- investing, understanding the types and risks of investments,
- borrowing and debt management,
- risk management, comprehension the uncertain outcomes,
- insurance and the understanding of coverages,
- accessing and working with information sources.

The questionnaire itself we designed to collect the personality characteristics of the respondents, such as age, gender, achieved education, etc. Within these personal characteristics, we also asked for self-assessment of the extent to which respondents feel financially literate, for the importance they attribute to financial literacy, and about the information sources they use. Participants have assigned the importance and self-assessment on the scale from 0 up to 10, the information sources they selected from more given alternatives.

The second part of the questionnaire presented problems concerning daily financial decision making. The problems were constructed in the form of multi-choice answer options with only one correct answer and one "I do not know" option.

We have distributed the questionnaire among 540 respondents. Because some questionnaire was completed maliciously (more than one half of the "I do not know" answers), we have to clean the sample. So we obtained 449 answer sheets, which still represent a relatively high response level of approximately 83%. The obtained sample contained 145 respondents of the part-time form of study and 304 respondents of full-time study what corresponds to the real ratio of these two forms of study. The proportion of women was 187 against 262 men. This small disparity is caused by the fact that one faculty is part of the technical university where men prevail.

In all cases we got sufficient subsamples to apply methods of statistical hypotheses testing. All necessary computation and graphical outputs were performed in the specialized statistical environment R.

4 RESULTS

At first, let us mention some socio-demographic data we have obtained from the questionnaire survey. How mentioned above due to the presence of faculty concerned also in informatics in the research, here is some disparity in the gender structure of the sample. Our sample contained 42.6% women and 57.4% men. Because we focused on university students, the sample significantly prevails the age group of young people in the age from 18 to 25 years. This age category covers approximately three-quarters of the whole sample. There are relatively uniformly

represented the inhabitants of rural settlements, small towns, and large agglomerations in shares of 34%, 36%, and 30% respectively.

The survey focused on two personality characteristics, namely the importance that respondents attach to financial literacy and the self-assessment of their competencies in this area. The histograms of the responses are presented in Figures 1 and 2. Figure 1 shows the distribution of the numbers of evaluations of the importance of financial literacy on a scale from 0 to 10, where a higher value also represents a higher level of importance. The fact that a substantial part of the respondents attributes high values to the importance of financial literacy and the share of those who reached the values from

the lower half of the scale is negligible can be described as favorable. Also important is the fact that the mode of division is achieved at the highest level of importance.

Figure 2 then illustrates how respondents assess their level of financial literacy. The evaluation was again performed on a scale from 0 to 10, with higher values indicating a higher level of knowledge. Here we can notice that the maximum number of responses has shifted towards average and slightly above average responses in the range of 5 - 8. Thus, there is a certain element of self-criticism in combination with an appropriate dose of self-confidence. The numbers of overconfident as well as underestimating participants are negligible.

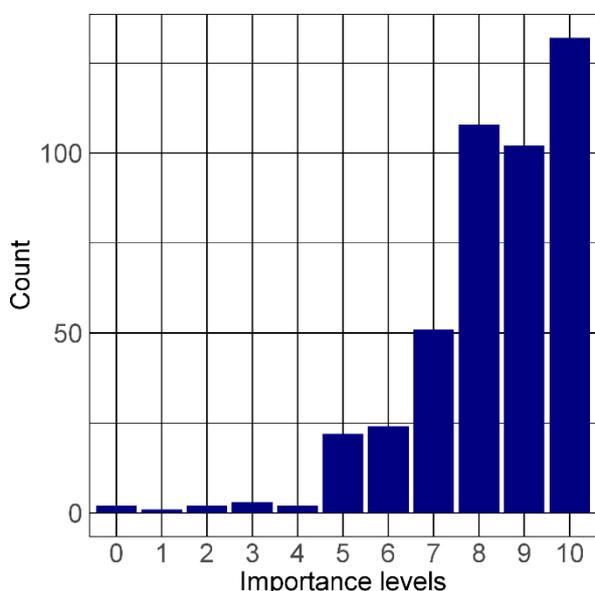


Figure 1 Histogram of the responses on the importance levels of financial literacy. Source: Own elaboration.

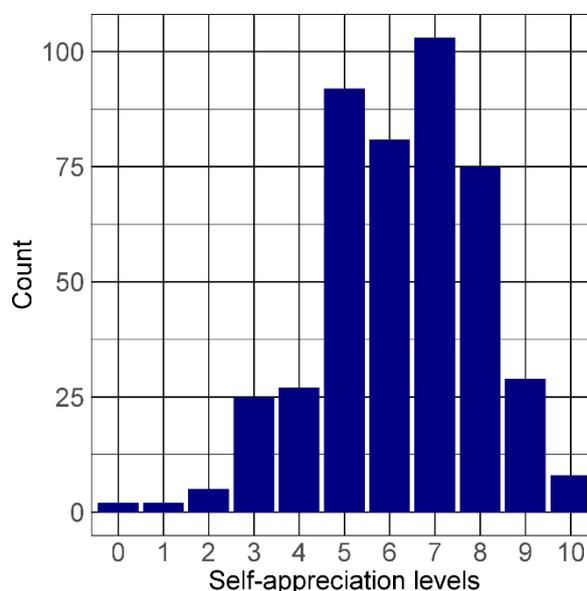


Figure 2 Histogram of the responses to the respondents' self-assessment of their financial literacy. Source: Own elaboration.

The construction of the P-Fin index allows two approaches to evaluating the knowledge part of the questionnaire. The first option is to express the P-Fin index in the form of an aggregate value, which indicates the percentage of correct answers. This approach was also applied in this survey when assessing the overall level of financial literacy and comparing full-time and part-time students. The second alternative is the representation of the P-Fin index in the form of an ordered 8-tuple, where each component represents the percentage success of answers in individual areas of the structure of financial

literacy. Such an approach has been used to detect weaknesses in financial literacy.

The portions of the correct answers, incorrect answers, and "I do not know" answers are illustrated graphically in Figure 3. It is clear from the graph that incorrect answers predominate over "I do not know" answers in all items. This can be explained by the tendency of students to try to guess the correct answer instead of admitting ignorance. If we separate the results of full-time and external students, as illustrated in Table 1, we see that the number of "I do not know" answers for

external students decreases, but at the same time, it increases the share of correct answers.

To get a more detailed idea of the success of the answers of full-time and part-time students, let's look at the descriptive statistics, which are summarized in Table 2. The results show that all-important quantiles of overall success, as well as the mean value, are shifted towards higher values in external students. This leads us to the

conclusion that external students, equipped with a certain amount of practical experience, achieve a better result. This assumption can also be verified by a statistical test of the hypothesis of the equality of average successes against the one-sided alternative that the average success rate of external students is higher. As we can see from Table 3, this test allows this hypothesis to be rejected at an extremely high confidence level (The p-value is approx.. 10^{-15}).

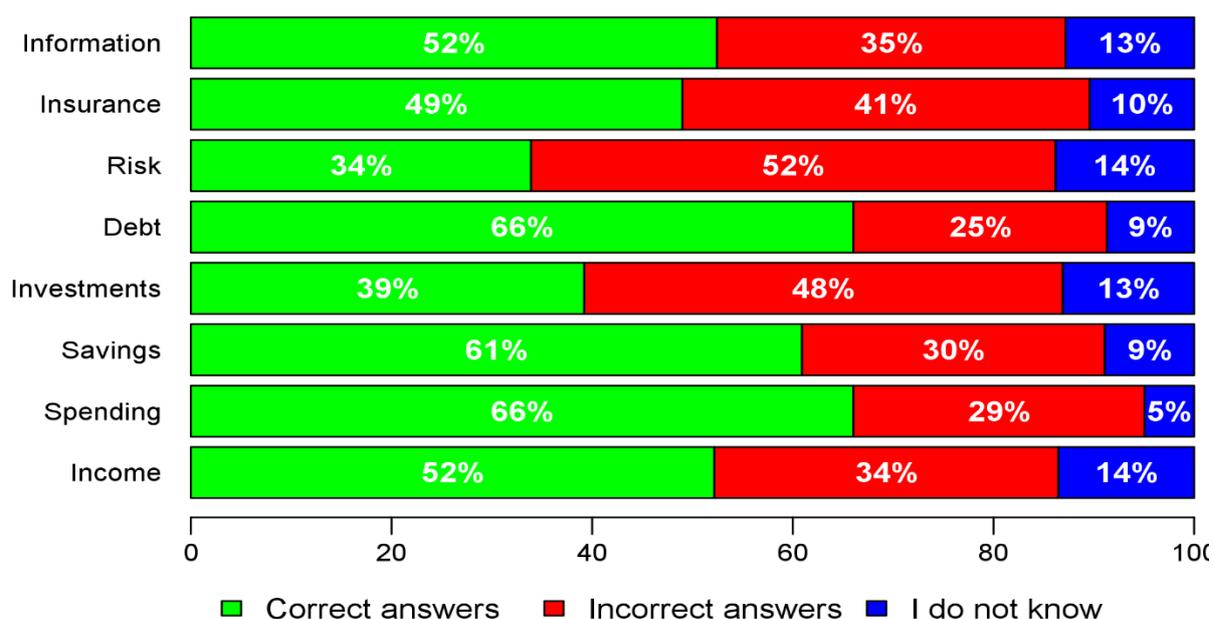


Figure 3 Shares of individual types of answers according to the components of the P-Fin index.
Source: own elaboration.

Table 1 Comparing the shares of individual types of answers according to the components of the P-Fin index in full-time and part-time forms of study. Source: own elaboration.

| Area | Full-time students | | | Part-time student | | |
|---------------------|--------------------|-----------|---------------|-------------------|-----------|---------------|
| | Correct | Incorrect | I do not know | Correct | Incorrect | I do not know |
| Information sources | 50% | 36% | 14% | 59% | 32% | 9% |
| Insurance | 42% | 46% | 12% | 64% | 29% | 7% |
| Risk | 31% | 52% | 17% | 40% | 53% | 7% |
| Debt | 63% | 26% | 11% | 72% | 23% | 5% |
| Investments | 35% | 48% | 17% | 48% | 48% | 4% |
| Savings | 59% | 30% | 11% | 65% | 31% | 4% |
| Spending | 63% | 30% | 7% | 72% | 26% | 2% |
| Income | 45% | 39% | 16% | 67% | 24% | 9% |

Table 2. Descriptive statistics of the P-Fin scores for the whole sample and separately for full-time and part-time students Source: Own elaboration

| Group | Min. | 1-st Quartile | Median | Mean | 3-rd Quartile | Max |
|-----------|------|---------------|--------|------|---------------|------|
| Whole | 0.10 | 0.43 | 0.53 | 0.52 | 0.60 | 0.93 |
| Full-time | 0.10 | 0.40 | 0.50 | 0.48 | 0.57 | 0.90 |
| Part-time | 0.17 | 0.53 | 0.60 | 0.61 | 0.73 | 0.93 |

Table 3. Results of the two-sample Welch's t-test for the means of P-Fins scores of the full-time and part-time students. Source: Own elaboration

| | Mean | t-statistics | p-value |
|-----------|-------|--------------|------------------------|
| Full-time | 48.4% | -8.4789 | 1.15·10 ⁻¹⁵ |
| Part-time | 60.9% | | |

The more extensive Table 4 summarizes the results of tests of average success according to the individual components of financial literacy. As we can see from the table, for all components of the P-Fin index we can reject the null hypothesis of equality of pre-success. Also, by comparing p-values, we see that it is always at a high confidence level. It almost always exceeds the 99% level. The only exception is the case of savings management, but even here it is higher than 98%.

With this decomposition of the P-Fin index into its eight components, we cannot overlook a certain drop in results in two areas. They are an understanding of risk and investment. Given that investments are always associated with a certain amount of risk, the common decline in these two areas is not accidental. The fact that these two areas are a weakness in both groups of students is well observable when displaying the resulting scores in the form of a radar graph. These are illustrated in Figures 4 and 5.

Table 4. Results of the two-sample Welch's t-test for the means of single P-Fin components scores of the full-time and part-time students. Source: Own elaboration

| Area | Form | Mean | t-statistics | p-value |
|---------------------|-----------|---------|--------------|------------------------|
| Earnings | Full-time | 45.31 % | -8.6966 | 2.2·10 ⁻¹⁶ |
| | Part-time | 66.55 % | | |
| Spending | Full-time | 63.24 % | -4.0364 | 3.45·10 ⁻⁵ |
| | Part-time | 71.90 % | | |
| Savings | Full-time | 58.96 % | -2.1036 | 0.01813 |
| | Part-time | 65.00 % | | |
| Investments | Full-time | 35.20 % | -4.6121 | 3.078·10 ⁻⁶ |
| | Part-time | 47.59 % | | |
| Debt management | Full-time | 62.99 % | -3.6644 | 0.00015 |
| | Part-time | 72.41 % | | |
| Insurance | Full-time | 41.94 % | -8.9765 | 2.2·10 ⁻¹⁶ |
| | Part-time | 63.79 % | | |
| Risk comprehension | Full-time | 30.92 % | -3.6489 | 0.000161 |
| | Part-time | 40.17 % | | |
| Information sources | Full-time | 49.51 % | -2.3689 | 0.009273 |
| | Part-time | 58.62 % | | |

At the same time, the significant drop in knowledge in the field of understanding and risk management is by no means unique. This result corresponds with many international surveys. The results across 15 countries are summarized in the

work (Lusardi) in Table 2. Except for three countries (France, Sweden, and Finland), there is more than a 10 percent drop in success in risk management. Thus, it turns out that this area is generally the weakest place in financial literacy.



Figure 4 Radar graph of average scores of full-time students by single components of the P-Fin index. Source: Own elaboration.



Figure 5 Radar graph of average scores of part-time students by single components of the P-Fin index. Source: Own elaboration.

As part of the survey, we were also interested in the information resources that students use. The results are clearly illustrated by the bar chart in Figure 6. In this context, it should be noted that respondents could choose several information sources. Therefore, after adding up all the values,

we get a sum higher than the number of respondents. It turned out that the Internet as the information source significantly dominates among the answers without further specification of sites or services.

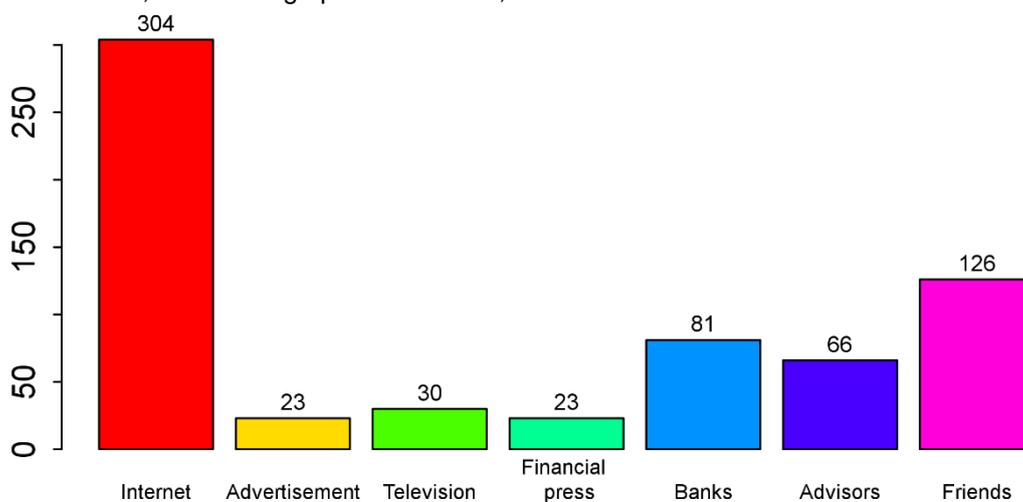


Figure 6 Bar plot of the number of responses on the use of information sources. Source: Own elaboration.

Such dominance of the Internet as an information source is, on the one hand, evidence of the current

trend of shifting attention to online tools. This is an important reference for information providers who

insist on more conservative forms. On the other hand, it is also a signal of a certain danger arising from the non-recognition of relevant information. For example, in combination with the relatively high share of friends as an information source, it is possible to conclude that it can also be a social network. There may be legitimate concerns about the reliability of the information obtained in this way. It can also be the result of marketing activities on the Internet. Also, obtaining information and advice directly from banks is often an effort to acquire a new client rather than the result of objective information. Thus, it turns out that when strengthening financial literacy, it is also necessary to address the issues of access to information resources.

5 CONCLUSIONS

The results obtained in the statistical analysis allow us to draw several conclusions with an impact on financial education. An important result is that it has been confirmed that external students with some practical experience achieve better results. Although practical experience cannot be fully replaced, it is at least possible to get closer. This means that in financial education, particular attention needs to be paid to decision-making and the analysis of the impact of this decision. Thus, from "What is it" education and a theoretical description of individual financial instruments, it is necessary to move to solve issues such as "How to use it", "How does it behave", and "What happens if". Addressing such outcome issues in

the form of a financial decision and analysis of its impact may at least partially compensate for the lack of experience.

A significant finding is the large knowledge gap in issues of risk management and financial operations related to risk elements. This is because a proper assessment of risks and their impacts is often associated with advanced probabilistic thinking and numeracy in general. Therefore, if we want to improve the level of financial literacy in this area, it is also necessary to strengthen probability education. However, a closer link between financial subjects and mathematical background is necessary. This requires closer cooperation of teachers of both disciplines with an orientation towards solving tasks with more practical assignments. Without this approach, unfortunately, today's student, who is looking for a ready-made answer, is not even aware of the above connections and therefore cannot even use them.

A survey of the use of information sources showed that this issue cannot be circumvented in financial education either. If the Internet is the main source of information for students, it is also necessary to draw their attention to how to recognize relevant information in the field of information. They need to be taught how to verify the information in a multi-source way and not rely on the first link offered by search services. In this context, they should also be reminded that the role of marketing is not to objectively inform but to influence.

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Received for publication: 17.08.2020
Revision received: 22.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Kozubik, A. (2021, January 15). Financial literacy of the management students – Czech and Slovak experience. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 75-83. doi:10.12709/mest.09.09.01.10

Style – Chicago Sixteenth Edition:

Kozubik, Ales. 2021. "Financial literacy of the management students – Czech and Slovak experience." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 75-83. doi:10.12709/mest.09.09.01.10.

Style – GOST Name Sort:

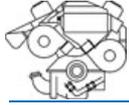
Kozubik Ales Financial literacy of the management students – Czech and Slovak experience [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 75-83.

Style – Harvard Anglia:

Kozubik, A., 2021. Financial literacy of the management students – Czech and Slovak experience. *MEST Journal*, 15 January, 9(1), pp. 75-83.

Style – ISO 690 Numerical Reference:

Financial literacy of the management students – Czech and Slovak experience. **Kozubik, Ales**. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 75-83.



FEATURES OF IMPROVING THE BUDGETARY SYSTEM OF THE RUSSIAN FEDERATION

Anastasia Kurkina Stanislavovna¹

International Economic Relations Faculty, Financial University under the Government of the Russian Federation, Moscow, Russia

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JEL Category: E63, F65

Abstract

This paper is dedicated to the main directions and areas of the budgetary system of the Russian Federation, functioning of budgets at all levels of the budgetary system, its development, and regulation to adapt the Russian economy to market conditions. This research consists of features that will be further analyzed and discussed. These features are related to improving the functioning budgetary system and the financial system as a whole. This work considers features of the modern budget system of the Russian Federation, analysis of the functioning and execution of the budget system of the Russian Federation on the example of the federal budget, the main problems of the Russian budgetary system, and analysis of possible ways for improving the country's budgetary system. The key aspect of this article is the influence of the current political situation and economic factors on modifying the entire structure of the Russian budget system, as well as its budget policy, to further stabilize the economic development of the state. An important place is given to the formed proposals for improving the functioning budget policy and identified promising areas, which implementation can yield high results in the sphere of the budget system of the Russian Federation.

Keywords: budget, finances, modernization, macroeconomic indicators, GDP.

1 INTRODUCTION

At present, the financial sector is of great concern to both developed and developing countries. This occurs because the improvement of certain systems, which govern the national economies of

some countries, makes it possible to stabilize the budgetary system, which in the future has a key impact as an external system on domestic politics. The Russian Federation is no exception. The main instrument of the financial system and finance as a whole is the budget of the Russian Federation which forms the budgetary system of the country.

To understand how different levels of the Russian Federation's budgets operate, it is necessary to

The address of the author:

Anastasia Kurkina Stanislavovna

nastyaripp@gmail.com

¹ Scientific adviser: **Dinara Orlova Rustemovna**

Department of Economic Theory, Financial University under the Government of the Russian Federation, Moscow, Russia

start with the theoretical component of this financial instrument. Firstly, it is necessary to define the term “budget”: it is a form of education as well as expenditure of money, the purpose of which is to ensure some tasks and functions of the state and local self-government. This definition is established by the main legislative act in force in the budgetary sphere and by the Budget Code of the Russian Federation. Budget implementation can be characterized as the accumulation of funds in the hands of the state for exercising governmental authority. The Russian Federation currently has a three-tier budget system: the federal budget, budgets of the constituent entities of the Russian Federation, and local budgets. (Afanasiev & Shash, 2014) All levels of the budget system are independent. As a result, budgets at all levels operate separately, despite the unity of Russia’s current budgetary system. The final part of the budget system of the Russian Federation is a consolidated budget, which is a defined set of budgets of any level, and, more precisely, the combined functioning of the federal, regional, and local budgets of the Russian Federation. (Law, 2020)

2 ANALYSIS

Certain macroeconomic indicators affect the functioning of all budget system levels, as well as its formulation and implementation of the state’s budgetary policy. These indicators, in their turn, have a direct impact on forming and implementing budget lines in the Russian Federation. Macroeconomic indicators include GDP, real disposable income, and expenditure. (GlobalSecurity.org, 2019) Since the Russian Federation is, to some extent, dependent on the commodity sector, macroeconomic indicators such as exports of goods, namely petroleum products, play an integral part in the functioning of the fiscal system. All the above indicators lead to the following conclusion: for the performance of exports, the performance of dollar/ruble is an important indicator. Such indicators have already been able to take a new turn in the development. The results have been positive in the overall modernization of individual sectors of the national economy.

Table 1. Dynamics of the main parameters of the budget of the Russian Federation since 2017

| Indicators | 2017 | | 2018 (forecast) | | 2019 (forecast) | | 2020 (forecast) | |
|-----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|
| | Rubles (Billions) | Share of GDP,% |
| Revenues | 14 720 | 16.0 | 15 258 | 15.7 | 15 555 | 15.1 | 16 258 | 14.8 |
| Expenses | 17 007 | 18.4 | 16 529 | 17 | 16 374 | 15.9 | 17 155 | 15.6 |
| Deficit | 2 287 | 2.5 | 1 271 | 1.3 | 819 | 0.8 | 870 | 0.8 |
| GDP | 92 224 | - | 97 462 | - | 103 228 | - | 110 237 | - |

Source: (MFRF, 2019)

Macroeconomic indicators that were considered earlier form the budget policy of the state, therefore, they have a direct impact on forming budget items. The main parameters of the Federal budget of the Russian Federation in the period of 2017-2020 include revenues, expenditures, deficits, and GDP. (Table 1)

The dynamics of the main parameters of the budget of the Russian Federation have certain characteristic features: a gradual decrease in the share of income concerning GDP and a reduction in the share of total expenditures in GDP. (Imazhap & Ivanova, 2018) On analyzing the

presented table, the budget deficit will gradually decrease if the income increases. The revenue part of the budget implies many significant changes that create new tax conditions for the oil and gas sector and other sectors of the national economy. From 2019, a special adjustment coefficient was introduced for export duty rates on fuel and energy products. (Kryukova & Tugusheva, 2019) Also, the introduction of a negative excise tax on crude oil that is sent for processing to control the increase in domestic prices for petroleum products was implemented in 2019 concerning part of oil and gas revenues.

Part of non-oil and gas revenues implies an increase in the projected GDP to 98.234 billion rubles. The expected change of volume of imports many goods that are considered to be on the working process, its increase not a few dozen billion rubles. A separate place is given to changing the assessment of income tax receipts for dividends. Revenues from oil and gas revenues, the main source of which is VAT, are expected to slightly exceed 3% of GDP in the period of 2019-2020 over the volume of revenues from this tax in 2016-2017.

Execution of the Federal budget of the Russian Federation presented some contradictory results. For 2019, nominal revenues increased by 732.8 billion rubles, which eventually amounted to 20187.2 billion rubles. The level of execution of Federal budget revenues concerning the volume of such revenues adopted in 2019 was about 102%. For the entire period of 2019, the share of tax revenues in the total Federal budget amounted to 75.1%, which increased by 2.3% compared to 2018.

The volume of expenditures of the Federal budget of the Russian Federation was approved by Federal law "No459" for 2019, which was approved in the amount of 18037.2 billion rubles. The implementation of the changes made to the Federal Law on the Federal budget led to the achievement of such tasks as increasing the budget allocations of the consolidated budget list for Federal budget expenditures. The total amount of the increase was 452.2 billion rubles in 2019. (Cubrovich & Egorova, 2015)

The changes introduced to the budget are related to clarifying and adjusting the course of the forecast of socio-economic development of Russia to influence revenues from a large number of revenue sources. Despite this, the system of organizing the budget process that has been formed to date is not functioning in a balanced way. It is a kind of "mixed" model that includes not only elements of budgeting for implemented costs, but also the management of the current system, which, in turn, is aimed at achieving the set results. Budgeting plays an important role in this aspect. A distinctive feature of the introduction and use of budgeting elements is their diversity, the variability of their combination, the organization of functioning of well-coordinated "approaches" – all

this requires the use of these innovative tools, which make the implementation of budget management possible. (Federal law 380-FZ, 2019)

Over the past 10 years of the existence of budgeting elements, the Russian Federation has lagged behind the desired development dynamics. (Poryadina, Alina, & Kabasheva, 2018) However, the key year was 2018, as, despite the slowdown in the global economy, the growth of the Russian economy accelerated up to 2.3%. Therefore, this result allows to identify trends that are considered positive and strengthen their positions in the structure of economic growth:

1. Dynamic production growth in numerous branches, the key feature of which is the development and further strengthening of competitiveness of Russian national economy through the export growth in the oil and gas sector as well as achieving strong results of operating profitability;
2. Strengthening and developing a favorable investment climate. This is due to the growth of investment in fixed assets.
3. The structure of financing sources is becoming more stable by reducing the role of external debt resources. Also, the role of the domestic financial market is gaining more relevance and significance.

These trends are the changes that allowed both financial and economic policies to acquire a new round of development. It was thanks to their implementation that the process of creating some macroeconomic policy institutions was organized; the current system of inter-budgetary relations was reformed. A significant breakthrough was the strengthening of the formation and control of the operational profitability of budget execution.

Operational efficiency in the use of budget funds is one of the national goals for the development of the budget system and policy of the Russian Federation. Operational efficiency refers to a specific set of measures that are implemented to improve the efficiency of budget expenditures. As mentioned earlier, Federal programs are being implemented, the monitoring system of which is provided with the transparency of actions taken, and the ability to control the use of budget funds. (Pechenskaya-Polishchuk, 2020)

The financial system, which includes the budget system and implementation of the budget policy, needs to be modernized to meet the current conditions in modern Russia. This concerns the modernization of the state's economy. To carry out a comprehensive reform, it is necessary to create certain conditions that will help achieve such results as improving the efficiency of economic development, bringing competitiveness to a new level, which, in its turn, will affect the attractiveness of the investment climate. (Omelekhina, 2017)

Any changes should initially be considered from the point of view of their possible impact on the pace of developing the national economy, and in general, on the population welfare, business activity, etc.

In the history of the Russian economy, there was a period associated with the "Dutch disease", when strengthening or weakening of the ruble during periods of growth or decline in oil prices led to a change in the state of competitiveness of Russian industrial companies not only in the domestic market but also in the external market. "The Dutch disease" had a strong impact on the services sector. This led to the fact that any previously stable functioning sector was directly dependent on oil prices. This period turned out to be cyclical. In 2020, a similar model of high interdependence of oil quotes and exchange rate ratios of national and foreign currencies is being formed.

A sharp weakening of the ruble was caused by the "Coronavirus" phenomenon. Construction of "budget rules" meant creating conditions for the development of competitive industries, not the oil and gas sector, to reduce the dependence of their financial results on oil prices. In today's reality, it is impossible to reduce the dependence on public finances due to the dynamics of established oil prices.

For the stable functioning of a large number of sectors of the national economy at the legislative level, it is important to fix the rules for the entry into force of such elements of taxation that worsen the current situation of taxpayers. The modified tax conditions should provoke a demand for confidence in the restructured budget and tax policy, which, in turn, can further contribute to the

attractiveness of the investment climate. (MFRF, 2019)

Regarding the subjects of the Russian Federation, they should be considered from the outside. These measures include:

- Providing opportunities for subjects of the right to establish an investment tax deduction for innovative activities, stimulating the creation of research works.
- Exercise of the right to tax deduction on excise taxes for certain enterprises and organizations whose activity is the production of fuel and energy products using ethane raw materials. This should be introduced to ensure the development of projects in the petrochemical sector and the introduction of conditions that encourage increased involvement in the deep processing of such raw materials.

Every system constantly requires special attention and modernization to achieve better results. An important point in the analysis of the financial sector and the budgetary system is the peculiarity of improving the budgets of various levels of the budgetary system of the Russian Federation. Thanks to these features, it can be understood how the current budgetary system has been functioning during the past five years. (Poryadina, Alina, & Kabasheva, 2018) The first peculiarity to be highlighted is the existence of such principles as "budgetary rules" which allow comparing the influence of price fluctuation on the world market with the internal conditions of the prevailing macroeconomic situation. Such changes have reduced the oil and gas deficit to minimal levels. The volume of oil and gas revenues in 2018 amounted to 4,261.4 billion rubles, which were eventually redirected to the National Welfare Fund in 2019. The next significant feature is the establishment of a list of public tax expenditures legal entities and annual evaluation of collected data in the BC of the Russian Federation for forming and organizing the accounting system, as well as evaluating the efficiency of tax expenditures at all levels of budgets. The increase in the budget allocations of the consolidated budget to federal budget expenditures is an important innovation that has led to an increase in the total volume by 452.2 billion rubles. (GlobalSecurity.org, 2019)

3 CONCLUSIONS

By the end of 2020, positive results can be achieved only if the right direction for improving the functioning of the Russian budgetary system is chosen. Firstly, macroeconomic stability should be reached, which could lead to a substantial reduction in the deficit as well as the prevention of inflation-related indicators. Secondly, it is necessary to consider the area of income, some modifications will ensure the efficient functioning of the tax system. An important aspect of improving the existing budgetary system is inter-budgetary transfers from the federal budget to the budgets of the constituent entities of the Russian

Federation, as all resources are concentrated only at the disposal of the federal budget. The savings system also needs to be reorganized, namely, to be modernized. While the fiscal policy should contribute to a stable fiscal environment, the current fiscal policy over the past two years has not been entirely consistent with this trend. An increase in the VAT rate from 18 to 20 percent has temporarily enhanced inflation, slowed down the economic growth, and weakened investment performance. To improve the functioning of the budget system, it is necessary to create more conditions for the investment climate for implementing infrastructure projects.

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Received for publication: 04.09.2020
Revision received: 16.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Kurkina, A. S. (2021, January 15). Features of improving the budgetary system of the Russian Federation. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 84-89. doi:10.12709/mest.09.09.01.11

Style – Chicago Sixteenth Edition:

Kurkina, Anastasia Stanislavovna. 2021. "Features of improving the budgetary system of the Russian Federation." Edited by Zoran Cekerevac. *MEST Journal (MESTE)* 9 (1): 84-89. doi:10.12709/mest.09.09.01.11.

Style – GOST Name Sort:

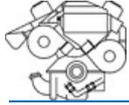
Kurkina Anastasia Stanislavovna Features of improving the budgetary system of the Russian Federation [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 84-89.

Style – Harvard Anglia:

Kurkina, A. S., 2021. Features of improving the budgetary system of the Russian Federation. *MEST Journal*, 15 January, 9(1), pp. 84-89.

Style – ISO 690 Numerical Reference:

Features of improving the budgetary system of the Russian Federation. Kurkina, Anastasia Stanislavovna. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 84-89.



APPLICATION OF CLOUD TECHNOLOGIES IN ACCOUNTING

Liudmila Lapitkaia

ASEM, Department accounting, audit, and economic analysis, Chisinau,
Moldova

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JEL Category: **M41, M15**

Abstract

Traditional accounting in modern conditions of digitalization of the economy requires significant changes in terms of the use of new information tools. One of these opportunities is the use of new information technologies in accounting. These new information technologies include cloud technologies, which are a specific environment (for storing, processing, and protecting information) that combines technical tools, software, communication channels, and technical support. Services that may be based on technology (MCloud) are a software as a service (SaaS), infrastructure as services (IaaS), platform as services (PaaS). From the point of view of an accounting organization, the most convenient of these three types of services is the service as a software. Cloud technologies are the storage and processing of information on servers on the Internet. The positive aspects of using cloud technologies include the fact that accountants do not need to purchase, install the program on their computer, maintain it in working order, and ensure data protection and security. All this can be done in the cloud. Cloud storage - is online storage where information is stored on the network on servers provided by an information service provider for the use of customers. At the same time, cloud providers provide services for renting a server from various companies based on cloud technologies. The article analyzes the opportunities that cloud technologies provide in accounting, considers the advantages and disadvantages of using such technologies.

Keywords: MCloud, accounting, “cloud computing” technology.

1 INTRODUCTION

The recent rapid development of new technologies leads to the offer of various types of information services, improving the processing and storage of databases, and strengthening security measures against cyber threats.

These new information technologies include cloud technologies, which are a specific environment (for storing, processing, and protecting information) that combines technical tools, software, communication channels, and technical support.

It should be noted that in the Republic of Moldova, based on article 2 of the Law on ratification of the Financial Agreement between the Republic of Moldova and the International Development Association, was published Government resolution No. 128 from 20.02.2014 on the

The address of the author
Liudmila Lapitkaia
liudmila1925@yandex.com



establishment of the General government technology cloud platforms (MCloud).

This resolution defines "cloud computing technology ("information cloud") as an IT service delivery model that allows network access on request to a configurable set of computing resources subject to virtualization (for example, networks, servers, storage equipment, applications, and services) that can be quickly

made available with minimal effort to administer them or interact with the provider of these services." (RM, 2014).

2 ANALYSIS OF CLOUD SERVICES FOR ACCOUNTING

Government resolution No. 128 specifies services that may be based on technology (MCloud), which are shown in figure 1.

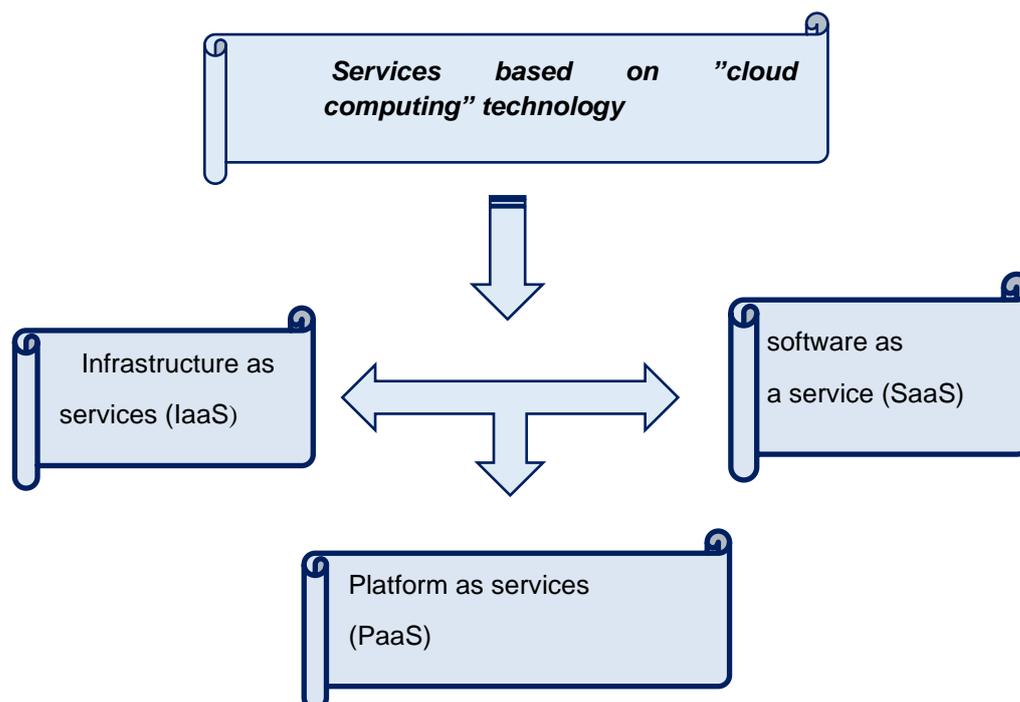


Fig. 1 Types of services based on "cloud computing" technology (RM, 2014)

Let us consider in more detail what these services are.

Infrastructure as a Service (IaaS) is a model for the delivery of information services and resources, in which the supplier provides only the availability of resources requested by the client, and the rest of the work associated with the operation and administration of information systems is entrusted to the client:

- independently installs software required for the normal functioning of its licensed information systems located on the MCloud platform.
- provides, if necessary, the integration of own information systems located on the MCloud platform with other systems.
- administers its information systems located on the platform, including granting access rights

to various components of information systems.

- provides security at the operating system level, protection of data processed within its own hosted information systems, as well as the creation and storage of backups on the MCloud platform (Laney, 2012).

Platform as a Service (PaaS) – a model for providing information services and resources, in which the client is provided with software components that they can use to implement their information services. In this model, the supplier provides the tools necessary for the operation and administration of the information solutions used by the client, and the responsibility for administration is assigned to the client.

Table 1 Authority of the provider and recipient (client) of information services platform as a Service (PaaS)

| The service provider | Recipient (client) of the Platform service |
|---|---|
| <ul style="list-style-type: none"> ➤ provides: <ul style="list-style-type: none"> - availability, security, and access to the requested platform software components within the. - if necessary, technical support for the use and integration of platform software components into information systems hosted on the MCloud platform. - operating system licensing. ➤ administers components of the platform software. | <ul style="list-style-type: none"> ➤ provides: <ul style="list-style-type: none"> - integration platform software. - components into their information systems. - users of information systems hosted on the MCloud platform, training and support. - protection of data processed within our information systems hosted on the MCloud platform ➤ manages its information systems hosted on the MCloud platform, including providing access rights to various components of information systems; |

Software as a Service (SaaS) as a model of information services and resources is their full provision. In this case, the service provider provides the components necessary for the operation and administration of the information solution, including data. In turn, the service recipients (clients) administer the received information services within their responsibility, manage access to the requested services for their administration.

From the point of view of an accounting organization, the most convenient of these three types of services is the service as a software. Cloud technologies are the storage and processing of information on servers on the Internet.

At the same time, information is processed and stored in the so-called cloud, which is a single large virtual server or servers that can be located remotely from each other.

Cloud servers have been long used, for example: when working with a client-Bank, when submitting reports, for example, tax in electronic form, when using email.

Recently, the range of information services for processing and storing accounting data in the cloud has been expanded. In this case, the cloud is a system that is a network of computers, software, and a platform on which data is stored, processed, and protected. However, the service of cloud technology providers can for money or free.

It should be noted that suppliers of automated accounting programs develop them with the ability to work via the Internet. Currently, the company "1C" has implemented cloud technologies in "1C: Enterprise accounting 8" version 3, or it can be called "cloud accounting 1C". Other Russian developers also have similar offers (info-Enterprise, Buchsoft, etc.).

The positive aspects of using cloud technologies include the fact that accountants do not need to purchase, install the program on their computer, maintain it in working order, and ensure data protection and security. All this can be done in the cloud.

Cloud storage - is online storage where information is stored on the network on servers provided by an information service provider for the use of customers. At the same time, cloud providers provide services for renting a server from various companies based on cloud technologies.

A company that provides a cloud service rents or hosts servers in a data center, which is a specialized secure building for hosting server and network equipment.

Information cloud providers, with license agreements with software vendors (1C, Microsoft), organize the infrastructure and offer fully configured workspaces with programs that customers can use over the Internet.

The company that provides the cloud service supports the functionality of the infrastructure and provides technical and methodological support to users.

To ensure the safety of customer data, information service providers back it up, and copies can be uploaded to the user's local computer.

Accordingly, all accounting information is stored in the data center. At the same time, the clients do not need to purchase, install, or maintain their servers, they only pay for the use of the server for processing and storing data.

It should be noted that the company "1C" has created its cloud service 1cfresh, which is a single database with the separation of customer data. In this case, customers are given the opportunity to:

- connecting to the service not only via a web browser but also in the terminal client mode.
- ability to work with all the programs of "1C: Enterprise 8".
- ability to change the accounting program, add settings, i.e., access to the Configurator.
- ability to use integration with external programs and components.

For accounting purposes, the benefits of cloud technology can be considered, which are:

- the ability to use (rent) various programs without purchasing a license, since this function will relate to the service provider that will provide them to the client.
- using various software updates provided by information service providers, who will also be responsible for installing, configuring, and administering them.
- there is no need to purchase powerful servers, computers, or other hardware; the client pays only for the cloud storage space that they use, but not for renting a server that they may not use all of its resources.
- no need to purchase or maintain your data warehouse. All procedures for reserving and maintaining data integrity are performed by the cloud center provider.
- ease of implementation of various solutions: increasing or decreasing the number of users, connecting new external users (buyers or suppliers).
- the efficiency of entering data into the accounting program, since accountants can

work from different places (at home, at work, etc.).

The principle of working with "1C: Fresh" is similar to how a user usually works with e-mail or visits websites. It is enough to open any supported browser, enter the site address, personal login, and password it is possible to start working.

Using the functions of a personal account, it is possible to create the necessary database configurations, add and remove users. The databases themselves are stored on the 1C cloud server. In this case, the 1C company assumes all the costs of updating and storing the software complex.

The user can download a copy of the databases to his local computer. Thus, compatibility between all products of the 1C: Enterprise series is maintained.

Likewise, the local version of the database can be uploaded to the site and continue to work there already in the online service. All these operations can be performed very quickly and at virtually no cost.

A variant of joint mixed work in the database is possible using the program on a computer without access to the Internet or using a web browser. To do this, it is necessary to set up an offline workstation. Now, this is possible for the solution "1C: Accounting 8" version 3.0 (CIMA).

Autonomous workplace technology provides the following features:

- the user can work with the database both via the Internet and locally on their computer.
- to get started, it is necessary to set up an offline workplace once, and then update the configuration on the computer-based on the current version is available on the Internet.
- data in the offline workplace is always up to date. Synchronization in the service and on the local computer is performed either automatically on a schedule, or at the user's request.

Among providers of cloud technologies, it should be noted

- Netsuite,
- Xero,
- KashFlow,
- Zoho Books,

- Intuit Quickbooks,
- FreeAgent,
- Sage 50c Premium,
- Wave,
- SAP Business One.

One of the advantages of cloud systems is the fact that the client is not geographically tied to the organization serving his accounting program, and therefore can choose the offer of any company that provides such services (Nathan Marz, 2015).

Developers of accounting software and service providers, in general, no longer need partners and representative offices in the regions - access to the cloud is possible from any point where there is an Internet connection.

At the same time, there are certain drawbacks in the use of cloud technologies, for example: linking the amount of payment for cloud services to the amount of data, many accountants prefer the form of payment for the database as a whole.

Also, a lot of questions arise in terms of security when storing and transferring data. When concluding contracts, service recipients are faced with the fact that material liability for data loss, unauthorized access, and distribution of data, at the suggestion of suppliers, often does not exceed the monthly cost of services, which is incomparable with the risks for customers.

However, the reliability and security of data storage and processing primarily depend on the Internet provider, cloud provider, data transmission channels, and the availability of the cloud at any given time.

In this regard, when concluding a contract with a cloud provider, it is necessary to pay attention to the following main points:

- technical characteristics of the service provided,
- information about the location of servers and responsibility for the temporary unavailability of the server,
- the obligation to create backup copies of the database, the obligation to save and restore information,
- obligations of the cloud service provider to maintain the confidentiality of user data, protect his data, including using cryptographic means, encryption,

- the consequences of termination of the contract and the timing of the removal of information belonging to the client,
- consequences of non-payment for services or poor-quality provision of services by the provider, number of fines.

In the contract with the cloud provider, the client must provide round-the-clock access to the cloud; daily backup and archiving of information databases (the storage period of each copy of the archive is at least 3 months); the client can access their backups for downloading to their computer (if necessary); encryption of communication channels; the ability to install updates to the accounting program immediately after its release without charging additional fees.

3 CONCLUSIONS

In conclusion, we would like to note that in the era of the digital economy, accounting specialists should study new information technologies, and in particular the possibility of their use in accounting. And first, the use of online accounting or internet accounting, which involves the organization of accounting using cloud technologies.

After analyzing the possibilities of online accounting, we can state that round-the-clock access to the accounting database is an advantage not only for accountants but also for business managers for control purposes.

Online accounting allows to coordinate the work of several remote offices, businesses, divisions, or employees optimally quickly in a single database. Also, online accounting will allow internal auditors to quickly monitor the reflection of business transactions in the system.

In the Republic of Moldova, the use of cloud technologies is still widespread only at the state level. However, some entrepreneurs in the field of information accounting technologies provide services with a cloud provider, however, the business does not require this service yet.

It would like to hope that the advantages of accounting when using cloud technologies will be appreciated by Moldovan accountants.

Based on global information trends, we can assume that the future of accounting is in cloud-based information technologies.

The use of cloud technologies in accounting provides new opportunities for all business entities, regardless of their organizational and legal form and field of activity, including both budgetary institutions and non-profit organizations, and firms that provide outsourcing services in terms of accounting.

The main advantages of online accounting are wide availability, the flexibility of connected services, and an overall reduction in maintenance costs.

Every year, developers improve software technologies, and cloud technologies are on the

list of trends in the development of information products for businesses. At the same time, there are four possible ways to use cloud technologies: cloud for working directly within the organization, cloud for holding, cloud for interacting with the client, and cloud technology for working over the Internet without installing software. With the help of cloud technologies, it is possible to implement all the traditional accounting tasks: keep electronic financial, managerial, tax records and compile statistical reports, generate primary accounting documentation, and perform calculations of taxes and insurance premiums.

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Received for publication: 05.09.2020
Revision received: 22.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – **APA Sixth Edition**:

Lapitkaia, L. (2021, January 15). Application of cloud technologies in accounting. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 90-96. doi:10.12709/mest.09.09.01.12

Style – **Chicago Sixteenth Edition**:

Lapitkaia, Liudmila. 2021. "Application of cloud technologies in accounting." Edited by Zoran Cekerevac. *MEST Journal (MESTE)* 9 (1): 90-96. doi:10.12709/mest.09.09.01.12.

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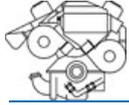
Lapitkaia Liudmila Application of cloud technologies in accounting [Journal] // MEST Journal / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 90-96.

Style – **Harvard Anglia:**

Lapitkaia, L., 2021. Application of cloud technologies in accounting. *MEST Journal*, 15 January, 9(1), pp. 90-96.

Style – **ISO 690 Numerical Reference:**

Application of cloud technologies in accounting. **Lapitkaia, Liudmila.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, MEST Journal, Vol. 9, pp. 90-96.



CYBERSECURITY AS A FUNDAMENTAL ELEMENT OF THE DIGITAL ECONOMY

Alexandru Leahovcenco

ASEM, Department of Applied Informatics in business, Chisinau, Moldova

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JEL Category: M15

Abstract

The development of the digital economy is inextricably linked to cybersecurity. The article discusses issues related to the definition of cybersecurity, its elements, and examines data on cyber-attacks. The analysis of the tightness of the relationship between the share of the digital economy in GDP and the GCI index using a correlation analysis is carried out in this article. The issues of cybersecurity in the Republic of Moldova are also discussed and ways to improve it are suggested. Currently, there have been significant changes in the structure of cyber threats. These changes are associated with discrete changes in the motives and tactics of cybercriminals. The reasons for enrichment contributed to the emergence of crypto miners. At the same time, there is a shift towards reducing the use of malware and complex infrastructure and moving to low-profile social engineering attacks. This article analyzes the situation in the field of cybersecurity in the Republic of Moldova and provides suggestions for its improvement.

Keywords: cybersecurity, digital economy, cyber risk, GCI index

1 INTRODUCTION

The digital economy is an economy, whose formation and development is due to the active use of modern processes of information and communication technologies. The development of the digital economy through the active use of IT requires data protection in cyberspace. In this case, the need to create such a data protection system in cyberspace, which meets the requirements of international standards and will contribute to the further development of the digital economy, must be considered.

The address of the author
Alexandru Leahovcenco
✉ alexandru.leahovcenco@yandex.com

There is currently no unified definition of cybersecurity. As stated in the article 2 "Definitions" of the Regulation (EU) 2019/881 of the European Parliament and the council of 17 April 2019 on ENISA (the European Union Agency for Cybersecurity) and information and communications technology cybersecurity certification and repealing regulation (EU) no 526/2013 (Cybersecurity Act): cybersecurity means the activities necessary to protect network and information systems, users, of such systems and other persons affected by the cyber threat (Council, Regulation (EU) 2019/881, 2019).

Article 4 of Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 "Concerning measures for a high common level of security of network and information systems across the Union" defines "security of

network and information systems” as an ability of network and information systems to resist, at a given level of confidence, any action that compromises the availability, authenticity, integrity or confidentiality of stored or transmitted or processed data or the related services offered by, or accessible via, those network and information systems (Council, Directive (EU) 2016/1148, 2016).

The European Court of auditors in its report challenges for an effective EU cybersecurity policy stated that: "cybersecurity involves preventing or detecting, responding to and recovering from cyber incidents. Incidents can be caused intentionally or unintentionally and cover remarkably diverse situations, for example from accidental disclosure of information to attacks on critical businesses and infrastructures, theft of personal data, and even interference in democratic processes. All these incidents can have far-reaching negative effects on individuals, organizations, and communities. (Europeană, 2019).

Government decision no. 811 of 29.11.2015 "On the national cybersecurity Program of the Republic of Moldova for the years 2016 to 2020" addresses issues of cyber-security as the state of normality resulting from the application of a complex set of proactive and reactive measures, which, in cyberspace, is to ensure the confidentiality, integrity, availability, authenticity, and non-repudiation of information in electronic

form, the information systems and resources of the service to the public and the private. Proactive and reactive measures include security policies, concepts, standards and guidelines, risk management, training and awareness activities, implementation of technical solutions to protect cyberinfrastructures, identity management, consequences management (Moldova, 2015).

Kaspersky Lab (an international company operating in the field of information security since 1997) defines cybersecurity, as: "strategic actions aimed at protecting information and communications through a series of advanced tools, policies and processes" (Kaspersky Lab. IT threat evolution Q2 2018. Statistics, n.d.).

The American company Cisco on its website published the following definition: "cybersecurity is the practice of protecting systems, networks, and programs from digital attacks." (Cisco, 2020).

The Guardian determines that cybersecurity refers to all technologies, processes, and practices designed to protect networks, devices, programs, and data from attack, damage, or unauthorized access. Cybersecurity can also be called Information Technology Security (Guardian, 2020), Thus, in the author's opinion, cybersecurity is complex of policies, procedures, tools, which include measures to protect various information systems and cyber-attack media, as well as the concept of security on risk management and retaliation.

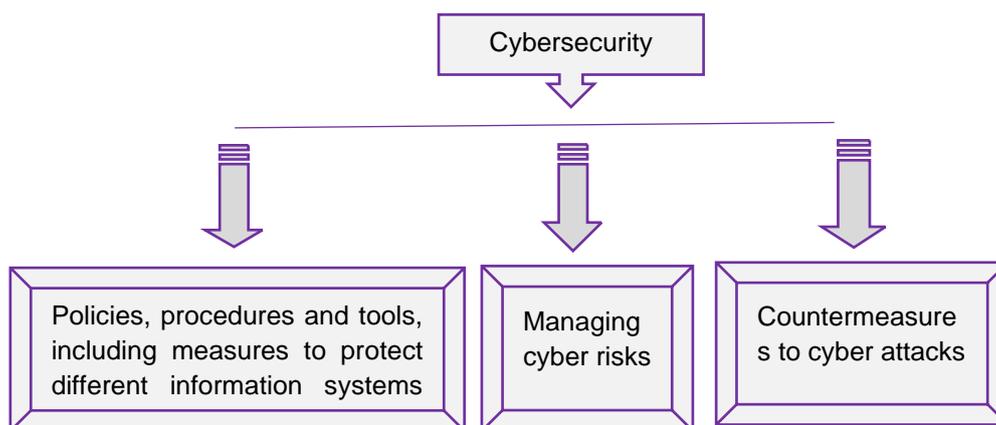


Fig.1 Cybersecurity elements

Analyzing these definitions and emerging from current realities, the author concluded that cybersecurity is not only a protective measure but also aimed at managing cyber risks and acting on response measures. Thus, according to the

author, cybersecurity is a complex of policies, procedures, and tools, including measures to protect different information systems and their devices against cyberattacks, as well as security

concepts for risk management and countermeasures to cyberattacks

2 RESEARCH ON THE FIELD OF CYBERSECURITY

In a digital economy, cybersecurity needs to ensure database security, at the state, entity, and individual level.

For effective cybersecurity, an entity must coordinate its efforts across its entire IT system. Cyber elements include:

- application security: applications require constant updates and testing to ensure that they are effective against attacks,
- network security: protecting the network against attacks and intrusions,
- endpoint security is the process of protecting remote access to a company's network,
- data security consists of protecting confidential information about the company and customers,
- identity management is a process of understanding each individual's access to a company,
- database and infrastructure security: the process of protecting devices is equally important,
- cloud security,
- mobile security is the protection of phones and tablets

The most difficult challenge in cybersecurity is that security risks are constantly evolving. Traditionally, companies and governments have focused most of their cybersecurity resources on protecting only the most important components of the system and defending themselves against known treatments. Today, this approach is insufficient, as threats advance and change faster than companies can respond.

Cyber risk assessments should also consider any regulations that influence the way the company collects, stores, and secures data, such as PCI-DSS, HIPAA, SOX, FISMA, and others. One area that is constantly evolving is cybersecurity best practices, which are evolving to adapt to the increasingly sophisticated attacks carried out by attackers. Combining cybersecurity measures with a team of security-educated employees

provides the best defense against cyber criminals trying to gain access to confidential company data.

The European Union Agency for Cybersecurity (ENISA) has prepared a report - landscape threats for 2018: Top 15 Cyberthreats and trends. An overview of the current threat landscape in 2018 reveals the first 15 cyber threats (Kaspersky Lab. IT threat evolution Q2 2018. Statistics, n.d.):

1. Malware (malicious software)-software that aims, in one form or another, to harm the computer and its content. Malware is a common name for all kinds of cyber threats such as viruses, trojans, spyware, keyloggers, adware, etc.
2. Web-based Attacks,
3. Phishing is a manipulation of the identity of companies or individuals to obtain financial benefits or confidential information,
4. Spam is unsolicited electronic messages sent using Trojan - infected computers that are part of a botnet. Spam is not a malicious program in itself, but it may include attachments containing such programs,
5. Denial of Service (DoS) is a type of attack on a service that disrupts normal function and prevents other users from accessing it. The most common target for a DoS attack is an online service, such as a website, although attacks can also be launched against networks or even a single program,
6. Ransomware-a type of software designed to extort, block access to a computer system or prevent the reading of data recorded in it (often by encryption methods), and then ask the victim for ransom to restore the original,
7. Botnets – a botnet is several devices connected to the Internet, each of which runs one or more robots. Botnets can be used to perform Distributed Denial-of-Service (DDoS) attacks, steal data, send spam, and allow the attacker to access the device and its connection. The owner can control the botnet using command and control (C&C) software. The word "botnet" is a portmanteau of the words "robot" and " network",
8. Data Breaches is the intentional or unintentional release of private or confidential information in an untrusted environment,
9. Insider threat - is a harmful threat to an organization that comes from individuals within the organization, such as employees,

former employees, entrepreneurs, or business associates, who have internal information about the security practices, data, and information systems of the organization, especially those of the organization.

10. Physical manipulation/damage/theft / loss,
11. Information Leakage occurs when a system that is designed to be shut down, however, discloses some information to unauthorized parties,
12. Identity Theft is the deliberate use of someone else's identity, usually as a method of obtaining a financial advantage or credit and other benefits on behalf of the other person,
13. Cryptojacking is an activity in which an infected device is used to secretly mine for cryptocurrencies,
14. Exploit Kits are automated programs used by attackers to exploit known vulnerabilities in systems or applications. They can be used to secretly launch attacks while victims surf the web to download and execute a type of malware.
15. Cyber Espionage is the act or practice of obtaining secrets and information without the permission and knowledge of the holder of information from persons, rivals, governments for personal, economic, political, or military advantage using methods on the internet, networks, or individual computers using proxy servers, cracking techniques and software, including Trojans and spyware.

According to data presented in the report-landscape threats for 2018: Top 15 Cyberthreats and trends 10 countries were identified according to the share of users attacked by Trojans mobile banking (ENISA, 2020):

According to the data presented by Kaspersky Lab in the table are presented data about unique users attacked by mobile banking Trojans in the country as a percentage of all users of Kaspersky Lab mobile antivirus in this country. They are excluded from the rating with relatively few users of Kaspersky Lab mobile antivirus (under 10,000).

To assess the risk of online damage faced by users in different countries, the information about the percentage of Kaspersky Lab (Web Anti-Virus) users whose computers have been affected is presented. The resulting data indicates the aggressiveness of the environment in which

computers operate in different countries. This rating includes only attacks of harmful programs that fall into the Malware class; it does not include anti-Virus web detections of potentially dangerous or unwanted programs such as RiskTool or adware.

Table 1 TOP 10 countries by the share of users attacked by Trojans mobile banking in the 2nd quarter of 2018 (Lab, 2020).

| Nr. | Country | % |
|-----|------------|------|
| 1 | USA | 0.79 |
| 2 | Russia | 0.70 |
| 3 | Poland | 0.28 |
| 4 | China | 0.28 |
| 5 | Tajikistan | 0.27 |
| 6 | Uzbekistan | 0.23 |
| 7 | Ukraine | 0.18 |
| 8 | Singapore | 0.16 |
| 9 | Moldova | 0.14 |
| 10 | Kazakhstan | 0.13 |

The Center for Strategic and International research tracks cyber-attacks on government institutions, defense, and high-tech companies, or economic crimes with losses of more than one million dollars. Over the past decade, they have tracked 490 significant cyber incidents.

Below is the data on the number of consumer complaints about internet crimes that were obtained by the Federal Bureau of Investigation (FBI, 2020) between 2009 and 2019.

Currently, there have been significant changes in the structure of cyber threats. These changes are associated with discrete changes in the motives and tactics of cybercriminals. The reasons for enrichment contributed to the emergence of crypto miners. At the same time, there is a shift towards reducing the use of malware and complex infrastructure and moving to low-profile social engineering attacks. Threatening actors are expected to adapt their activities to these changes, thus impacting the cyber threat landscape in the coming years.

The emergence of IoT environments will continue to be a concern due to the lack of security mechanisms in cheap IoT devices. The need for

generic IoT security architectures will remain urgent.

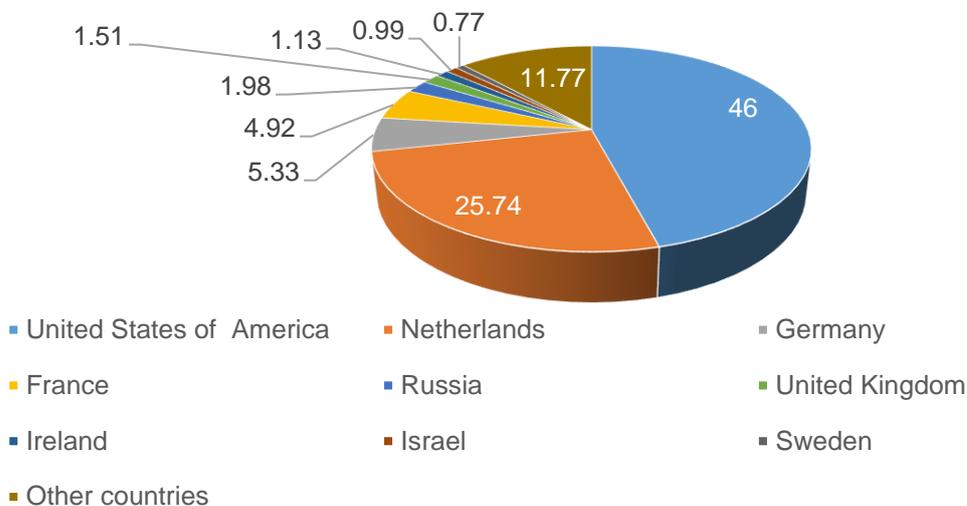


Fig. 2 Distribution of web attack sources by country, 2nd quarter of 2018 (Lab, 2020)

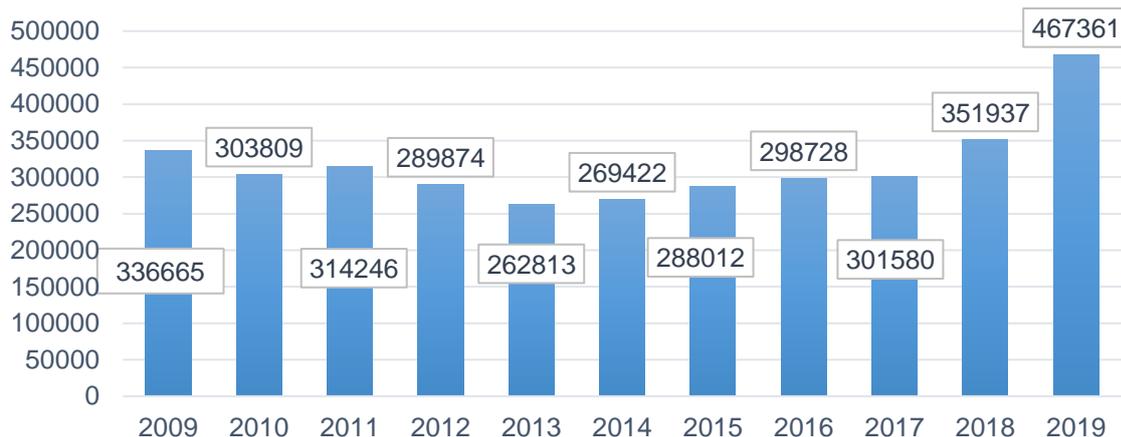


Fig.3 (Number of cases of economic crimes through cyberattacks with losses of more than one million US dollars, 2020)

Using intelligence to prevent cyber threats (AI) should become commonplace for many stakeholders, with a focus on those without technical knowledge.

The security software industry needs to research and develop solutions using automation and knowledge engineering to help end-users and organizations mitigate the slightest lower-level cyber threats with minimal human intervention. AI knowledge management should be the subject of standardization efforts. Of particular importance is the development of standard cybersecurity dictionaries, standard attack repositories, automatic methods of information collection, and knowledge management processes.

There are various indices to determine the level of cybersecurity. The Global Cybersecurity Index (GCI) is an initiative of the International Telecommunication Union (ITU) involving experts from different fields and organizations. The Global Cybersecurity Index (GCI) is a composite index produced, analyzed, and published by the International Telecommunication Union (ITU) to measure countries' commitment to cybersecurity to raise cybersecurity awareness. The GCI is rooted in the ITU Global Cyber Security Agenda (GCA) launched in 2007 and reflects its five pillars: legal, technical, organizational, capacity building, and cooperation.

The GCI combines 25 indicators in a benchmark measure to monitor the cybersecurity commitment of 193 ITU member states and the state of Palestine to the five pillars endorsed by global cybersecurity. The index uses data collected through an online survey. Questions were developed for each pillar to assess commitment. Through consultation with an expert group, questions are weighted to generate an overall GCI score.

The main objectives of the GCI are to measure:

- the type, level, and evolution over time of Cybersecurity Engagement in countries and compared to that of other countries.

- progress in the global cybersecurity commitment of all countries.
- progress in the cybersecurity commitment from a regional perspective.
- the division of the cybersecurity commitment (i. e. the difference between countries in terms of their level of involvement in cybersecurity initiatives).

Let us analyze the tightness of the relationship between the share of the digital economy in GDP and the GCI index using correlation analysis.

Table 2 *Determination of the tightness of the relationship between indicators through a correlation analysis for 2017*

| States | Share of the digital economy in GDP (X) | Index GCI (Y) | X ² | XY | Y ² |
|----------------|---|---------------|----------------|-------|----------------|
| United Kingdom | 6.27 | 0.78 | 39.31 | 4.91 | 0.61 |
| France | 4.96 | 0.82 | 24.60 | 4.06 | 0.67 |
| Litonia | 4.84 | 0.50 | 23.43 | 2.44 | 0.25 |
| Germany | 6.03 | 0.68 | 36.36 | 4.09 | 0.46 |
| Poland | 5.13 | 0.62 | 26.32 | 3.19 | 0.39 |
| Romania | 4.10 | 0.59 | 16.81 | 2.40 | 0.34 |
| total | 31.33 | 3.99 | 166.83 | 21.09 | 2.73 |

The calculation is carried out according to the

following formula, $\begin{cases} na + b \sum x = \sum y \\ a \sum x + b \sum x^2 = \sum xy \end{cases}$, with n-the number of countries is 6. Substituting the indicators in the formula, we come to the following calculation: $\begin{cases} 6a + 31.33b = 3.99 \\ 31.33a + 166.83b = 21.09 \end{cases}$ thus

$$r = \frac{\sum xy - \frac{\sum x \sum y}{n}}{\sqrt{\left[\sum x^2 - \frac{(\sum x)^2}{n}\right] \times \left[\sum y^2 - \frac{(\sum y)^2}{n}\right]}}$$

b=0.07, the number is positive, indicating a direct relationship. To determine the tightness of the relationship between the indicators, we use the correlation coefficient according to the formula:

Performing the calculations

$$\frac{21.09 - (31.33 \times 3.99) / 6}{\sqrt{[(166.83 - (166.83)^2 / 6)] \times \sqrt{[2.73 - (2.73)^2 / 6]}}$$

we get indicator 0.014.

The correlation coefficient is less than 0.7, which indicates the presence of a weak relationship. Analyzing the indicators in the table above, it can be stated that the higher the share of the digital economy in GDP, the higher the GCI index, for example, in the United Kingdom, the share of the digital economy in GDP in 2017 was 6.27, and the GCI index was 0.78; Germany, 6.03 and 0.68 respectively; in Poland, respectively 5.13 and 0.62; in Romania, respectively 4.10, respectively 0.59.

According to the information disclosed in the "Register of forensic and criminological information", presented by the Ministry of Internal Affairs, starting in 2015 and until December 2019 inclusive, 105 computer crimes were registered on art. 259-2611 and art. 2081 of the Criminal Code of the Republic of Moldova.

The following figure shows data on cybercrime in the Republic of Moldova.



Fig.4 (Dynamics of the number of computer crimes in the Republic of Moldova registered in the "Register of forensic and criminological information" of the Republic of Moldova , 2020).

At the same time, as mentioned in the Government Decision no. 811 of 29.11.2015 "On the National Cyber Security Program of the Republic of Moldova for the years 2016-2020": " that the data in the Register of forensic and criminological information are not yet complete and do not reflect all classes of crimes and contraventions within the meaning of the Budapest Council of Europe Convention on cybercrime, it can be seen that the number of crimes and misdemeanors is increasing." (ENISA, 2020).

In the decision of the Government of Moldova no.811 it was found, that for the effective development of the cybersecurity system, it is necessary to create a cybersecurity management system. At the same time, cybersecurity management is necessary for:

- cybersecurity system planning,
- conduct an annual cybersecurity audit to identify risks,
- effective protection of information systems against cyber-attacks,
- develop and implement policies on preventive measures against cyber-attacks.

3 CONCLUSIONS

A management system in the field of cybersecurity is necessary both at the state level and at the company level, while it must penetrate all areas of activity: economic, political, social. Many problems related to ensuring cybersecurity in Moldova should be noted:

1. At the state level, there is no complete safety when processing, accessing and storing public data.
2. The security of computer networks and services is not adjusted to the standards and

recommendations of the European Union according to the provisions of the association agreement between the Republic of Moldova and the European Union.

3. There are no satisfactory capacities to prevent cyber-attacks at the national level, given the intermittent nature of cyber-attacks.
4. The national regulatory framework should be revised following the provisions of the Council of Europe Convention on cybercrime.
5. Curricula in the field of cybersecurity must be constantly modified according to the changing situation in the digital economy and cybersecurity.
6. Lack of sufficient international interaction to identify risks and other events occurring in global cyberspace.

Analyzing this situation, the author concluded that cybersecurity management at the state level should consist of the following components:

1. State strategy on Cyber Security Management, which would be approved for one year,
2. State center, which would be responsible for public policy in the field of cybersecurity and Prevention of cyber threats,
3. Annual audit of the cybersecurity system at the level of the state and its institutions,
4. Help Center for business and citizens regarding cybersecurity management,
5. Educational institutions and the availability of advanced programs in the field of cybersecurity, updated in line with changes in cyberspace and the digital economy.

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4. Help Center for business and citizens regarding cybersecurity management,
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cybersecurity at government level and modification of government decision no. 414/2018 "has been designated I. P." Information Technology and Cyber Security Service "as government cybersecurity incident response center (CERT Gov).

At the same time, when developing cybersecurity management, it is necessary to use the provisions:

ISO/IEC 27001:2013 Information technology — Security techniques — Information security management systems — Requirements,

ISO / IEC 27002: 2013 Information technology — Security techniques — Code of practice for information security controls.

It should be noted that by the provisions of the Government Decision No. 482 of 08.07.2020 "On approval of necessary measures to ensure

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Received for publication: 05.09.2020
Revision received: 22.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Leahovcenco, A. (2021, January 15). Cybersecurity as a fundamental element of the digital economy. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 97-105. doi:10.12709/mest.09.09.01.13

Style – Chicago Sixteenth Edition:

Leahovcenco, Alexandru. 2021. "Cybersecurity as a fundamental element of the digital economy." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 97-105. doi:10.12709/mest.09.09.01.13.

Style – GOST Name Sort:

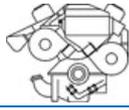
Leahovcenco Alexandru Cybersecurity as a fundamental element of the digital economy [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 97-105.

Style – Harvard Anglia:

Leahovcenco, A., 2021. Cybersecurity as a fundamental element of the digital economy. *MEST Journal*, 15 January, 9(1), pp. 97-105.

Style – ISO 690 Numerical Reference:

Cybersecurity as a fundamental element of the digital economy. **Leahovcenco, Alexandru**. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 97-105.



LIBERTARIAN PHILOSOPHY VERSUS PROPERTARIAN DOGMA: A FURTHER REPLY TO BLOCK

J. C. Lester

Independent scholar, London, UK

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JEL Category: **P10**

Abstract

This replies to Block 2019 (B19), which responds to Lester 2014 (L14). The main issues in the, varyingly sized, sections are as follows. 1 Further explanations of critical rationalism, the theory of liberty, and problems with the non-aggression principle. 2.1 The relationships among law, morality, and libertarianism. 2.2 The objective invasiveness of low-level radiation and that it is therefore a proactive imposition (albeit trivial) if someone inflicts it on non-consenting people. 2.3 The objective and subjective aspects of proactive impositions; and how clashes can be resolved. 2.4 How liberty relates to risk and self-ownership. 2.5 Libertarian initial acquisition versus absolute property rights by labour-mixing. 2.6 Organisational note. 2.7 Libertarianism and mens rea. 2.8 Libertarian rectification versus lex-talionis doubling. 2.9 Indirectly clashing rights, self-preservation, trespasser-hiker, flagpole-grasper, and landmine-layer. 2.10 A logical point is not a moral point. 2.11 Pacifism and libertarianism. 3.1 A weak criticism of utilitarianism. 3.2 Hedonometers; approximate interpersonal comparisons of utility imply libertarianism; what a libertarian is; libertarian rankings. 4. Libertarian philosophy versus propertarian dogma. Coda: the need to take seriously the philosophical problems with propertarian-justificationist libertarianism. Readers that might be interested include those engaging in libertarian philosophy and those using the Rothbardian/Blockian theoretical approach to libertarianism.

Keywords: *libertarianism; philosophy; private property; rights; crime; law; critical rationalism*

OVERVIEW

This essay is a reply to Block, 2019 (hereafter B19).¹ B19 will be quoted, usually using indented

The address of the author:

J. C. Lester

[✉ jclester@gmail.com](mailto:jclester@gmail.com)

text, and then replied to at significant relevant points. Repetition of issues will be avoided unless some new aspect arises, or a clarification appears desirable. Many relatively trivial points of disagreement will be ignored. This essay is written in impersonal text.² For ease of reference, B19's headings are followed but put in inverted commas.

¹ B19 is a response to Lester, 2014 (hereafter L14). L14 is itself a response to Block, 2011 (hereafter B11).

² As far as is practical, all references are to objective texts and arguments rather than to any persons. This helps to avoid invalid ad hominem arguments and irrelevant personal matters.



It will be argued that most of B19's errors are the result of attempts to reply to L14's philosophical arguments by merely restating the same positions or misinterpreting what L14 says.

"1 INTRODUCTION"

B19 fails to grasp critical-rationalist epistemology. It does not explicitly even mention it, or fallibilism either. That epistemology was briefly explained in L14. It is not possible to give an elaborate explanation and defence of that epistemology here, but a further short attempt might be helpful.³ All observations, arguments, explanations, and even logical inferences rest on, and thus logically amount to, assumptions (i.e., conjectures). They thereby cannot offer *support* that transcends or justifies⁴ their assumptions (but those assumptions are either true or false dependant on the relevant facts, i.e., the way things really are). Any attempt to provide support will face the logical trilemma of entailing circularities, infinite regresses, or dogmatic assumptions. However, assumptions can be criticised or tested—all within a framework of assumptions, of course (and presumably reality will tend to aid true assumptions to withstand criticisms and tests better than false ones, and true ones should resurface even if mistakenly rejected).⁵ None of this entails that we cannot possess or know (in an unsupported sense) what are true (i.e., accurate) beliefs or theories; or how is it that people appear to survive and even thrive? Therefore, if critical rationalism is scepticism, then that is only in the sense that it holds there to be no *epistemological* certainty or support. It is not scepticism in the sense that *psychological* doubt ought always to be felt (which does not appear to be psychologically possible) or that it is impossible to have knowledge in the sense of the possession or awareness of true theories (and even false theories are in one

sense 'known', if one is aware of them as theories).

B19 responds to a relevantly similar explanation in L14 thus:

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. (128)

Nowhere in L14 is "ultra-skepticism" (or even 'scepticism') mentioned. Critical rationalism is not "ultra-skepticism". As explained, we know by possessing a true assumption; not by having certainty or justificatory support for that assumption. We "base" any "examination" on assumptions (but they might be false). That is both "coherent" and necessarily true.

unless Lester can come up with specifics, and he does, undermining his own extreme cynicism, he cannot help resolve any such difficulties. (128)

Critical rationalism is not "extreme cynicism" either. It is a modest acknowledgement that epistemological support is logically impossible combined with the practical corollary of an anti-dogmatic approach to criticism and to competing theories. There are no genuine "difficulties" with this that are cited in B19.

if we are compelled to reject all that seems definitively true (128)

This is a hopeless misinterpretation of critical rationalism. We are only logically "compelled" to admit that all we have are fallible, unsupported, assumptions (although some of them may be well-explained and well-tested; and thus, critically preferred).

and Lester maintains that it is definitively true that we must doubt everything (128)

³ Libertarian texts rarely show any knowledge of critical rationalism or how it must apply to libertarianism.

⁴ This is not to object to the word 'justification' used in the completely different sense that means *explaining* a conjecture and *squaring* (another sense of 'justifying') it with any known criticisms or

ostensible counterexamples by adequately responding to them (which cannot, of course, offer any support to the conjecture: it merely appears to remain intelligible and unrefuted so far).

⁵ For detailed explanations of critical rationalism see, for instance, Popper, [1963] 1978 and Miller, 1994.

It is not a matter of “definition” but logic that we cannot get beyond assumptions to achieve epistemological support. It is an illogical delusion that we can. But that does not imply that, psychologically, “we must doubt everything”.

Lester’s claim that radical skepticism is the third basis of libertarianism seems patently false. (128)

The abstract theory of liberty is central; critical rationalism is only the epistemology. And this eleutherological-conjecturalist libertarianism is only “third” compared to B11’s two: deontologism versus utilitarianism (or, probably more accurately, consequentialism); B11 omits contractarianism and other possible ‘bases’ (i.e., explanations). The desirability of the ideology of libertarianism has to be a conjecture that can be explained and defended but not supported, as we necessarily have assumptions all the way down. Epistemologically, there is *no* “basis of libertarianism”. There are, of course, different conjectural approaches that are used to explain and defend it.

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. (128)

An explanation of critical-rationalist libertarianism is offered in L14, and B19 offers no sound criticism of it. Lapsing back into complaining that there is “no justification” or “evidence for” that explanation is to fail to address its arguments that there cannot be such things.

... no refutation is ever justified either.” But if this is true, it is difficult to see how he can refute my refutation of Friedman (128)

By offering conjectural refutations that themselves withstand criticism (and so they may be provisionally conjectured to be sound).

after relieving himself of these skeptical thoughts, he leaves off them and never discusses them again. (129)

L14 contains objective fallibilistic arguments rather than any “skeptical thoughts”. Critical rationalism is explicitly cited in the later sections 3.5, 4, and dealt with at length in the appendix (although that

is not a reply to B11). Moreover, it is the epistemology that is assumed and evident throughout L14. Without understanding this, the rest of the text is liable to justificationist misinterpretations of just the kinds that B19 does fall into (as will be seen).

B19 then quotes L14 as it outlines a theory of libertarian *liberty*, and comments that “even at this early stage of the development of his views, he is not fully correct” (129). In other words, B19 is not criticising L14 as though it is offering a philosophical theory of liberty but, rather, as though it were a misunderstanding of the overall theory of libertarianism assumed in B19. In fact, B19 itself offers no theory of liberty whatsoever and does not appear to recognise that this absence is a problem for its so-called “libertarianism”.

B19 asserts that with,

libertarianism ... it is fully compatible with this view of what the law should be that some people are “constrained by other people’s interferences.” (129)

1) L14 is not, at that point, outlining an overall theory of “libertarianism” but an abstract theory of the relevant kind of *liberty*. 2) It is explicitly stated that this is a “pre-propertarian” theory; but B19’s quotation cuts off just before that crucial part of the text. 3) Any discussion of “law” is irrelevant to the abstract theory at this stage. Therefore, the succeeding discussion assuming “I buy a loaf of bread”, etc., is also irrelevant. B19 then makes the same mistakes when criticising “proactively imposed costs”.

Nevertheless, the things that B19 says here are approximately correct as regards the best ways to promote maximum liberty in practice. But this can only be philosophically understood after, 1) explaining the abstract theory of interpersonal liberty, 2) deriving what the libertarian policies should be in principle if full liberty is not possible or not observed, 3) deriving what is objectively entailed as regards instantiating that liberty in normal practice, and 4) explaining the libertarian usefulness of institutionalising these things as property where appropriate (normative defences

of such libertarianism is a fifth stage).⁶ Therefore, B19 is trying to run before it has learnt to walk as regards these philosophical matters.⁷ It is, of course, possible to explain and defend a crude 'libertarianism' on purely propertarian assumptions that ignore all the philosophical issues. But it is not possible to refute philosophical arguments on the subject with dogmatic propertarian assumptions.

B19 quotes L14's "three possible problems" with B11's "nonaggression principle" (NAP):⁸

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 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. (129)

B19 quotes B11 at greater length than did L14, then says, "I do not think it is incumbent upon me to take back a single word of this statement" and proceeds to elaborate. How does the elaboration answer any of L14's "three possible problems"?

1) L14's first point is a reference to the arguments of critical rationalism about the impossibility of "grounding or justifying" (of which B19 had erroneously said L14 "never discusses them again"). B19 appears to misinterpret this as a request for "either 'explaining' or 'justifying'" the NAP. B19 then asks, "Does Lester believe that the NAP has nothing to do with libertarianism?" Answer: it is one approximate and confused shorthand way of stating what libertarianism usually requires, but only after libertarian property

has—after several stages—been derived from applying an abstract libertarian theory of liberty.

2) B19 actually admits that "shoplifters, and pickpocket[s ...] and those who engage in bad check writing and other types of fraud are not 'violent'." Right, then the account that "no one may properly initiate violence against another person" cannot *literally* be a correct explanation of the NAP. Yet B19 still insists that L14,

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 part of the criminal. (129-130)

But B19 has just admitted that such criminals are "not 'violent'". Therefore, the police, ipso facto, must use violence first. However, B19 could make sense if "violence" were only changed to "property violation" (or "legitimate-property violation", where "legitimate" requires further explanation as to how it relates to a theory of liberty). Writing coherently in English, instead of careless contradictory nonsense, is all that is required.

3) B19 says nothing whatsoever about "any actual theory of liberty".

On all three points, then, B19 has failed to respond even slightly adequately. Instead, B19 has repeated some of the dogmata of NAP 'libertarianism'. This is just the sort of response that is typical of an approach that assumes that a position is 'justified' and so any criticisms of it can be dismissed as based on a misunderstanding that only can be remedied by further study of the 'full justification'. Hence, again, the relevance of critical rationalism to dispel this dogmatic delusion.

⁶ For a one-page explanation of "How Abstract Liberty Relates to Private Property" see Lester, 2020a. For a one-page guide to "Eleutherological-Conjecturalist Libertarianism" see Lester, 2020b.

⁷ Some of the more elementary errors might have been avoided if B19 were to have been informed by chapter ten of the same book that includes L14.

But now there is a better introduction that is Lester, 2019 (but it might be best to first read Lester, 2020a and 2020b).

⁸ It is not accurate for B19 to interpret these criticisms as a personal reproach: "Lester upbraids me".

“2 INITIAL CRITICISMS”

“2.1 Initiation of coercion”

B11’s analysis of the Nazi-guard example is solely supposed to “establish a distinction, no, a chasm, between law and morality” (B11, 4). L14 briefly explains that the example is unnecessarily problematic as regards what it is supposed to “establish” and so a simpler example is preferable. B19 is at pains to defend B11’s analysis. But L14’s point is not that the analysis is demonstrably flawed; it is that it introduces too many gratuitously complicated and irrelevant elements to make for a clear argument to defend B11’s thesis. That is bad philosophical method. Therefore, it is pointless to attempt to go into the example in any detail. Finally, B19 asserts that L14 “casts doubt on the veracity of the actual Nuremberg findings”. This is a completely inaccurate and even libellous interpretation. L14 merely points out that “without going into details, the Nuremberg Court is problematic as an example of libertarian law in action”. The “veracity” of the “findings” is not mentioned. It clearly wasn’t a libertarian court: set up and run on libertarian principles to apply libertarian law. Again and again B19 resorts to hyperbolic, inaccurate, logically invalid, rhetoric when what is required is careful, precise, philosophical analysis.

B19 then quotes at length L14’s car-stealing example and explanation that,

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. (131)

And L14 goes on to explain how libertarianism “it is not inherently about law at all and it is inherently about morals (qua ideology)”.

Bizarrely, B19 says “libertarianism solely concerns ‘what the law ought to be.’ Lester and I agree on that” (131). No. L14 explicitly states and argues otherwise and is actually quoted doing so by B19 (indented above). And B19 fails to fault what L14 says. Libertarianism is, first and foremost, an ideology about the desirability and morality of interpersonal liberty (the clue is in the name). In practice, this will usually involve having property

rights that fit such liberty. But in theory, it could involve people interacting on a consensual basis without the institution of the law even existing. However, B19 has no explicit theory of interpersonal liberty; it has only a theory of absolute property that is labelled “libertarianism” for no apparent reason.

B19 does not offer precise criticisms of the arguments in L14. Instead, it attempts to elaborate its own theory of so-called “libertarianism”. B19 says,

Stipulate that it is immoral to get drunk, to engage in prostitution, to commit suicide. ... They are all compatible with this ideology. Thus, “libertarianism is[”] *not at all* [”]partly a moral theory.” (131)

The main problem here is “thus”. Stipulate that “libertarianism [or, for instance, veganism] is partly a moral theory” (as most libertarians, or vegans, surely believe). It does not follow that it is the whole of morality. Therefore, finding that something is “immoral” but compatible with libertarianism (or veganism) is not a refutation. And it is not inconsistent to hold both that activity X is immoral and that it would be even more immoral to forcibly prevent X.

B19 continues,

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. (131)

1) Libertarianism, as an ideology, usually involves indefinitely many “factual theses” (i.e., positive and not normative theories) about how the human world operates. Thus, the first sentence, as it literally stands, is itself an “error”. 2) B19 is actually agreeing with L14 when it states that it “is a positive statement, not a normative one” that “liberty generally promotes human welfare”. 3) The final proposition uses “latter”, which on a natural reading refers to “normative” when it presumably intends “positive”. 4) How can even B19’s “libertarianism” be entirely “positive” when B19 states that “libertarianism solely concerns ‘what the law *ought* to be” (131)? How can that “ought” not be moral? As ever, B19 offers careless reading, careless writing, and careless logic. As a

philosophical argument, the whole essay reads like a paradigm of the Dunning–Kruger effect.

B19 then alleges a “blatant” contradiction among three statements in L14: that libertarianism is (to focus on the relevant words) 1) “at most, a theory of what the law ought to be”, 2) “not inherently about law at all and it is inherently about morals”, and 3) “not a theory of law, as such, and there might not even need to be laws in a libertarian society” (B19 misleadingly quotes this, here unexplained, conclusion taken from the *next* section). Viewing these statements as contradictory is more careless reading and reasoning in B19.⁹ The same points can be expressed in slightly different form, just in case that helps. 1) Libertarianism (or, by analogy, utilitarianism) can be *applied* to what the law ought to be. 2) That means that libertarianism (or utilitarianism) is not inherently a theory of law (or it could not exist *prior* to the law in order to be *applied* to it). However, *advocating* interpersonal liberty is, at least typically (but see 3.2), inherently moral. 3) Therefore, libertarianism (or utilitarianism) is not in itself a theory of law and, in theory (i.e., conceivably), a society could have maximal liberty (or utility) without having law. Any careful reading ought to show that there are no “blatant”, or even implicit, contradictions here. The confusion might be being partly caused by the fact that B19 has no explicit theory of liberty (and refuses to acknowledge that fact or discuss why that is). Therefore, it can only jump straight into some version of ‘libertarianism’-in-practice and misperceive this as ‘what libertarianism really is’. Utilitarian texts typically explain what utility is before it is then applied. Why can’t “libertarian” texts explain what liberty is before it is then applied? Because they are philosophically shallow¹⁰ (even Philistine) and really private-propertarian first and foremost.

Concerning the second part of the third point, B19 asserts that

Lester falls into the Marxist trap of thinking that under a libertarian society, [t]here 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. (131, footnote 12)

Here B19 has omitted the more explanatory part from the section that is supposed to be under discussion: “if a society were to comprise only libertarian people, then – in principle – there might not need to be any law”. It ought to be clear that this is a thought-experiment about what is conceivable and not any kind of assertion about what is realistic. It assumes away, for the sake of argument, just what B19 is invalidly reintroducing: “that there will still be a few murderers, rapists, thieves and other reprobates”. (That said, who knows how civilised a libertarian society of abundance might eventually become in the indefinitely far future?)

“2.2 Absolute control”

Friedman severely upbraided Rothbard (1982A) over radio waves, and Lester followed suit. What did Rothbard do to deserve such calumny? (131)

At no point is any person “severely upbraided” in L14. There are only philosophical criticisms and arguments. More absurd still is B19’s accusation (calumny?) of “calumny”: “a misrepresentation intended to harm another’s reputation” (*The Merriam-Webster Dictionary*).

B19 then quotes Rothbard on this issue and L14’s criticism. B19 says that,

low-level radiation ... is “all around us.” That is to say, it most certainly is not “objectively

⁹ It is philosophically on a par with reading a theoretical libertarian defence of contractual slavery and then interpreting that as a defence of actual historical slavery as it was practised in the U.S.

¹⁰ This includes Nozick, 1974; which is undoubtedly philosophically sophisticated but ultimately at a shallow level.

invasive of other people's property," or their persons. (132)

This is clearly confused. Natural low-level radiation penetrates (or is "objectively invasive", in a non-normative sense) people and their property. But when person A uses a device such as a mobile phone that generates a source of low-level radiation that does this to person B or his property, then A has proactively imposed this radiation on B. However, as B19's quoted articles explain, it is trivial and not known to affect health adversely. Moreover, it is often reciprocal: many people use mobile phones and highly value their usage. Hence maximising liberty seems to entail toleration of such devices.

B19 continues,

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. (133)

L14 points out three fairly obvious theoretical problems with B11's quoted criterion that "What counts is whether the senses of the property owner are interfered with". L14 does *not* assert that radio waves cause "damage". Therefore, this is a strawman attack by B19. Incidentally, this is the first time that B19 itself uses the word "liberty" (rather than quoting L14's use of that word). Unfortunately, we are still not told what L19 understands by "liberty".

B19 adds,

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. (133)

This paragraph epitomises the problems with B19. Some points can be enumerated. 1) This simply ignores the very different theories of liberty and libertarianism explained and applied in L14. 2) Instead, it merely briefly outlines the problematic theory that L19 advocates. 3) "Under libertarianism" implies that the interpretation of libertarianism that B19 wishes to defend is the correct and sole version. 4) Suddenly this paragraph switches from the topic of liberty to the different topic of "rights". 5) Are these supposed to be rights to liberty? If so, there must first be something that liberty is, both in practice and in abstract theory. We are not told what in either case. 6) It is a separate question when and how there are rights to such things.

"2.3 Super flashlights"

B19 asserts,

the everyday flashlight cannot violate property rights by being shined on a house. (134)

When a torch (flashlight) is shone on a house, then it is objectively the case that photons are being proactively imposed on the property of the house owner. In the normal case, of course, this is not anything that the owner cares about; and so it can and will be ignored.

He offers no solution to this "problem" apart from his very subjective weighting of greater and lesser impositions. (134)

In the assumed example, one person's property is being objectively imposed on ('photon trespass') by another person's activities. Assume that the eccentric and curmudgeonly house owner objects to the light's being shone on his house. Then by absolute property rights it looks as though he can veto it. However, this only looks at half the problem. If his neighbour cannot use his torch normally, or even switch on his house lights without blackout blinds, then he would typically thereby be being proactively imposed on to an even greater degree. This is not "very subjective": 'reasonable man' standards could usually be used to solve the problems of any such clashes of liberty. However, there is an inherently ineradicable subjective aspect to all liberty—as

B19 might have discovered if it had attempted to formulate an abstract theory of interpersonal liberty (or been informed by more of the essays in the same book as L14).

B19 offers what is supposed to be a “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. (134)

It appears, *ex hypothesi*, that a trade might be possible. However, in the absence of a trade the punch proactively imposes on another person and thus flouts liberty. GDP has nothing to do with it. This is the sort of irrelevant confusion that occurs because B19 is informed solely by economic and propertarian theory rather than by any grasp of the philosophical arguments.

After a confused digression, B19 then jumps to quote the end of the next section:

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.’ (135)

B19 comments,

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. (135)

But this will not do. L14 is supposing, *for the sake of argument*, that there are “detectable but insignificant harms”. It is absurd for B19 to counter that there are no such harms in fact.

B19 continues:

If we take Lester’s claims to their logical conclusion [...] the courts will be inundated by all sorts of highly irregular claims. The proper reaction is to [...] dismiss them on the basis of being frivolous lawsuits. (135)

If the harms are known to be “insignificant”, then there is no reason to expect them to go to court. But if some case were brought, then of course it would be dismissed. However, it would not be dismissed on the basis that there were no “harm” (strictly, proactive imposition: which, *ex hypothesi*, there is), but because it is obviously trivial compared to the serious proactive imposition of disallowing the behaviours that bring it about.

“2.4 Probability of risk”

B19 quotes L14’s analysis of the libertarian response to plane-crash risks, and responds:

In my view, in contrast, no “weighing” is necessary. The issue is, is flying a plane a threat to those on the ground, not whether or not it is a risk. (135)

A threat that is extremely unlikely to occur is, *ipso facto*, still a threat. And clearly there is a very small threat. That threat can only be understood and quantified as a statistical risk. And it is proactively imposed on the people on the ground. (Obviously, “threat” here is being used to mean the mere possibility of an unwanted occurrence, not an attempt to bring about someone else’s compliance.)

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. (135)

An accident is incompatible with either of the crimes of assault or battery.

Given air safety records, they do not impose a threat. (135)

This is argument by denying the facts or redefining words. An extremely small threat is still 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. (135)

By what abstract theory of liberty, or practical libertarianism contingently shown to be implied by such a theory, does a risk or threat become proscribable? We are not told. And what of the proactive imposition on the people that are

thereby disallowed that activity? By what principle do we determine whether any compensation is due? We are not told. Again, B19's ad hoc interpretation of a theory of mere propertarianism is being presented as "libertarianism" simpliciter. Of course, there is a tacit theory of liberty that informs B19's interpretations. But it requires philosophy to make it explicit.

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. (136)

The problem is that the "non-aggression principle"—even combined with "homesteading"—is a sort of obscure and confused theory of what perfect liberty involves. But it is not practical as a rule because so-called "aggressions" (where our activities proactively impose on other people and their property to some degree) are inevitable in practice. B19 implicitly holds that "aggressions" cease to be "aggressions" when they are sufficiently small. But this is arbitrary. And what if there are clashing proactive impositions between two parties that are not small?

We need courts, hopefully, private ones, 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. (136)

Courts would likely exist to deal with some "gray areas". However, they would require a proper theory of liberty if they are to deal with such cases in a principled and more precise libertarian way. Ad hoc practical rulings within B19's purely physical propertarian system would be approximate at best.

The NAP remains "intact and unscathed" as a principle, the attempts by Friedman and Lester to undermine it notwithstanding; (136)

As has been shown (but not necessarily understood), the "NAP" is an incoherent theoretical mess.

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. (136)

The "NAP", plus anything, cannot be the solution to the problem that the "NAP" inherently entails problems (as has been explained). However, a proper theory of liberty can be used to solve all of the problems as to what libertarianism entails—including in that subset that comprises the law.

B19 concludes the section thus:

Let us end this section by considering Lester's view on the justification of self-ownership. (136)

L14 offers no such "view". Self-ownership can be explained and defended by applying the abstract theory of liberty. However, it remains a conjecture for which there cannot be a supporting "justification".

Then B19 quotes footnote 10 in L14:

"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.[11] 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." (136)

To add some more detail: we can use the abstract theory of liberty to contingently derive that people must have ultimate control over their bodies (the bodies that they more or less are) if liberty is to be maximised in practice (the libertarian policy); only then can we add that institutionalising this as the

¹¹ It is trivial because all that we are being *proactively* denied are the natural resources that

make up that other body. And we have similar use of resources in our own bodies.

property right of self-ownership is contingently likely to make this ultimate control over their bodies more secure, and thereby more libertarian in practice.

B19 comments:

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. (136)

L14 explains how self-ownership and external property is contingently derivable from an abstract theory of interpersonal liberty. Such a theory is necessary if we are to explain how certain property rights fit liberty while others don't. B19 completely misses the point, as ever. The implied putative reductio is another irrelevant ramble. L14 does not imply that “the physician should be compelled to at least postpone his vacation if not cancel it entirely”. And L14 is not applying “utilitarianism” at all but a theory of liberty. What is the theory of liberty in B19? There is none. L14 implies the same propertarian conclusions as B19 in the imagined scenario. The only difference is that L14 can explain the relationship to interpersonal liberty. But the only way to understand this, and even fault it if it is faulty, is to go back to the philosophical arguments and criticise them carefully and precisely.

“2.5 Homesteading”

B19 asserts that,

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. (136)

L14 makes no such assertion or implication. And B19 “offers no evidence for this false belief”, such as providing a quotation. B11 asks “where oh where did Friedman get the pernicious idea that ‘land starts out belonging equally to everyone?’”. And L14 merely points out that “it is famously repeated many times (the expression ‘in common’ 29 times) in Locke's *Second Treatise of Civil Government*”.

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. (136)

One tool of philosophy is separating ideas that are conflated. The point is that B11's *only* theory of actual “homesteading” (initial acquisition) appears simply to be Locke's “mixing one's labor” theory. And it is not any part of that “homesteading” theory in itself whether the land is unowned, or owned in common, or any of an indefinite number of alternative initial circumstances. Perhaps Locke's initial-acquisition principle is logically incompatible with his assumption of common ownership (for how is it possible that other owners-in-common have no say?). But that possible incompatibility appears to illustrate that Locke's initial-acquisition theory must be independent of his theory of initial circumstances. A screwdriver can still be theorised as a tool for dealing with screws even if one's assumed circumstances involve no screws. Moreover, as is even quoted in L14, the *Second Treatise* apparently ignores the common-ownership assumption in favour of a more neutral account where it asserts: “when he takes something from the state that nature has provided

and left it in, he mixes his labour with it, thus joining to it something that is his own; and in that way he makes it his property.”

B19 then quotes L14’s three questions and answers concerning this “homesteading” theory and provides comments after each; which comments will be dealt with in turn at appropriate points.

“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.” (136)

The abstract theory of interpersonal liberty defended in L14 and here may be summarised as “the absence of [the constraints that are] interpersonal proactive impositions [of costs]”. When there are clashes of such impositions we can only “minimize” them as the most libertarian *policy*. B19 here appears both to accept this abstract libertarian policy and to assert that, but not explain how, it is “highly problematic”. No relationship between “homesteading” and “a clear theory of liberty”—which L14 specifically asks for here—is given in B19.

private property rights are hardly “ad hoc additions.” (136)

L14 does not mention “private property rights” at all in either its question or its answer—let alone assert, as B19 implies, that they are “ad hoc additions”. L14 is asking for an explanation of “homesteading” that is “in terms of liberty itself and not ad hoc additions”. The “ad hoc additions” are anything that are not “liberty itself”. Of course, B19 is assuming that “homesteading” immediately and unproblematically creates “private property rights”. But where does a theory of liberty fit in? That is what L14 is asking. L14 gives a philosophical answer. B19 does not and cannot, as it simply starts and finishes with property and property alone. L14’s philosophical answer has several stages that can, again, briefly be distinguished (but not explained and defended in detail here). 1) There is an abstract (non-propertarian and non-normative) theory of interpersonal liberty in itself: ‘the absence of constraints that are interpersonal proactively imposed costs’ (‘no proactive impositions’, for short). 2) This implies the

libertarian practical policy: in the event of contingent practical clashes over resources, there can only be a maximisation of such liberty. 3) The abstract theory and the practical policy are then used to derive what this implies in a state of nature: ultimate control of one’s body and of unused resources that one starts to use, with consensual interactions and exchanges thereafter (plus full restitution for infractions). 4) Only at a fourth stage is it a practical implication of the libertarian policy that this ultimate control of resources can better be protected by institutionalising it as property that is protectable by enforceable law. 5) Defending (rather than illogical attempts at ‘supporting’ or ‘justifying’) the conjectural desirability of such a positive libertarian system from any and all criticisms. B19 simply leaps to the fourth propertarian stage without any philosophical background to explain how this property relates to a theory of liberty. Moreover, B19 conflates the fourth stage with an illogical version of the fifth stage: such ‘libertarian’ property is supposed to be ‘supported’ by being somehow axiomatically just.

Rather, they, along with the NAP, are the very heart and soul of this philosophy. (136)

As we have seen, there is no “philosophy” in B19’s account. There is only a confused dogmatic catechism of propertarianism, of the kind that B19 advocates, including the “NAP”. The “NAP”, as has been shown, is unclear as regards so-called “aggression” (“violation” would be only somewhat clearer) and incapable of universal application because its inherent absolutism (“non” being, ipso facto, absolutist) cannot deal with the clashes that it implies in practice. B19 asserts that this mere absolutist propertarianism is “libertarianism” without explaining any philosophical relationship to liberty. However, none of the philosophical texts that defend this version of “libertarianism” are much better than B19. More surprising still, very few of the texts that criticise it are much better either. But at least both kinds are usually trying to deal with philosophical problems by attempting philosophical solutions.

Without private property rights, both in persons and in physical possessions, the very NAP makes no sense whatsoever. (136)

As has been shown, even with private property rights the “NAP” is at best confused and indeterminate.

For, what is a kick in the teeth apart from a violation of someone’s property in their own body? (136)

Good question. In fact, a “kick in the teeth” can be understood in an indefinitely large number of ways depending on the problem that one is trying to solve. Most relevant here, however, is that it is a proactive imposition by one person on another (assuming, as B19 appears to do, no background that makes this proportional defence, retaliation, or a voluntary fight, etc.). As interpersonal liberty is the *absence* of interpersonal proactive impositions, a “kick in the teeth” thereby flouts the liberty of the attacked person. There is no need whatsoever to mention the institution of property. In a world without property it would still flout interpersonal liberty. B19 is so blinkered by crude and dogmatic propertarianism that it cannot see anything except in terms of property. But this might have been different if it had at least attempted to explain the relationship of liberty to property.

“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. (137)

It is possible to be “using” something without “mixing labor” with it: one can be “using” the position of the sun to tell the time, but one is not “mixing labor” with the sun. Conversely, it is possible to engage in “mixing labour” with something without thereby “using” it: to walk across unwanted mud is to be “mixing labor” (the labour of one’s walk) with the mud, as the footprints attest, but one is not thereby “using” the mud. The idea that the English language itself shows “using” and “mixing labor” to be logically interderivable is fatuous. Philosophical problems are rarely, if ever, solved by resorting to the meanings of words, perhaps as found in dictionaries (which, in any case, merely record usage and not essential meanings).

B19 correctly criticises the labour theory of value, and then continues,

The “labor theory of initial acquisition” ... 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. (137)

This is a theory of initial acquisition that is *just* (but what is the general theory of justice?). Apart from conflating labour-mingling and use, it tells us nothing about how liberty is relevant.

B19 accepts that the “challenge regarding the ‘sacred grove,’ or the ‘beauty spot,’ or the ‘nature preserve’ is an important one” and refers the reader to another publication on the subject. However, footnote 19 gives a

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 mice, elsewhere, and then setting them loose in the soon to be privately owned, but not touched by human hands or feet, nature preserve. (137)

Presumably, this claim to “homestead land indirectly” must mean to mix one’s own labour “indirectly”. It’s my land because I caused animals, insects, etc., to enter it. This is both ad hoc and unclear. If these things count as mixing one’s own labour “indirectly” with land, then there is no clear account or limit as to what that really means. One may as well say that one deliberately breathed out carbon dioxide over some land and thereby homesteaded it, because of all the flora that eventually but inevitably took in some molecules of that carbon dioxide. Or maybe one flew overhead sprinkling water far and wide. This is the same sort of unconvincing and arbitrary approach used to attempt to deal with the problems with clashes of absolute property rights.

B19 presses on:

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 (137)

In a world where land, its attributes, and location—were not scarce, such a boundary (with the intention of possessing all the land within it, for whatever purpose) might be a sufficient claim to ultimate control by the theory of liberty (and that ultimate control might then be institutionalised as property). The next person could simply, ex hypothesi, take another patch of equally good land and do the same, or whatever else he wanted. Other things being equal, it would be more of a proactive imposition to interfere with someone's current use of that land for whatever project he has, than it would be to require that people take another area of land for themselves. However, we do not live in such a world. In reality, land, its attributes, and location are scarce resources. Consequently, it is possible to initiate possession of so much land (which one did not, after all, create) that one proactively imposes to a significant degree on other people. If Ohio and, say, all the other 'states' (their land) were similarly originally possessed by only fifty single people, then that would have been a huge proactive imposition on all the people who would otherwise have found uses for this natural resource of land. And the same analysis would apply even if all of these owners had actually mixed their labour, whether directly or indirectly. Therefore, there is some theoretical limit here; but it cannot be made physically precise because it will be affected by contingent circumstances (and libertarian courts might need to adjudicate any conflicting claims by applying the theory of liberty and the liberty-maximisation policy). However, this does not entail that there is some definite upper limit to one person's land possession; nor does it entail that possession always remains equally open to such libertarian challenge. As economic development proceeds, land in itself (rather than what has been built on it, or its location, etc.) becomes relatively less valuable and consensual transfer almost always becomes the least proactively imposing (i.e., liberty-maximising) option. Obviously, all this is far more theoretically complex and abstract than simple labour-mixing and absolute property rights. But, as we have seen, those two simplistic assumptions imply irresolvable problems and they are bereft of any philosophical link to liberty.

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. (137)

Presumably, with "indirect" labour-mixing (B19's insects, or a fine spray of insecticide, or even mere water; dropped from a plane, or whatever) it might be relatively easy to "homestead" vast areas.

Even worse, however, is, who is to say what is "inside" and what is "outside" of this periphery? Whenever a (squarish) circle is imposed upon a sphere such as earth, it is entirely arbitrary to claim that the smaller area is "inside" and that the bigger one is "outside." (137-8)

It can only be up to the boundary-builder to say what he intends by his boundary. But what he intends might be incompatible with liberty.

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. (138)

As we have seen, there is no such implication. B19 is even more confused about the theory of liberty and how it applies than about labour-mixing and absolute property rights.

"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. (138)

And the same result follows from applying the theory of liberty. There is no proactively imposed interpersonal cost here.

Now let me pose a counter question to Lester, and, also, answer it for him. 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, (138)

There is simply no clash in this example between B19's interpretation of "private property rights, and the NAP" and correctly interpreted "Lesternomics". The abstract theory of liberty, when applied, entails private property that fits liberty; which it does in the example. This is not in any way an economics theory, as the portmanteau "Lesternomics" appears to suggest. It is an abstract eleutherological-conjecturalist philosophical theory of libertarianism (however, if one must eponymise it, 'Lesterism' is both shorter and necessarily correct).

where private property rights can be abrogated, and the NAP violated, as long as someone, thinks that by doing so, this will "minimize interpersonal proactive impositions?" (138)

It is not a matter of what "someone, thinks". It is a matter of what factually minimises interpersonal proactive impositions. Apart from exceptional cases, strict private property will do this. B19 does not present here even a prima facie clash between absolute private property and what the theory of liberty entails.

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. It is also the one most likely to get us to Mars, when we need to do so. (138)

Presumably, "economic freedom" is the ability to use your property as you wish. How that ability and property relates to liberty is not explained in B19. If property is derivable from applying the theory of liberty—and is both just and economically efficient—it might be "the only just system" and "the most prosperous one"—also "most likely to get us to Mars, when we need to do so" (the latter two points being consequentialist). However, that it is "just" and also "most prosperous" are entirely separate conjectures and not part of the theories of what liberty is in the abstract or how it applies to the world in terms of property.

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. (138)

This utilitarian (or consequentialist, at least) long-run defence by B19 is approximately correct as regards the long-run (except that the NAP does not make proper sense in itself and entails clashes of absolute property rights). But it does not adequately deal with the specific problem posed in L14: "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?" (116). L14 goes on to explain that the owner

is, ex hypothesi, not the producer or the creator or—we may suppose—even the preserver of the water itself (no matter how much labour-mingling was involved). He is merely in the way of others who need that natural water supply. Therefore, the libertarian principle of minimizing interpersonal proactive impositions (or constraints, etc.) overrides his ownership. (L14, 116)

B19 asks,

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. (138)

There is a third more-libertarian option. There are relatively rare cases where an owner proactively imposes by his ownership of a natural resource, such as has been supposed here. Another example would be if a landowner wouldn't allow someone to escape from some life-threatening disaster by a brief trespass across his land as the only escape route. In such cases, liberty entails that absolute property rights be modified just enough to stop the greater proactive imposition. This maximisation of liberty need not in any way

undermine general private-property rights or require any state involvement. In new or unusual cases matters might have to be taken to a libertarian court to work out the most libertarian solution. In regularly occurring cases, such as needing to escape across someone's land, what is allowed and required would probably become common knowledge. Exactly what is required will always depend on the contingent details of the problem. What about our owner of the sole natural water supply in a drought? Assume, *ad arguendo*, an inexhaustible aquifer entirely under the middle of his land with no practical way of slant-drilling, etc., before there are many deaths by thirst. Then the owner might be required by a libertarian court to somehow allow access to that water until the drought ended (but compensation for any inconvenience, costs, or damage to him will be due). This is because, *ex hypothesi*, people would have had access to that water if he were simply never there. Strict private property usually maximises liberty but there are exceptions.

Libertarianism, properly [understood], does not countenance anyone[s] "overrid(ing) ([anyone] else's) ownership." (138)

B19's theory of "libertarianism" is only one among competing theories. And it is one without any theory of liberty to explain anything at all. Whether the liberty that libertarianism assumes, whether explicitly or implicitly, ever allows any overriding of ownership is a philosophical question. That question cannot properly be answered by dogmatically asserting that "libertarianism, properly [understood]" entails absolute property rights.

We have a word for such "overriding." It is called theft. This is anathema to liberty, its polar opposite. (138)

One type of interference with liberty is theft. Many other interferences are not theft (assault, land trespass, criminal damage, etc.). To be incompatible is not necessarily to be a "polar opposite". The "polar opposite" of theft is possibly charity. The "polar opposite" of liberty is something more like totalitarianism.

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-proprietarian" is to seriously misunderstand and deprecate this viewpoint. (138)

The "NAP" is only a way of saying "private property rights that are not 'overridden'". "The other side" of the coin has to be "homesteading" itself (how property is initially acquired). As has been shown, this essay has a better understanding of B19's "viewpoint" than B19 does itself. At the same time, B19 has utterly failed to grasp or adequately reply to any of the philosophical arguments in L14.

"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. (139)

In fact, L14 follows the organisation of B11. Hence the quotation marks in L14.

"2.7 Crime and punishment"

B19 objects to L14's assertion that "to duly convict and punish an innocent man who one honestly believes is almost certainly guilty would be possibly tortious but not criminal." It responds, "Motive schmotive" if someone "is a kidnapper in effect, if not in intention, and kidnapping is a crime, [then he] is a criminal" (139). B19 advocates that if the "policeman, judge, or jailer" is found to have "erred, they would pay for their mistake not only in terms of lost revenue but with actual criminal charges". Perhaps that would include any jury members that "erred" as well. It is hard to see how such a system could function. However, much common-law-based criminal law usually requires both an *actus reus* (a guilty act) and a *mens rea* (a guilty mind). If we don't make this intuitive and useful distinction, then that appears to imply that all unintended wrongs are always also crimes. Hence, libertarian legal systems would be highly unlikely to abandon it completely.

"2.8 Extent of punishment"

B19 rehearses how, according to Rothbardism, "proper libertarian punishment consists of four levels" (140). It does not explain how these relate to a theory of liberty. Then it asserts,

Lester objects to the second of these payments on the ground that they are “somewhat arbitrary.” (140)

No, L14 objects that all of “Block’s reply provides no clear theoretical connection to liberty and is somewhat arbitrary as a consequence”. Quite a different criticism. There is no objection, in fact, in L14 to the view that “the punishment should fit the crime”. Relating what is done to liberty is the sole issue.

B19 quotes L14 and then says,

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. (140)

Libertarianism requires full rectification to undo any infractions of liberty. If you have full rectification for a criminal infraction of liberty, then liberty has—ipso facto—been fully restored. You are, *ex hypothesi*, not worse off than before. Nothing further needs to be done. You are, however, at liberty to take all—or any part—of your rectification as retribution: reactively imposing up to equivalent damage. But to go beyond full rectification, however you take it, would itself be to proactively impose on the original imposer. B19 advocates both full rectification and then to have it all again as an additional “punishment”. This is an arbitrary proactive imposition that has no basis in a theory of liberty. It is the infliction of an equivalent amount of a proactive imposition but on the original imposer. What appears to be at play here (as B19 next goes on to make plain) is a background assumption that without such additional punishment there would be insufficient deterrence of criminal activity. But in the specific example in question there is no attempt to evade rectification and therefore the risk-multiplier¹² (proportional to the statistical chance of evasion) does not come into play. Biblical *lex talionis* might usually be some approximation to the correct libertarian rectification for crime only because there is usually the attempt to evade detection. However, that will probably fall far short of most risk-multiplier calculations.

B19 then asserts that L14 “looks askance at forcing the criminal to pay for the costs of searching for and capturing him” (141). No, L14 merely explains how “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”. B19 says, “this amounts to coddling the criminal”. But this is an irony given that libertarian risk-multiplier rectification will usually exceed anything in B19’s arbitrary theory.

“2.9 The madman”

B19 quotes L14’s explanation of a clash—i.e., incompatibility—of (liberty-derived property) rights. To make it clear, the clash is that—in the supposed scenario—we cannot have both, 1) observance of the right of the crowd not to suffer some murders, and 2) observance of the right of the gun-owner to *repossess* (not merely to keep in the first place) his weapon from the person taking it to shoot the prospective murderer. Logically, the observance of one or other right must now be breached: either some murders must occur or the owner of the gun must unwillingly go without his gun for a while. There is no clash between the right of the owner to hold on to his gun throughout and the right of the crowd not suffer some murders. Thus, there is no direct—or inherent—clash between the libertarian rights in question. But an indirect clash becomes unavoidable once the gun is seized. B19 holds that that there is not even an indirect clash and that it would be a problem for libertarianism if there were. Both of these propositions appear to be false. The relevant part is where B19 says,

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. (142)

There is, indeed, no clash there. But that is not the clashing situation. We need to suppose that the rifle has already been seized against consent in order to stop the murders. Then we have two possibilities: either the gun-seizing “hero” protects

¹² See Lester, 2000.

the rights of the crowd, or the gun is immediately returned to its rightful owner. Once at that stage, it is impossible for both rights to be observed. But this does not seem to be a serious theoretical problem for libertarianism. As L14 observes, matters can be rectified—even assuming deontological libertarianism—by the gun-seizer later paying full restitution to the owner (which members of the crowd may well wish to pay on his behalf).

B19 continues,

If I have a right to something, you have an obligation to support me. (142)

This appears to be a slip. On a natural interpretation it does not appear libertarian. We usually only require non-interference, not positive “support”.

B19 then correctly lists several “negative rights”, but concludes

the so-called right to “self-preservation” is a positive right. For, if I indeed do have a right to self-preservation, you have an obligation to preserve my life. (142)

It does not follow from the assumption of a self-preservation right that anyone has an obligation to help with someone’s self-preservation. It does not clash with that right to let people perish. And if someone breaches libertarian property in order to preserve his own life, then he still owes full libertarian compensation for that breach.

B19 then cites three examples given in L14,

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.” (142)

B19 asserts that the “hiker is a criminal trespasser” (143). Trespass to land, on its own, is not usually regarded as a crime: people are not given criminal

records merely for wandering on to someone else’s land without permission. It seems doubtful that libertarian courts would change this. However, breaking and entering is a crime. B19 then proceeds to say nothing that contradicts anything actually stated or implied in L14, and concludes with a more extreme position than that taken in L14, “invade the premises of the cabin owner, by all means. But, also, admit you are a criminal, and pay what is owed by you” (143). To put it mildly, there is no libertarian obligation to encourage people to “invade ... by all means”.

B19 then rehearses the flagpole-faller case and tells us that,

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 ... the woman was raped last week by someone who looks just like him, and fears for her safety. (143)

According to B19’s footnote 27, at least, she shoots him (but, apparently, unnecessarily¹³). Even if he is the very same rapist, why can’t she shut and lock her deck door and hold him at bay through the glass with the gun while she phones for the police (but shoot him if he tries to break in), or simply run away? We are not told. The scenario is somewhat under-specified. Inflicting an unnecessary death for trespassing is itself to proactively impose hugely on the trespasser. It is absurd for B19 to ask and answer,

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. (143)

She has both the rights and the means to protect herself without resorting to what even a fully libertarian court might regard as manslaughter, at least. It is possible, of course, to come up with a more highly-specified example that makes B19’s case more solid: maybe she cannot lock the door

¹³ “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.” (143) If

that is sufficient to make it be “obviated” then, it seems, the shooting in the assumed case is not needed for her defence.

or run away, and he says he intends to kill her. But then her shooting of him would seem entirely libertarian by the theory of liberty as well.

B19 asserts of the third example, a picture of a fully “private enterprise” society would not give rise to such a problem. But if we “assume none of this”, then “one child killed in this way, not murdered, would soon ensure the obviation of this practice. Large-scale capitalists are not that stupid.” B19 appears to be, again, appealing to long-run consequentialism without any theory of liberty. However, with a theory of liberty (as the absence of proactive impositions) and libertarian policy (minimise any unavoidable clashes, allow *proportionate* defence, and otherwise enforce full rectification) it looks as though killing for minor trespass is so entirely disproportionate that it becomes itself a proactive imposition, or “aggression”. Consequently, this “difficulty is created by the fact” that B19 has only an absolutist theory of property-rights that is interpreted in a fanatical way that flouts human liberty.

“2.10 Contradiction in rights”

B19 concedes L14’s view that a “hierarchy of rights is perfectly conceivable”. B19 cites politically correct ‘rights’ as one example. It is also agreed that the “right not to be murdered is stronger, higher up in the hierarchy than the right not to be raped”, etc. (but why if all rights are equally absolute?). That is, implicitly, that there is an intrapersonal hierarchy. B19 then incorrectly supposes that what L14 “means” is that “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” (144). There is no such assertion or implication in L14. The point is purely logical, “difficult for [B19] to process this as it may be”.

“2.11 The draft”

B19 does not contradict anything in L14 here. Instead, it changes the example to assert that a pacifist who is parent,

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. (145)

Presumably, a pacifist could protect his children by taking them to a country not at war. Even in the two so-called ‘World Wars’ there were plenty of such countries. Or if the issue is that there is some attacker of his children, then a parent could physically intervene in a variety of ways, which might include physical constraints, that do not thereby amount to a violent attack on the attacker. Is an implication of B19’s view that pacifist parents (as “rights violators, hence, criminals”) should be prosecuted and their children taken from them? We are not told.

“3 FURTHER CRITICISMS”

“3.1 Critique of utilitarian libertarianism”

Here, [L14] 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.

Crucial to the, here misunderstood and mangled, joke is “love-making *while standing*”. The relevance is this. Even if it were true, it cannot be a devastating objection to utilitarianism (or to standing sexual intercourse) *simply* that it leads to counting individuals (or to dancing). In one similar sense libertarianism itself clearly counts individuals: the fewer the better of individuals having crime X inflicted on them. But there is also this crucial additional error: “it seeks the greatest good for the greatest number, does it not?” (145) No, it doesn’t. Admittedly, “the greatest happiness of the greatest number” is the famous formulation of the principle Jeremy Bentham adopted in his *A Fragment on Government* (1776). However, this is a rough-and-ready expression that cannot accurately capture utilitarianism. For, logically, utilitarianism must seek the “greatest good” in terms of some version of “utility” irrespective of any actual numbers of people involved. Therefore, far from being a knock-down point, “nose-counting” is a weak, vague, and inaccurate criticism.

“3.2 Weaknesses in utility theory”

B19 now conflates several different sections and ignores most of the arguments. However, it appears to accept the hedonometer for the sake of argument and says,

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. (146)

Possibly not, because of diminishing marginal utility.

The challenge is not an empirical one, and no “testable science (will) eventually” solve this problem.

Ex hypothesi, hedonometer readings could be taken. B19 proceeds to show that it either does not really grant the assumption, after all, or does not understand it.

L14 then changes to the topic of “rough-and-ready interpersonal comparisons of utility”. But B19 mistakenly assumes that this is still “talking about a hedonometer” (147). Then B19 insists that “indifference is impossible, meaningless” in “technical economics” (but no technical explanation is offered). There is no reference to indifference anywhere in L14. And L14 does not assert that it is impossible for something to be meaningless.

B19 notes L14’s assertion that utilitarian-libertarianism does not entail that “all people have equal utilities” but restates that it does and that otherwise it is “is vulnerable to the ‘utility monster’ objection”. B19 does not answer L14’s various arguments on both these issues beyond asserting that it amounts to “twists and turns” which “changes the subject” (147). Unfortunately for B19, precise arguments require precise replies. The position taken in L14, and elsewhere, is that utilitarianism (or preference utilitarianism, at least) is often too easily and quickly dismissed. If we allow *for the sake of argument* that we can make approximate sense of it, then it appears to imply libertarian rules as the most utilitarian rules. This is both very interesting and very important as regards defending libertarianism from welfare-type criticisms (such defences do not imply advocating “utilitarianism”). And B19 itself makes claims compatible with this when it argues that we would all be better off in the long run with libertarianism (“Yes, ‘liberty generally promotes human welfare’” (131); “Of course, economic freedom ... is also the most prosperous one. It is

also the one most likely to get us to Mars, when we need to do so” (138); “We are much more likely to have well-developed water resources under private ownership and the NAP” (138); “one child killed in this way, not murdered, would soon ensure the obviation of this practice. Large-scale capitalists are not that stupid.” (144)). If libertarianism really were a disaster for human welfare, then why would anyone want to have it? In fact, we see that it promotes human welfare by “rough-and-ready interpersonal comparisons of utility” (plus additional theories and arguments mainly from economics and philosophy, but also other social sciences).

B19’s careless replies continue:

Lester notes that I question Friedman’s freemarket anarchist credentials. (148)

On the contrary, L14 says “Block notes Friedman’s free market anarchist credentials. But he objects that ‘Friedman bases his viewpoint on these matters on utilitarian, not deontological or principled libertarian grounds’”.

B19 notes L14’s assertion that “someone is a libertarian if he advocates universal interpersonal liberty. ... One’s motives for advocating universal liberty are a separate matter.” B19 replies,

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. (148)

Yes, he is a libertarian but for misanthropic reasons—unlikely as this logical possibility is. Does this clash with the earlier assertion from L14 (see 2.1 above) that the libertarian ideology involves factual and moral theses? Not if that is taken as referring to how libertarianism is typically advocated (and even misanthropic reasons might be due, for instance, to fanatical environmentalist morals). But non-moral advocacy is logically conceivable (perhaps a non-moral person might advocate libertarianism purely as an instrumental *modus vivendi*).

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. (148)

Such a person does not adopt any form of libertarianism. He is simply confused about the meaning of the word. Therefore, these two examples do not show that “motives are not entirely irrelevant to this categorization” (148).

B19 then divides “the libertarian world into five sections, in order of their purity” and places David Friedman

Right there at the very top. [...] I was only questioning, querying, his bona fides, not rejecting them. (148)

This essay would place Block’s writings near the top of its own classifications (were it to make them, which it won’t). Their ‘absolutist propertarianism’ (but with confused exceptions for very minor invasions) is almost, but not entirely, at the level of a system based on an abstract theory of *liberty* and what that entails in practice.

“4 CONCLUSION”

B19 defends the criticism of “Freidman’s (sic) scholarship” and asserts that L14 “criticizes [B11] for being too harsh, and a bit hypocritical” (no such latter word, or variation thereof, appears in L14). B19 insists,

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.” (148)

There was no request in L14 for “*all* well-known aspects”. But both L14 (which B19 is criticising) and this essay are primarily philosophical.

Lester fails to point out any instances of my specific dereliction in this regard (148)

Here are two specific refutations, although one would suffice:

“where oh where did Friedman get the pernicious idea that ‘land starts out belonging equally to everyone’?” ... it is famously repeated many times ... in Locke’s *Second Treatise of Civil Government* (L14, 115)

I first ought to mention, as Block does not, that the “utility monster” was, as far as I know, originally posited as a problem for

utilitarianism by Robert Nozick [1974, 41]. (L14, 129)

It is not that it matters; what matters are the arguments themselves. Rather, it is to point out the somewhat self-undermining nature of the harsh criticism of Friedman.

B19 kindly closes with a compliment (and, to be fair, it was not the only one),

my compliment to Friedman ... 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.

At risk of appearing ungrateful, here is a brief response. Debate is better viewed as intellectual cooperation. As critical rationalism explains, all we have are unsupported assumptions (however thorough the explanatory—not supporting—arguments and replies to criticisms) and so we need to continue to seek the best criticisms that we can find. But when the issues are fundamentally philosophical, then those criticisms need to engage with the arguments at a philosophical level. Repetition of propertarian dogmata cannot do this. And most of B19 appears to take that approach. It is not possible to win at chess using the rules of checkers. That said, B19 does at least attempt to take on the libertarian theory defended here.

CODA

Libertarianism is important; it would be hard to exaggerate how important. It matters whether it is philosophically confused. The four main general types of libertarianism are deontological (about rights and duties), consequentialist (about overall outcomes), contractarian (about a social contract), and eleutherological (about an abstract theory of liberty). None of those types inherently entail any epistemology, despite contingent conflations in most expositions. Therefore, it is a logically separate matter that there are two main general types of epistemology: justificationist (about supporting foundations) and critical rationalist (about conjecture and criticism). In terms of what is advocated in practice, there may be relatively little to distinguish eleutherological-conjecturalist

libertarianism and the other varieties. But in philosophical terms there is a world of difference. It has to be repeated until it is taken seriously: libertarianism without an abstract theory of liberty is on a par with utilitarianism without an abstract theory of utility; libertarianism with a justificationist approach is illogical dogma. Whether explicitly or implicitly, many critical texts have sound arguments refuting variations on these two types of error. They then invalidly assume that libertarianism as such is thereby philosophically refuted.

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Received for publication: 05.09.2020
Revision received: 22.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Lester, J. C. (2021, January 15). Libertarian philosophy versus propertarian dogma: A further reply to Block. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 106-127. doi:10.12709/mest.09.09.01.14

Style – Chicago Sixteenth Edition:

Lester, J. C. 2021. "Libertarian philosophy versus propertarian dogma: A further reply to Block." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 106-127. doi:10.12709/mest.09.09.01.14.

Style – GOST Name Sort:

Lester J. C. Libertarian philosophy versus propertarian dogma: A further reply to Block [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 106-127.

Style – **Harvard Anglia:**

Lester, J. C., 2021. Libertarian philosophy versus propertarian dogma: A further reply to Block. *MEST Journal*, 15 January, 9(1), pp. 106-127.

Style – **ISO 690 Numerical Reference:**

Libertarian philosophy versus propertarian dogma: A further reply to Block. **Lester, J. C.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 106-127



SOCIAL PROTECTION OF THE FAMILY IN INTERNATIONAL AND EU LAW

Elzbieta A. Maj

Institute of Law and Economics, Pedagogical University of Cracow, [Centre for Legal Research on Child and Family of the Pedagogical University of Cracow], Cracow, Poland e-mail: elzbieta.maj@up.krakow.pl

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JEL Category: **K36, K38**

Abstract

People and families have been stricken by poverty from the dawn of time. As a result of the tragic events of World Wars I and II, the 20th century became the arena for the development of humanitarian law fundamentals. The most important international organizations, such as the United Nations, the International Labor Organization, and the Council of Europe, started operating in the post-war period. The first declarations and conventions referred to the issue of social protection on the ideological and axiological level and emphasized only a need to provide poor families and their members with social security. Over time, the normative dimension became specialized, both concerning the content and details of the proclaimed regulations. The article, which discusses the issue of social protection of the family from the perspective of basic international and EU laws, has a character of a review. The analysis of the selected legal acts is centered both on the territorial aspect, focusing on the universal, regional (European) and EU trends, and the temporal one – presenting the evolution of social protection programs over almost one hundred years. The study deals also with a question about the normative cohesion of the universal, regional (European) and EU systems, as well as their interrelations, that is to say: competition or mutual reception. The conclusions from the research give a positive answer and emphasize the development and specialization of social institutions, both on the universal and regional levels. Furthermore, the conclusions indicate that, during evolution, social proposals have moved from the ideological level towards detailed pragmatism, harmonizing the three legal protection systems. The dogmatic-legal method and theoretical-legal method have been applied to verify the problems and hypotheses formulated, owing to which it has been possible to carry out normative analyses and corroborate them with the doctrine of human rights and social law.

Keywords: social protection, social security, social welfare, law, human rights, family, poverty

1 INTRODUCTION

The 20th and 21st centuries have become the arena for the development of the fundamentals of

human rights and protection of their axiological values in political, economic, cultural, and social life. The second-generation human rights, centered on social security and eradication of poverty and social alienation, play an extremely important role in the system of human rights.

The address of the author:

Elzbieta A. Maj

[✉ elzbieta.maj@up.krakow.pl](mailto:elzbieta.maj@up.krakow.pl)

The period of development of significant acts concerning human rights relates to a huge humanitarian crisis that emerged because of World War II. The 1940s and 1950s were the time when the great international organizations were founded, such as the United Nations, the International Labour Organization, and the Council of Europe. The accomplishments of these organizations belong to the human rights sphere which has been extended over time with important acts and documents of the European Communities and the European Union. The fundamental and universal international regulations are elaborated further in the legal systems of states.

Consequently, the domain of human rights, including rights of the social character, can be divided, according to the territorial criterion, into international (universal and regional), supranational (EC/EU) and national (domestic) law branches (Banszak & Banaszak, 2003, p. 15 et seq.) (Leszczyński, 2004, p. 63). For the present study, the analysis shall be focused on the international domain of the universal (UN, ILO), regional (Council of Europe), and the EU character.

The objective of the article is to review the human rights system from the perspective of social guarantees, their axiological dimension, and grounds. The analyzed issues include a question about details of the examined guarantees, the direction of their evolution, and possible specialization over time.

Furthermore, it seems important to compare the universal system with the regional (European) and the EU branch of human rights protection from the social perspective. Concerning this thesis, it is worth asking a question not only about the cohesion of these systems but also their interrelation (competition or mutual reception). Considering the development of the international human rights arena, it is claimed that social norms evolve towards specialization of protection and that safeguarding and protective regulations are harmonized in the examined three systems of human rights protection.

2 INTERNATIONAL LAW

2.1 United Nations

Even though the human rights system developed after the end of World War II, the analysis of legal acts should be commenced with the Atlantic Charter of 14 August 1941 drawn up for protective policy during the war. This document, comprising eight clauses, includes a call for collaboration aimed at securing and improving labor standards, economic advancement, and social welfare (clause 5), as well as a life free from fear and want (clause 6). Further guarantees were developed after the end of the war. The first document was the UN Universal Declaration of Human Rights of 10 December 1948.¹ Article 22 of the Declaration proclaims the right of each person to social security. It is emphasized, in a more detailed manner than in the Atlantic Charter, that every human being, as a member of society, is entitled not only to security but also to economic, social, and cultural rights, at a level indispensable for personal dignity and growth. Further guarantees were adopted by the United Nations in the provisions of the International Covenant on Economic, Social and Cultural Rights of 16 December 1966.² Article 9 of the Covenant emphasizes the right of everyone to social security, including social insurance. Furthermore, Article 10 refers in great detail to the protection of the family which should be given the widest assistance possible, both at the time it is started and in the period, it is responsible for care and upbringing of dependent children. Special protection is granted to mothers before and after childbirth, as well as to children and young people who are guaranteed freedom from discrimination and economic and social exploitation (art. 3 section 2). Moreover, Article 11 of the Covenant, calling for “freedom from hunger”, recognizes the right of each person to an adequate standard of living, including food, clothing, housing, and appropriate living (social) conditions for families.

Without a doubt, social protection of the child was greatly enhanced by the Convention on the Rights of the Child adopted by the UN on 20 November

¹ General Assembly resolution 217 A.

² General Assembly resolution 2200A (XXI).

1989.³ This is an extraordinary legal act that provides for the comprehensive protection of children. The catalog of rights comprises also those of the social character. Article 26 of the Convention recognizes the right of every child to benefit from a social security system, including social insurance, considering the resources, and living standards of the child's family or guardians. Furthermore, Article 27 guarantees a standard of living adequate for the physical, mental, spiritual, moral, and social development of every child, as well as support for parents or guardians in the form of financial and material assistance about food, clothing, and housing.

Certainly, the Convention on the Rights of the Child was not the first document concerning the protection of the child (albeit the first one which was legally binding). On 26 September 1924, the League of Nations adopted the first Declaration of the Rights of the Child (Geneva Declaration) which stipulated that the child should be given an opportunity for normal development, proper assistance, and care, while a waif or an orphan must be sheltered and succored. By the Declaration, the child and the family must be helped in times of distress, including a family crisis.

Another declaration referring to the rights of the child was the Declaration of the Rights of the Child, enacted by the United Nations on 20 November 1959.⁴ It contains ten principles, of which Principle 4 refers to the benefits of social security and special protection provided both to the child and the mother before and after childbirth. Appropriate nutrition, housing, and health care are also emphasized. Principle 5 stipulates that handicapped (disabled) children are entitled to special care and assistance. The authorities are obligated by Principle 6 to provide particular care to children without families or raised in poor families, especially large ones (Stadniczenko, 2008, p. 680).

The Convention on the Rights of Persons with Disabilities,⁵ adopted by the United Nations on 13 December 2006, is a particularly important legal action from the perspective of social protection of

the family. Article 26 of the Convention guarantees services and programs of comprehensive rehabilitation, employment, education, and social services. Article 27 refers to the right to earn a living, while Article 28 provides the grounds for the establishment of adequate living standards and social protection. The last of the principles recognizes not only the right to adequate standards of living for people with disabilities, but also their families, including appropriate food, clothing, and housing, and the right to the continuous improvement of living conditions, without discrimination. According to the Convention, actions for people with disabilities and their families should also be aimed at providing women, girls, and senior citizens with special protection, access to social welfare, and programs of poverty eradication. Furthermore, families with a handicapped person, living in poverty, should be able to obtain the state's support in covering expenses connected with a disability, including costs of adequate training, counseling, financial help, temporary care providing respite to regular caregivers, and housing assistance.

2.2 International Labor Organization

Along with the United Nations, the International Labor Organization has also contributed greatly to the social protection of the family. ILO's social conventions include Convention Concerning Forced or Compulsory Labor, 1930 (No. 29), the Right to Organize and Collective Bargaining Convention, 1949 (No. 98), Convention Concerning the Abolition of Forced Labor, 1957 (No. 105), the Employment Policy Convention, 1964 (No. 122), the Invalidity, Old-Age and Survivors' Benefits Convention, 1967 (No. 128), the Convention Concerning Protection and Facilities to be Afforded to Workers' Representatives in the Undertaking, 1971 (No. 135), and the Vocational Rehabilitation and Employment (Disabled Persons) Convention, 1983 (No. 159) (Maj, 2017, pp. 55-56). The most significant to social protection of the family and its members is the Social Security (Minimum Standards) Convention (No. 102) of 28 June 1952

³ General Assembly resolution 44/25.

⁴ General Assembly resolution 1386 (XIV).

⁵ General Assembly resolution A/RES/61/106.

which regulates the following issues: social benefits e.g., in case of unemployment, sickness (sickness benefits), accidents at work and diseases resulting from employment, family and maternity benefits, invalidity benefit, survivors' benefit because of breadwinner's death or disability, and old-age benefit.

2.3 Council of Europe

As far as the European standards are concerned, the Council of Europe specified social security guarantees in the European Social Charter of 18 October 1961, revised in 1996, of which Articles 12 and 13 regulating the right to social security and the right to social and medical assistance are considered the fundamental rights (Jasudowicz, 2005, p. 425). The right to social security is based mostly on the social insurance system, while social welfare service is regarded as an institution competent to provide adequate assistance to people and families living in poverty without their fault. Social protection should be based on social work facilitating adaptation and integration in the social environment (Article 1). On the other hand, Article 16 guarantees social protection of family life, especially with such measures as social and family benefits, fiscal solutions, the building of apartments adjusted to needs of families, benefits for newly married. Apart from these rights, it is worth pointing to the right of employed women to protection of maternity, contained in Article 8. The rights of children and young people to social, legal, and economic protection are regulated separately. By Article 17, the youngest family members are guaranteed assistance, an adequate level of medical care, education, and training, as well as protection against negligence, abandonment, violence, and exploitation. In 1964 the European Code of Social Security was enacted, which comprises the guidelines of the ILO Convention on Social Security (Minimum Standards), 1952 (No. 102) (Jonczyk, 2001, pp. 31-35).

2.4 EU Law

The issues of social protection and social security for the family are noticed and legally guaranteed

also in the EU (Community) law. The discussed issues are referred to in Article 51 of the Treaty of Rome (Article 42 of the Treaty Establishing the European Community / Article 48 of the Treaty on the Functioning of the European Union). However, social security measures mostly concern the free movement of workers and the provision of social benefits to migrant workers and their families in their states of residence (member states). Further provisions are contained in the Regulation EEC No. 1408/71 of 1971 on the application of social security schemes to employed persons and their families moving within the Community⁶ and the Regulation No. 574/72 of 1972 laying down the procedure for implementing the Regulation No. 1408/71⁷ (amended by the Regulation of the European Parliament and the Council No. 647/2005 of 2005 amending Council Regulation (EEC) No. 1408/71 on the application of social security schemes to employed persons, to self-employed persons and to members of their families moving within the Community and the Regulation of the Council (EEC) No. 574/72 laying down the procedure for implementing the Regulation (EEC) No. 1408/71⁸) (Szpor, 2011, p. 14).

Nowadays, the Charter of Fundamental Rights of the European Union of 7 December 2000⁹ is an EU regulation of the principal character. Article 33 guarantees the legal, economic, and social protection of the family. Based on Article 34 of the Charter, to combat social exclusion and poverty, the Union contributes to social and housing assistance to ensure adequate existence for people who lack sufficient resources. Furthermore, the Charter recognizes the need to protect in such cases as maternity, illness, accidents at work, dependency, old age, loss of employment. Along with strictly social regulations, Article 24 refers to the child's right to protection and care, Article 25 deals with the right of the elderly to lead a life of dignity and independence and to participate in social life, while Article 26 guarantees people with disabilities the right to use measures ensuring independence, social and

⁶ Official Journal of the European Communities of 1971, No. L 149.

⁷ Official Journal of the European Communities of 1972, No. L 74.

⁸ Official Journal of the European Union of 2005, No. L 117/1.

⁹ Official Journal of the European Union of 2007, No. C 303/01.

occupational integration, and active participation in life.

Detailed terms and conditions of the guarantees ought to be specified by the Member States, provided that they follow the rules of coordination of social security systems.

The basic rules of coordination include the rule of equal treatment of own and foreign citizens, the rule of uniform legislation, the rule of adding up insurance periods, and keeping the acquired rights (Koczur & Rubel, 2011, pp. 245-246).

In the current social system of the EU, coordination rules of national social security systems are governed by Regulation No. 883/2004 of 2004 on the coordination of social security systems, Regulation No. 987/2009 of 2009 laying down the procedure for implementing Regulation (EC) No. 883/2004 on the coordination of social security systems¹⁰ and the most recent Regulation No. 1231/2010 of 2010 extending Regulation (EC) No. 883/2004 and Regulation (EC) No. 987/2009 to nationals of third countries who are not already covered by these Regulations solely on the ground of their nationality.¹¹ (Uscinska, 2006, p. 187), (Dzienisiuk, 2004, pp. 14-17).

3 CONCLUSIONS

Even though the development of human rights took place after World War II in response to a great humanitarian crisis in the world, the first legal regulations of the social and protective character were rather scarce. Their development occurred only twenty years later and evolved towards increasingly specialized and detailed instruments of legal protection.

In the initial period of the establishment of the social protection system, regulations had a more ideological (axiological) character, frequently contained in one sentence and lacking details. Over time, general principles concerning the right to social security (1924) became more specialized

and far more detailed (the right to social insurance and social welfare, housing assistance, help for newly married couples – 1961, the right to social insurance, protection and help for the family, adequate living standards for the family, decent living conditions – 1966, financial and material help in the form of food, clothing and housing – 1989, social protection in case of maternity, illness, accidents at work, dependency, old age, loss of employment – 2000).

During the legal evolution, organizations abandoned such a construct of social law which only provided for combating poverty and specified in more detail not only these spheres of life which required protection but also particular mechanisms to ensure effective support. Thus, protective regulations became not only specialized but also their proportions were restructured. While references to social issues had a marginal and ideological character in the earlier documents, in the contemporary legal acts they have a significant place both in terms of specialization and volume.

Another important observation is strong harmonization between legal acts, and certainly lack of competition among them. Considerable similarities of social regulations can be found in the Convention on the Rights of the Child (1989), the Charter of Fundamental Rights of the European Union (2000), or the Convention on the Rights of Persons with Disabilities (2006). It is even possible to notice certain reception of earlier regulations by later acts, irrespective of their territorial scope. Therefore, it should be concluded that the universal, regional, and EU systems are consistent and coherent concerning social protection. Hence, we deal here with a normative symmetry of the temporal (chronological) and territorial character. The human rights system, both universal and regional, has a significant social dimension which, having originated from a source, becomes specialized and detailed unanimously and consistently.

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Legal acts

Atlantic Charter of 1924

Charter of Fundamental Rights of the European Union of 2000

Convention Concerning Forced or Compulsory Labour of 1930 (No. 29)

Convention Concerning the Abolition of Forced Labour of 1957 (No. 105)

Declaration of the Rights of the Child (Geneva Declaration) of 1924

Declaration of the Rights of the Child of 1959

European Code of Social Security of 1964

European Social Charter of 1961

ILO Social Security (Minimum Standards) Convention of 1952 (No. 102)

Regulation EEC No. 1408/71 of 1971 on the application of social security schemes to employed persons and their families moving within the Community

Regulation No. 1231/2010 of 2010 extending Regulation (EC) No. 883/2004 and Regulation (EC) No. 987/2009 to nationals of third countries who are not already covered by these Regulations solely on the ground of their nationality

Regulation No. 574/72 of 1972 laying down the procedure for implementing the Regulation No. 1408/71

Regulation No. 883/2004 of 2004 on the coordination of social security systems

Regulation No. 987/2009 of 2009 laying down the procedure for implementing Regulation (EC) No. 883/2004 on the coordination of social security systems

Regulation of the European Parliament and of the Council No. 647/2005 of 2005 amending Council Regulation (EEC) No. 1408/71 on the application of social security schemes to employed persons, to self-employed persons and to members of their families moving within the Community and the Regulation of the Council (EEC) No. 574/72 laying down the procedure for implementing the Regulation (EEC) No. 1408/71

The Convention Concerning Protection and Facilities to be Afforded to Workers' Representatives in the Undertaking of 1971 (No. 135)

The Convention on the Rights of Persons with Disabilities of 2006

The Employment Policy Convention of 1964 (No. 122)

The Invalidity, Old-Age and Survivors' Benefits Convention of 1967 (No. 128)

The Right to Organise and Collective Bargaining Convention of 1949 (No. 98)

The Vocational Rehabilitation and Employment (Disabled Persons) Convention of 1983 (No. 159)

Treaty Establishing the European Community of 1957

UN International Covenant on Economic, Social and Cultural Rights of 1966

UN Universal Declaration of Human Rights of 1948

Received for publication: 06.09.2020

Revision received: 06.10.2020

Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Maj, E. A. (2021, January 15). Social protection of the family in international and EU law. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 128-134. doi:10.12709/mest.09.09.01.15

Style – Chicago Sixteenth Edition:

Maj, Elzbieta A. 2021. "Social protection of the family in international and EU law." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 128-134. doi:10.12709/mest.09.09.01.15.

Style – GOST Name Sort:

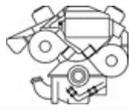
Maj Elzbieta A. Social protection of the family in international and EU law [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 128-134.

Style – Harvard Anglia:

Maj, E. A., 2021. Social protection of the family in international and EU law. *MEST Journal*, 15 January, 9(1), pp. 128-134.

Style – ISO 690 Numerical Reference:

Social protection of the family in international and EU law. **Maj, Elzbieta A.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 128-134



A SYSTEMIC APPROACH TO ENTERPRISE CRISIS MANAGEMENT IN THE CURRENT ECONOMIC CONDITIONS

Ruslan Mihalachi

State University of Moldova, Chisinau, Moldova

Natalia Bancila

Academy of Economic Studies of Moldova, Chisinau, Moldova

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JEL Category: **C53, H12**

Abstract

Crises are characteristic of any system, including economic entities in the process of its evolution. These usually signal the accumulation of a critical mass - of the restriction factors, the elimination or activation of which is necessary, either to prolong the reproduction process or to move to a new quality. The recent global economic crisis, related to the global pandemic situation, has made crisis management at both macro-economic and micro-economic levels one of the most important management tools to revive the critical situation globally. The crisis at all levels is always accompanied by a chronic organizational and financial instability, determining the need to develop measures that would be coherent in the new conditions of the economic environment accompanied by the political and social. The critical situation in the country's economy is confirmed by the worsening financial situation of domestic enterprises, the increase in losses, and, respectively, the number of enterprises on the verge of bankruptcy. Such a critical situation makes the issue of efficient organization of the management of the activity of enterprises in economic difficulty/crisis extremely topical. From this point of view, choosing the methods of crisis management and transforming them into an effective tool in entrepreneurship is a priority. The decisive role, in this sense, must belong to the diagnosis and financial forecasting of the dangers of crises at the enterprise by considering the factors that caused the crisis or even bankruptcy. The management of financial crises was constrained by the insufficient development of the informational-methodical base in this direction. In this context, not only the local experience but also the global one showed that the use of crisis management is quite difficult from a practical point of view, respectively, it requires an improvement and development in methodological-methodological terms, which requires evaluation of meticulous crises at the enterprise, which allows the diagnosis and prediction of crises with higher accuracy at each stage of its development.

Keywords: *crisis, risk, economic cycle, crisis management, diagnostic, prediction, systemic approach*

The address of the author:

Ruslan Mihalachi

[✉ ruslanmihalachi@yahoo.com](mailto:ruslanmihalachi@yahoo.com)

1 RESEARCH

During the life cycle, companies go through four phases: emergence, formation, growth, to decline.



The crisis can occur in each of these phases, respectively, even in the early stages, the company has great chances to end its activity. Such situations can be generated by the internal economic, political, social conditions, external but also internal in which it operates.

This has convinced entrepreneurs, producers, big business owners in all countries during 2020 when the global Pandemic situation was triggered in connection with COVID 19. Therefore, on the one hand, not all companies reach the last stage of the life cycle

For example, from the start-up phase of the enterprise to its formation phase, on average, only 20% of enterprises reach it. Of the remaining ones, only 40-60% show flexibility and reach the growth phase, this phase being characterized by a significant development of the economic potential of the enterprise, followed by the phase of decline (crisis).

At this stage, the crisis is conditioned, first, by the aging of the enterprise, which, sooner or later, happens. Reaching this stage of its life cycle, the enterprise has two solutions: or reorganizes (restructures), thus continuing its activity, or is liquidated.

Crisis management must be approached as a system when a complex of measures are taken to combat the unfavorable situation, actions that begin with the diagnosis of the crisis and end with the methods of removing and overcoming it. Crisis management is special management that can forecast and weaken crises, at the same time, to ensure the operation of the company in the survival regime during the crisis and to get it out of this state with minimal losses.

Finally, the main objectives and tasks of crisis management at the enterprise are concentrated in:

1. the anticipation of crises and adequate preparation for them.
2. control and avoidance of crisis factors.
3. managing the dynamics of crisis development (accelerating/slowing it down, weakening/accentuating it).
4. ensuring the survival of the enterprise in the crisis.
5. diminishing the consequences from the crisis.

6. the use of the factors and consequences of the crisis for the transition of the enterprise to a new stage of development.

Overall, we could say that the main objective of crisis management in the enterprise is to ensure its financial stability and a comfortable market position, even in conditions of an unstable economy. It should be noted, however, that at different stages of the crisis, as well as at various changes in the economy, these objectives need to be adjusted and corrected.

To achieve these objectives and tasks, the anti-crisis management process at the enterprise is divided into two main directions of action:

- I. Preventive actions, avoidance of the crisis at the enterprise.
- II. Actions to overcome the crisis (if the company is already in crisis)

The model of anti-crisis management at the enterprise is presented in figure 1.

At the base of the first direction of actions of the anti-crisis management, is the diagnosis and evaluation of the parameters of the crisis at the enterprise, which include the following stages:

- Detailed monitoring of the internal and external environment of the enterprise, in the direction of timely identification of crisis phenomena.
- Identification of deviations from the normal situation, of the signals of crisis, evaluation of these signals.
- Establishing cause-effect links and forecasting the possible directions of development of the crisis, the size of the possible losses.
- Monitoring the state and development of the crisis phenomenon.
- Elaboration of measures regarding the diminution of the external fragility of the company.
- Increasing the internal flexibility of the company.
- The second direction of actions of the anti-crisis management is based on the measures to overcome the crisis and stabilize the economic-financial situation of the enterprise. These actions mainly include:

- Elaboration of plans regarding the avoidance of crises and the preparation of measures regarding the realization of these plans.
- Implementation of these plans in case of a crisis in the enterprise and permanent verification of the implementation of these plans, assessment of results.
- The application after the cause of the whole set of tools and methods regarding the overcoming of the crisis.

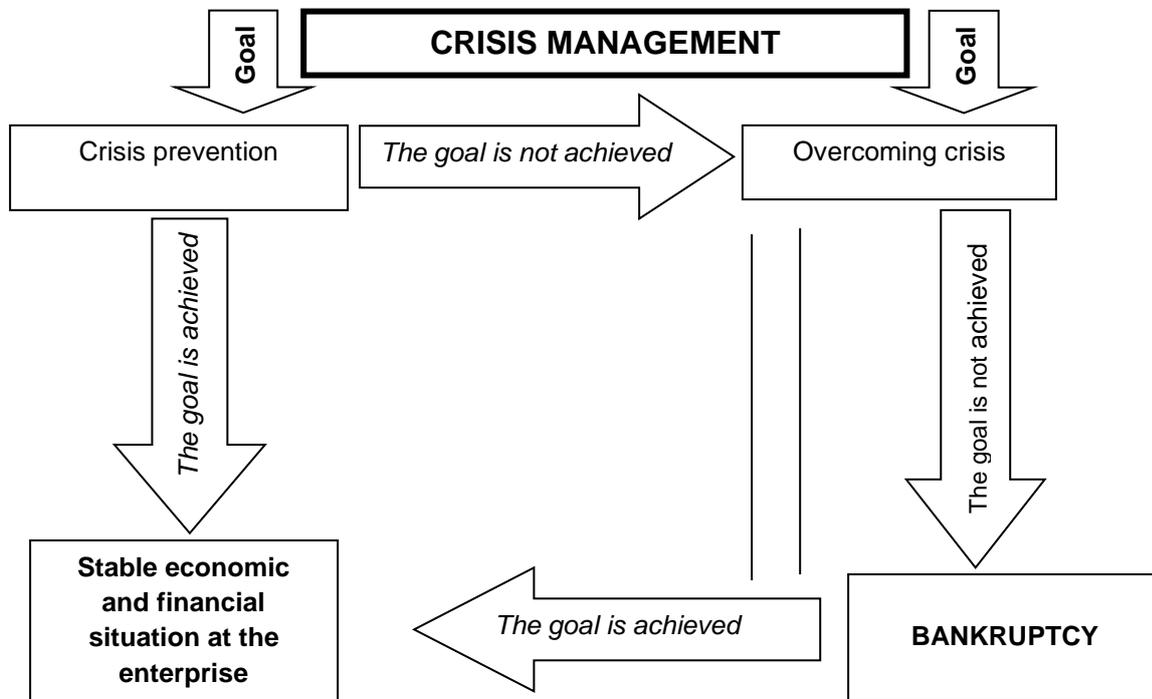


Figure 1 Crisis management model (Tal', 2004)

The implementation of the entire system of actions and measures mentioned above, of the crisis management must be based on a series of specific principles, without which the objectives of the crisis management become difficult to achieve. These principles serve as the basis for the effective organization of anti-crisis management. These are the following:

1. Timely diagnosis of crisis phenomena.
2. Rapid reaction to crisis phenomena.
3. An adequate response to the danger of crisis.
4. The principle of decision-making complexity.
5. The principle of alternative activities.
6. The principle of flexibility and high adaptability.
7. The principle of prioritizing the use of internal sources.
8. The principle of effectiveness.

The effect of crisis management can be appreciated depending on the degree of achievement of its objectives, regarding anticipating-avoiding the crisis, weakening its negative influences, overcoming it.

As for the first principle of the crisis management system, then it can be considered one of the most important. Because avoiding the crisis is possible only through the diagnosis of the possibilities of the crisis. This will allow the company to use the full arsenal of anti-crisis management tools in the fight against the crisis.

The pronounced specificity of the crisis management consists in the combination of strategic and tactical directions, in the operative reaction to the transformations of the external environment, in the elaboration and use of the variants and alternative lines of action. This approach allows the company, at all stages of the crisis development, to identify and optimize the link between risk and profitability.

Namely, this situation and becomes the basic concern of anti-crisis management. Respectively, the anti-crisis policy becomes part of the general financial policy of the company, which focuses on developing the system of methods for early diagnosis (prior) of the danger of bankruptcy and the timely application of financial recovery

measures, which would ensure the exit from the crisis.

The bankruptcy of enterprises, most of the time, can be encountered, namely, in the conditions of an unstable economy, such as the economy of the Republic of Moldova, accompanied by various imbalances at all levels. These imbalances, constantly, test the management of enterprises, disturbing their normal functioning.

In the conditions in which the enterprise operates successfully on the market, achieving positive economic-financial results, the management of crises must be focused on the operations of prevention and prevention of crisis phenomena. However, with the appearance of the first signs of crisis, the management of crises is activated, and becomes more and more accentuated with the worsening of the internal and external situation of the enterprise.

Here come the tools of crisis management that must be applied, first of all, in the conditions of variations in the external environment (taxes, inflation, interest rate, market factors, etc.), which often generate the crisis and lead the company to bankruptcy.

The efficiency of crisis management is conditioned by the company's ability to react constructively to these variations that threaten its normal operation. This capacity must not depend on the situation in which the bankruptcy procedure itself takes place or only the risk of its occurrence arises. In both the first and the second case, it is necessary to implement anti-crisis decisions, all of which form the core of crisis management. Thus, the efficiency of crisis management in the enterprise depends on the following factors:

1. Professionalism and special training of financial managers, who deal with crisis management.
2. Qualitative functioning of the crisis monitoring system.
3. Early forecasting of crises and elaboration of effective crisis scenarios.
4. Development of the methodology for elaborating financial decisions in crises.
5. The quality of the elaboration of anti-crisis programs.

6. Promoting financial policies appropriate to the external environment of the enterprise.
7. The operability and flexibility of the management in the situation of the permanent change of the external environment.
8. The human factor, solving the problems regarding the communication and collaboration of the staff in a crisis.

At the same time, it is necessary to make and understand the difference between anti-crisis management and traditional management within the enterprise.

The set of problems that anti-crisis management is concerned with shows that it is a special form of management, which includes both general management characteristics and specific characteristics that highlight it compared to traditional management. However, it is necessary to highlight correctly/clearly this specific, as well as the differences between the two types of management (traditional and crisis).

Anti-crisis management is such a type of management that has some features specific only to them. First, in terms of objectives and conditions of achievement, it differs greatly from simple (traditional) management, although even the traditional one, in a broad sense, can be considered anti-crisis. The main differences between them will be presented in the table 1.

It should be noted that the specificity of crisis management, compared to traditional management, is accentuated as the company approaches the state of crisis and when it approaches bankruptcy or financial crisis. Namely, in this situation, the main objective of crisis management is outlined. Respectively, crisis management can accept any conditions and any losses, for its basic objective to be achieved, namely for the enterprise to survive.

At the same time, the strategic objectives of enterprise development and growth, which are key to traditional management, are completely ignored. Hence the high sensitivity to the time factor, which is the second specificity of anti-crisis management.

Table 1. The difference between traditional and crisis management (Kovan & Mokrova, 2009)

| Criteria | Traditional Management | Crisis management |
|---------------------------------------|---|--|
| The objective of management | Increasing the efficiency of the company's activity | Minimizing the negative influences on the activity |
| Time and resource constraints | light | acute |
| The state of the external environment | favorable | unfavorable |
| The state of the internal environment | stable | Subject to various conflicts |
| The desired result | Increasing the efficiency of the company's activity | Avoiding or overcoming crises with minimal losses (survival) |

This specificity is related to the fact that, following the development of the crisis in the company, it is possible to have irreversible consequences, which can ultimately lead to the liquidation of the company, respectively, the actions of anti-crisis management must be fast, concrete, and safe.

In addition to the time limitation, the enterprise in crisis is tightly limited in other resources: financial, material, human. Under these conditions, there is a need for mobility and a special dynamism, which would allow overcoming the crisis.

However, anti-crisis and traditional management must be applied and carried out in parallel. Their weight, however, can be different, and this, first, depending on the economic-financial state, in which the enterprise is, at the moment, namely: stable state; unstable state (the state that is characteristic, usually, of the pre-crisis or post-crisis situation) and crisis.

For each of these states, crisis management has its specific tasks and, respectively, a certain share that it occupies in the total management system.

In a stable situation, the basic functions of crisis management are limited to measures and actions of prophylaxis, aiming to prevent crisis phenomena for early preparation for possible crises. This phase, called the monitoring phase, allows the timely identification of factors with a negative influence on the activity of the enterprise, respectively, allows the mitigation of the consequences of the crisis. Here the share of crisis management in the total management system is quite small.

In an unstable state of the economic-financial situation of the enterprise, the crisis management enters the crisis regulation phase.

Here are applied the measures to stabilize the situation regarding the stopping of the

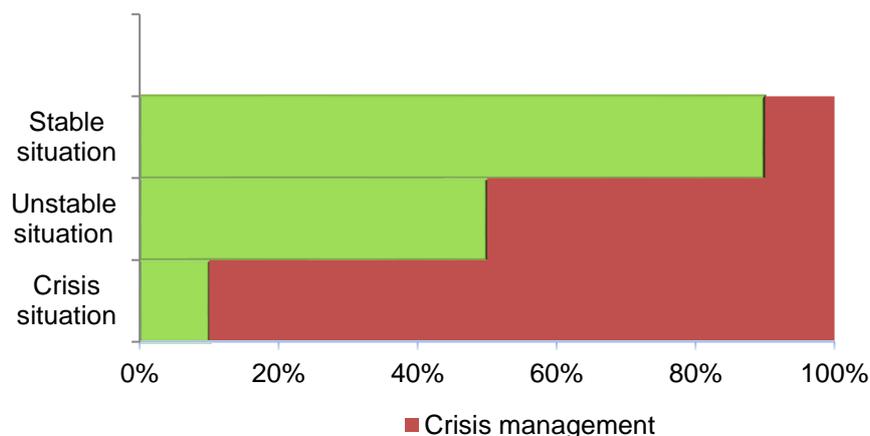


Figure 2 The share of crisis management in total management

Source: Prepared by the authors

development and deepening of the crisis phenomena. In this state, the company can be

both when it is approaching the crisis, and when the company has just come out of it. At this stage,

the weights of traditional and crisis management are almost equal.

When the avoidance of the crisis was not possible and the company reaches a state of economic difficulty, the main function of anti-crisis management is to overcome the crisis with minimal losses and return the company to a stable state of operation.

Therefore, we can see that, in any state in which the company is, management must include elements of crisis management and, as the crisis approaches, the role of its functions must immediately increase. At the bottom point (crisis) as we see in figure 2. practically, the entire management is performed in a crisis regime.

On figure 2 we notice that crisis management has a crucial role in the total management system of the enterprise. The practical role of this management can be materialized through the following actions:

- clarifies and solves the problems that appeared in the activity of the enterprise.
- serves as a tool for the survival of the enterprise in difficult times.
- minimizes the risk of bankruptcy.
- coordinates the activity of the whole enterprise.
- highlights priority issues.
- contributes to the rational distribution and use of enterprise resources.
- contributes to the transition of the enterprise to a new stage of development.

Crisis management injects or brings a certain revolutionary dynamism in all elements of the company's management system, forcing it to improve.

In countries with developed economies, crisis management has long become an important tool in the business environment, while in developing countries, such as the Republic of Moldova, other countries in the ex-Soviet space, this tool is just beginning to be used more widely, because in the last year the number of companies on the verge of bankruptcy has increased considerably due to inactivity in the last six months of 2020.

The main problem is that the application of this tool in practice, for enterprises in developing countries, especially in the Republic of Moldova, is quite difficult. This difficulty is related to various

problems that companies in these countries face, the main ones being the following:

- distrust in modern formal methods and, in general, in the methodology of crisis management.
- too great variations of the external environment generated by the economic-financial imbalances and as a result there is distrust in the future.
- the insufficiency of the managers' qualification, their ignorance and inability to lead efficiently the activity of the enterprise.
- rather poor technical, methodological, and informational assurance of enterprise management.
- the need to make additional expenses, related to special research: diagnosis, forecasting, and planning, remuneration of specialists, additional time, etc.
- a rather high degree of uncertainty of the Moldovan market.
- low level of culture of the participants operating on the domestic market.

As mentioned above, crises are different, and their management may be different, respectively. This variety is highlighted in the management system and processes, as well as in the management mechanism. It is important that crisis mechanisms, including the reduction of staff, although this is an extreme measure, to be applied as soon as possible, then the company, in a shorter period and with fewer losses, will overcome the crisis.

The success of crisis management at the enterprise is determined by the degree of preparation of the company's managers towards potential crisis phenomena, the disposition of reserves, the level of prophylactic measures, the degree of efficiency of the applied management methods, etc.

The practice has shown that only an active innovation policy, in combination with the use of investments in the introduction of new technologies and products, allows the successful solution of problems related to avoiding or overcoming crises.

The crisis management in the enterprise must be based on a systemic approach, with interdisciplinary results, which regards the enterprise as a system of elements, realizing the

full potential of financial management. In this sense, the elements of the enterprise as a system include all the financial, managerial, marketing, and production components. In crisis management, the systemic approach serves as a methodological basis in assessing the crisis of the enterprise, forecasting the development of events, and elaborating decisions to direct these events in the necessary direction.

The basis of the systemic approach involves determining the objectives and tasks of this system in crisis codifications. With its help, the financial managers of the enterprise can understand the essence of the difficulties encountered, which the company encounters, and make the necessary decisions based on the information on the variations of the external and internal environment.

Finally, we can highlight the main elements of the systemic approach to enterprise crisis management:

1. Analysis of the financial situation and evaluation of the company's activity.
2. Elaboration of a real marketing strategy.
3. Applying an innovation-based strategy.
4. Optimal personnel management.
5. Business-crisis planning.
6. Bankruptcy risk assessment.

Applying the systemic approach to enterprise crisis management to practice would allow:

- Considering all factors, both internal and external, with different influences on the enterprise.
- Attracting and concentrating more resources from different levels to manage these factors and solve problems.
- Identify effective ways and means of influencing these factors.

The advantage of the systemic approach is also expressed by the fact that when analyzing a concrete situation in a certain structure of the enterprise, it allows financial managers to consider the effects of its decisions for other structures of the enterprise that are interdependent.

In the author's opinion in economic theory and practice, there is no single recipe, based on which

any enterprise could emerge from the crisis, thus solving all its economic and financial problems. Certainly, even the use of the whole arsenal of anti-crisis management tools does not guarantee its avoidance or successful overcoming.

Each enterprise, as well as each crisis, has an individual, specific character, and only through a deep diagnosis of the concrete situation, we can conclude whether the enterprise can successfully avoid/overcome the crisis.

The experience of foreign companies shows that one of the most important factors in the success of the company's activity is its ability to react in time to all changes or variations that take place in the markets, financial markets, and the economy as a whole.

The common aspect of the activity of foreign enterprises consists in the fact that they are directly oriented towards the market, towards the satisfaction of concrete needs, towards the functioning in the conditions of the "product-market" strategy.

For most domestic enterprises, however, the problem of efficiency is reduced more to survival, as they are often in a state of "chronic" crisis. The most important task for domestic agencies is to maintain payment capacity and eliminate production losses.

In this sense, the priority directions for the activity of the local enterprises can be considered the maintenance of the liquidity and the capital structure within the established limits, as well as the assurance of profitability. At the same time, many of the domestic enterprises are not able to perform even these tasks, thus finding themselves in a situation of the financial crisis.

In many cases, however, the crisis in domestic enterprises could be avoided or at least weakened to such an extent that enterprises can successfully overcome it.

This can be achieved only through the timely diagnosis of crisis phenomena to avoid it or minimize, as much as possible, the negative influences of risk factors that may jeopardize the operation and development of the enterprise.

Diagnosis is considered one of the most important tools of crisis management because the avoidance or prevention of the crisis is possible only through the diagnosis of its possibilities.

The diagnosis is made through permanent monitoring of the economic and financial situation of the company and external environmental factors, which have a major influence on the activity of the company, which will allow it to obtain the necessary time to avoid the crisis, or at least to weaken it, respectively, to diminish its negative influences, if avoidance is impossible.

The assessment of the symptoms of the crisis must be done before its effects take shape. Thus, this assessment and prognosis of the assessment of crisis symptoms is the main object of crisis diagnosis in the enterprise.

Practice shows that, in the current economic conditions, all aspects of the company's activity can generate the crisis and its bankruptcy, respectively. Therefore, when forming the "crisis field", the most representative elements of the degree of a generation of this danger must be highlighted, first. From this position, the "crisis area" of the enterprise can be presented by the following objects: the volume of sales of the enterprise; net cash flow; the market value of the enterprise; the structure of the company's liabilities; patrimony structure; the structure of enterprise expenses; other elements.

One of the main objectives of crisis diagnosis is to anticipate and forecast it. In the crisis management system, crisis forecasting occupies a major place. Namely, through it, the degree of probability of occurrence of the crisis at the enterprise can be determined.

Considering the specifics of the period of development of the national economy, we can highlight some of the causes that lead to the development of crises in domestic enterprises, the main ones being:

1. Unstable political, economic, and financial situation.
2. High level of inflation.
3. Low transparency of business activity.
4. Poor level of staff training and lack of experience in market economy conditions.

5. The large number of enterprises that have used, outdated means, both physically and morally.
6. The large share of material expenses in the total production cost.
7. Corruption at all economic levels.

In these conditions, we can talk about overcoming the crisis in domestic enterprises, only with the elimination of these problems. However, it is considered that in emerging economies, such as the Republic of Moldova, internal factors are the cause of only 1/3 of corporate bankruptcies, while 2/3 are due to external factors, which prevail over internal ones. For countries with a developed market economy, the situation is opposed.

To diagnose as correctly as possible, at the same time, complete the crisis at the enterprise, the author selected the most important factors, classifying them according to their level of occurrence:

1. Factors from company level.
2. Factors from the market level.
3. Environmental factors.

The formation of this model, in the author's opinion, would be the most correct, if it were based on the principle of the optimal structure of the company's activity. Namely, the optimal structure of one or another parameter of the enterprise can guarantee the stability and accelerated development of its activity, while the deviation from this structure makes it difficult to achieve these objectives, respectively increases the danger of a crisis in the enterprise.

Therefore, a universal crisis forecasting, and anticipation model will be formed, called the "444" model, where the crisis includes the risk elements shown in figure 3.

In Figure 3, also, one can see which elements are included in each of these groups. Each group of elements, from the 3 levels, as we can see, includes 4 factors. Each factor, depending on its condition, is rated with a grade. From note 1, where the state of the factor is assessed negatively, to note 4, where the state of the factor is assessed positively:

1. negative.
2. alarming.
3. normal.
4. positive,

after which based on the arithmetic or weighted average, the entire group of factors at each level is assessed, obtaining a complete assessment of the crisis in the enterprise.

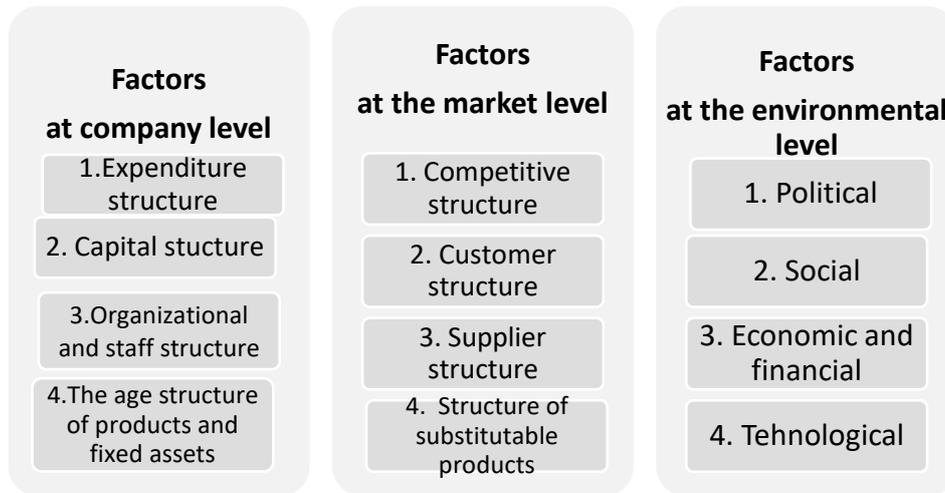


Figure 3. Crisis factors (model 444) (Mihalachi, 2012)

It should be noted that all the factors presented are, in essence, nothing more than risk factors, therefore, the diagnosis of the crisis in the company must be based specifically on the analysis of the risks to which the company in question is subjected. Analyzing these risks, we will create a complete, broad position of the crisis in the enterprise, and not only of a phase of it. Therefore, we obtain the following form of the model:

$$\text{Crisis} = \text{Own risk} + \text{Market risk} + \text{Environmental risk}.$$

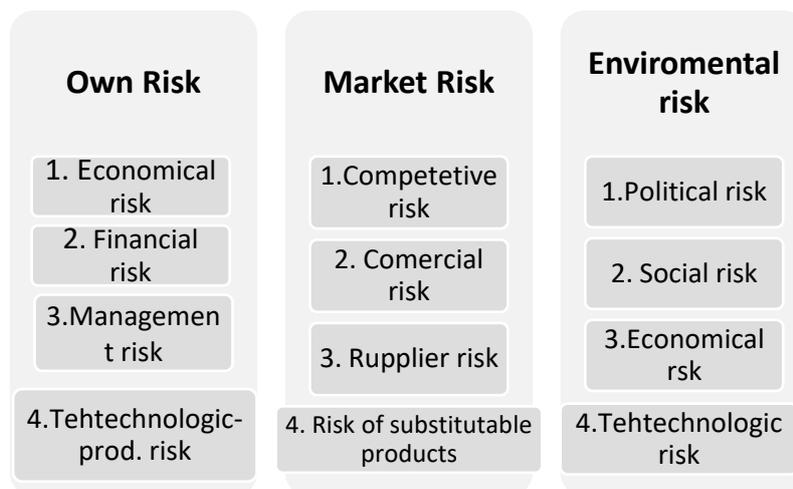


Figure 4. Risk structure according to model 444

The application of this model, in crisis management, allows the identification of the crisis from its early phase, which gives the company great chances, at the right time, to correct the erroneous course of its activity which would bring success in avoiding the crisis. or at least weaken it if avoidance is impossible.

In other words, the given model can offer the company's management the possibility to react, in

due time, to events that threaten or directly or indirectly affect the economic-financial results of the company, a reaction that could guarantee the economic-financial security of the enterprise.

The importance of this model consists in selecting and systematizing the most important risk factors (in the author's opinion) that generate the crisis in the enterprise. In essence, this model is a system of complex risk analysis of the enterprise and can

be considered a powerful tool for the diagnosis of the crisis in the enterprise. Therefore, it would be appropriate to use in the management of crises in domestic enterprises.

2 CONCLUSIONS

Economic practice shows that one of the most important factors in the success of the company's activity is its ability to react in time to all changes or variations that take place in its internal and external environment.

In most cases, the crisis in the enterprise could be avoided or at least weakened to such an extent that enterprises can successfully overcome it. This can only be achieved through the timely diagnosis of crisis phenomena.

It is worth mentioning that, at present, the problem of bankruptcy forecasting at the enterprise is extremely actual for the enterprises from the Republic of Moldova. At the same time, the issue of choosing methods for crisis prediction, which would allow with high accuracy to predict the state of crisis in the enterprise, is also current.

To be able to forecast and anticipate the crisis from the beginning, a complex approach is needed, much larger in the diagnosis of the crisis, based not only on financial indicators of the company but also on several other indicators that characterize both internal factors. of the enterprise, as well as the external one.

It should be mentioned that, at the current stage of the national economy, the timely identification of negative trends in the development of enterprises, as well as the forecasting of the crisis in their activity, acquires a primary significance. At the same time, there are practically no methods that would make it possible to achieve these things. For this reason, the author aims to develop a complex model for diagnosing and anticipating the crisis in the enterprise considering all aspects and aspects of its activity.

The complex diagnosis of the crisis in the enterprise must begin with the analysis of the risks to which the enterprise in question is subjected. By analyzing these risks, we will create a complete, comprehensive position of the crisis in the enterprise, and not only of a phase of it.

Therefore, to diagnose the crisis in the company as accurately and completely as possible, the author selected the most important risk factors, dividing them according to their level of occurrence. Thus, a universal model for forecasting and anticipating the crisis at the enterprise was developed, called the "444" model.

This model can offer the company's management the possibility to react, in due time, to events that threaten or directly or indirectly affect the economic and financial results of the company, the reaction that could increase the economic and financial security of the company in a perspective. long term.

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Received for publication: 06.09.2020
Revision received: 22.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – **APA Sixth Edition:**

Mihalachi, R., & Bancila, N. (2021, January 15). A systemic approach to enterprise crisis management in the current economic conditions. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 135-145. doi:10.12709/mest.09.09.01.16

Style – **Chicago Sixteenth Edition:**

Mihalachi, Ruslan, and Natalia Bancila. 2021. "A systemic approach to enterprise crisis management in the current economic conditions." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 135-145. doi:10.12709/mest.09.09.01.16.

Style – **GOST Name Sort:**

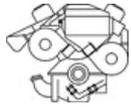
Mihalachi Ruslan and Bancila Natalia A systemic approach to enterprise crisis management in the current economic conditions [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 135-145.

Style – **Harvard Anglia:**

Mihalachi, R. & Bancila, N., 2021. A systemic approach to enterprise crisis management in the current economic conditions. *MEST Journal*, 15 January, 9(1), pp. 135-145.

Style – **ISO 690 Numerical Reference:**

A systemic approach to enterprise crisis management in the current economic conditions. **Mihalachi, Ruslan and Bancila, Natalia.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 135-145



THE NATURE OF SHADOW DIGITAL ECONOMICS

Serghei Ohrimenco

Academy of Economic Studies of Moldova, Laboratory of Information Security, Chisinau, Moldova

Grigori Borta

Academy of Economic Studies of Moldova, Laboratory of Information Security, Chisinau, Moldova

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JEL Category: **D84, O17, P37**

Abstract

The purpose of this paper is to analyze, discuss, and develop a study of world universal digitalization processes as well as challenges and threats, and develop an approach to defining the shadow digital economy. Along with huge innovative achievements, digitalization processes are accompanied by the formation of a digital economy and the growth of illegal activities. Digital economy implies total globalization, creates an ultra-high competitive environment, provides a new quality of life, business, and public services. At the same time, many traditional areas of activity are being destroyed. In addition to understandable achievements, it is necessary to analyze new obvious and hidden threats that digitalization processes carry. The analysis shows the causes and factors of the emergence and functioning of the new segment in the shadow economy. The approaches to the definition of this category and its content are discussed. A classification of criminal-oriented products and services that are the basis of a highly profitable illegal business has been proposed. The problem of confrontation with Shadow Digital Economics acquires particular urgency in the face of the emergence of new overt and hidden threats to the individuals, society, and the state. The main components of the digitalization process are analyzed. Conclusions are drawn about the development of shadow digitalization processes and the formation of a shadow digital economy, which is directly related to cybersecurity.

Keywords: *digital economy; shadow digital economy; threats to the digital economy; information security; cybersecurity*

The address of the corresponding author:

Serghei Ohrimenco

[✉ osa@ase.md](mailto:osa@ase.md)

1 INTRODUCTION

The problems of the digitalization of the economy are being studied by many scientists in most countries of the world. Achievements in the manufacturing sector, in everyday life, are being noted everywhere. However, at the same time,

with achievements, there has been a rapid growth in criminal activities related to the use of information and communication technologies. The analysis of scientific publications, statistical data, analytical reports of leading information security firms allows us to speak with confidence about the formation of a new sector of the shadow economy - the shadow digital economy (SDE). The accumulated experience in the analysis of the "achievements" of SDE (Ohrimenco & Borta, *Informal Economics of Information Threats.*, 2013) (Ohrimenco & Borta, *Social Aspects of Shadow Information Economics.*, 2014) (Ohrimenco, Borta, & Bochulia, *Shadow of Digital Economics.*, 2019) (Okhrimenko & Borte, 2012), allows us to put forward the assumption that this type of activity is directed against the individual, society and the state and combines many manifestations - from developing software abuses to organizing attacks on crypto exchanges with fraudulent withdrawal of cryptocurrencies.

The limited scope of the article does not allow considering all the problems of confrontation with the manifestations of SDE. Therefore, the main attention of the authors was directed to the analysis of literature sources, development of definitions, and analysis of the latest developments in the field of cybersecurity.

2 LITERATURE OVERVIEW

Most scientific research related to SDE starts with Shadow IT. One of the latest and most comprehensive literature reviews on Shadow IT is the work of a team of authors from the University of Novi Sad, Faculty of Economics in Subotica, Department of Business Informatics and Quantitative Methods (Raković, Sakal, Matković, & Marić, 2020). This publication continues the tradition of compiling literary reviews on the problems of shadow digital technologies. Another significant review of approaches to the definition of the studied category is the work of Friedrich Schneider, who has undoubted superiority in the field of research of the shadow economy in developed and developing countries in collaboration with Rita Remeikiene, and Ligita Gaspareniene. The given set of scientific works allows us to suggest that they form the basis of a new scientific field of research (Remeikiene, Gaspareniene, & Schneider, *The definition of digital shadow economy.*, 2017) (Gaspareniene &

Remeikiene, *Digital Shadow Economy: a Critical Review of the Literature.*, 2015) (Gaspareniene L. , Remeikiene, Ginevicius, & Skuka, 2016) (Gaspareniene, Remeikiene, & Schneider) (Wu & Schneider, 2019) (Medina & Schneider, *Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?*, 2018) (Medina & Schneider, *Shadow Economies around the World: New Results for 158 Countries over 1991-2015.*, 2017) (Medina & Schneider, *Shedding Light on the Shadow Economy: A Global Data-base and the Interaction with the Official One.*, 2019) (Remeikiene, Gaspareniene, & Schneider, *Concept, motives and channels of digital shadow economy: consumers' attitude.*, 2017) (Schneider F. , *Implausible Large Differences of the Size of the Underground Economies in Highly Developed European Countries?*, 2017).

Along with the cited works, it should be noted that the first authors who used the category "shadow information economy" were the authors of the monograph "Market of Information Services and Products". In chapter 5 of the monograph (Rodionov, Gilyarevskiy, Tsvetkova, & Zalayev, 2002), paragraph 5.2.4 "Shadow information economy" is highlighted, which begins with the main premise of our study - "Consideration of the shadow sector of the information economy and information activity is required to assess its volume and the potential damage it causes." At the same time, it is pointed out that the real losses of the Russian budget due to the shadow nature of private business in the field of information services and products are not so great and this type of shadow business is one of the few that deserves to be removed from the shadows by introducing a tax-free regime to support its development. Thus, in Russia, a certain part of information activity and the market of information services and products are in the shadow. The shadow sector does not have a criminal basis and is associated with low efficiency of information activities, the level of development of which does not allow not only to finance growth but also to carry out simple reproduction subject to payment of all taxes. Attention should be paid to the allocation by the authors of a part of the market for information services and products, which is in the shadow and the absence of a criminal basis. Over the past time, the picture has changed dramatically - not only a part of the market for information products

and services has become clandestine and criminal, but also a whole shadow industry has been formed that brings high profits.

The works of the authors Ligita Gaspareniene, Rita Remeikiene, Friedrich Schneider (Gaspareniene & Remeikiene, *Digital Shadow Economy: a Critical Review of the Literature.*, 2015) (Gaspareniene, Remeikiene, & Navickas, *The concept of digital shadow economy: consumer's attitude*, 2015) take a different approach, basing on the processes of global digitalization (digitization) of the economy. The authors propose the following definition of shadow digital economy: "illegal activity in cyberspace, which allows generating illegal flows of money for illegal service providers and sellers, as well as depriving the income of legal service providers and sellers" (Schneider & Haigner, 2018) (Schneider F., *Restricting or Abolishing Cash: An Effective Instrument for Fighting the Shadow Economy, Crime and Terrorism?*).

The work of researchers from Brazil analyzed the approaches to the definition of Shadow IT (Mallmann, Macada, & Oliveira), the impact of shadow use of IT, and other aspects. Shadow IT is defined 1) as any hardware, software, or services built, introduced, and used to work without explicit approval or even knowledge of the organization: 2) shadow IT distinguishes from closely related concepts such as workaround, bring-your-own, and IT consumerization; 3) individual shadow IT usage as 'the voluntary usage of any IT resource violating injunctive IT norms at the workplace as a reaction to perceived situational constraints with the intent to enhance the work performance, but not to harm the organization'. Shadow IT type classification is also included here, which includes the following:

1. Cloud services (Internet-based software and software as a service, such as communication and content sharing software to communicate and share work information with coworkers, clients, and partners, among other cloud services that are not authorized or is unknown by the IT department. These systems are also called mobile shadow IT once it can be accessed outside the workplace and examples of these systems are WhatsApp, Facebook, Skype for Web, Dropbox, Google Apps, and so on).
2. Self-made solutions (Solutions developed by employees on the company's computers to perform their work tasks. For example, an excel spreadsheet or an application developed by employees).
3. Self-installed (Software installed by employees to perform their work tasks, on the company's computers. For example, downloaded a freely available software on the web).
4. Self-acquired devices (Devices such as notebooks, servers, routers, printers, or other peripherals purchased by employees. These devices are purchased directly from retail rather than being ordered through the official catalog of the IT department. It includes the use of applications in the employee's devices at the workplace. For instance, smartphones, notebooks, tablets, and so on.).

The authors completely agree with the opinion expressed in the work (Levene, 2019) that the risk of malware is underestimated in terms of possible losses. The ability of criminal structures to create, modernize, and use malware to undermine a business has been sufficiently studied in terms of effectiveness, scale, and cost. In most cases, business owners prefer to keep silent about the attacks against them, losses and recovery costs (if this was possible).

3 OBTAINED RESULTS

This section goes into the results obtained in the process of the research: definitions of shadow information technologies are offered.

The starting point of our study is "shadow IT" (Shadow IT, Stealth IT, or Client IT). Various definitions are used, in particular, "Shadow IT are all the third-party IT solutions, including cloud applications and services that are not controlled by the corporate IT department." Cloud solutions, which represent a large part of Shadow IT, can replace an employee function or an entire department, and become part of the enterprise services. Statistics of the actual use of cloud solutions in the corporate sector are amazing: there are hundreds of solutions, and not dozens, like many IT and information security experts believed.

However, from a security point of view, cloud applications and services are a "blind spot" (Oreshkina, 2017).

1. Shadow IT refers to IT devices, software, and services outside the ownership or control of IT organizations (Gartner).
2. Shadow IT represents all the hardware, software, or any other solutions used by employees within the organizational ecosystem that have not received official approval from the IT department (Silic & Back, 2014).
3. Business units and users autonomously implement IT solutions that are not embedded in the organizational management of IT services. This increasingly growing phenomenon is called Shadow IT (Zimmermann & Rentrop, 2014).
4. Shadow IT is defined as a set of IT tools used to perform IT functions, but not part of the main IT organization.
5. The authors define Shadow IT as an IT solution used by employees to perform their work tasks without the approval and official support of the IT department (Mallmann, Macada, & Oliveira, 2016).
6. For example, the so-called Shadow IT is third-party IT solutions that are not controlled by corporate governance. And these are not always clouds, it can be any information systems that are out of sight or control. Shadow IT infrastructure is not always evil, it often arises from “good” motives to optimize legitimate business processes.

Therefore, it must be identified and analyzed, and only if necessary, an alternative is offered. This will help to make the cloud environment controlled, convenient, and secure (Akinin, 2018).

1. Shadow IT is a term used to describe the situation when business units acquire, own, and manage IT without the help of an IT department. IT departments consider shadow IT as inefficient as resources well as a source of risk and see part of their task as constraining its spread (Meier, 2015).
2. Shadow IT is becoming increasingly important as digital methods of work simplify the work of business units creating their own IT solutions.

Previous research on shadow IT systems often used fixed reports of good or evil: they were noted as powerful driving forces for innovation or demonized as missing central management. We present a method for IT managers and architects to enable a more subtle understanding of shadow

IT systems concerning their architectural embeddability (Fiirstenau & Hannes, 2014).

1. The term “shadow systems” refers to stand-alone software solutions or extensions of existing solutions that are not developed or controlled by the central IT department (Fiirstenau, Sandner, & Anapliotis, 2016).
2. Shadow IT refers to IT devices, software, and services that are present in the organization but are not serviced by the IT department. They are not registered with the IT department, their state and work are not monitored, moreover, the IT department may not know anything about them.

Accordingly, security policies and regulations also do not apply to them. And this is a serious threat to corporate security. According to the forecast of Gartner, by 2020 a third of successful attacks on information resources of organizations will be performed through Shadow IT (Lesnova, 2019).

Shadow IT is used to describe IT solutions and systems created and applied inside companies and organizations without their authorization. This is considered a vital foundation for technological advancement and innovation because these efforts can become potential prototypes for IT solutions that are approved in the future. Even though these solutions can help in the advancement of IT innovations, they may not conform to the company’s requirements in terms of reliability, documentation, control, security, and more (Technopedia, 2020).

Even though these definitions touch upon very important points, in the authors’ opinion, some of them lack the depth required to describe the phenomenon of SDE. The analysis of the abovementioned definitions of SDE allows us to identify five main approaches: legal, mathematical, sociopsychological, organizational and managerial, economic, and financial.

1. The legal approach describes this category from the perspective of legal science, focusing on illegal activities.
2. The mathematical approach considers Shadow IT as a model of management of the shadow activity of participants in the information sector with the release of the life cycle of individual products and services, as well as monetization processes.

3. The organizational and managerial approach is to determine SDE from the point of view of the organizational and legal form of interaction between participants in the shadow markets for products and services.
4. The socio-psychological approach analyzes the activities of the participants in terms of irrational economic behavior, attracting a large number of specialists in information and communication technology.
5. The economic and financial approach considers SDE as financial structures that launder money through the use of various frauds based on information and communication technologies in the legal market for goods and services.

Let us formulate the definition of the shadow digital economy, based on its specificity in terms of the production of goods and services, the life cycle of products and services, etc. Thus, SDE is a sector of economic relations that encompasses all types of production and business activities that, by their focus, content, nature, and form, are contrary to the requirements of legislation and are carried out contrary to state regulation of the economy and bypassing control over it.

The basis of the SDE is the shadow business activity, the general features of which are as follows:

1. hidden, latent (secret) character, meaning, the activity that is not registered by the state authorities and is not reflected in the official reporting;
2. coverage of all phases of the process of social reproduction (production, distribution, exchange, and consumption);
3. the parasitic nature of all processes, ranging from the disclosure of the source code of a software product to the monetization of botnets by renting.

A slightly different approach is used in the works of L. Gaspareniene, R. Remeikiene, F. Schneider (Schneider & Haigner, 2018), based on the processes of universal digitalization (digitization) of the economy. In particular, the following definition of the shadow digital economy is proposed: "illegal activity in cyberspace, which allows generating illegal money flows for illegal service providers and vendors, as well as depriving incomes of legal service providers and

vendors" (Mallmann, Macada, & Oliveira, 2016). In our opinion, we should agree with the thesis proposed by F. Schneider in a joint article with A. Buen (Schneider, Buehn, & Montenegro, Shadow Economies All over the World, 2010) - researchers trying to measure the volume of the shadow economy face a basic and complex issue - to define this phenomenon. A general definition is used (the authors of the article call this definition a work in progress) - these are all types of unregistered activity that contributed to the gross national product. The proposed narrower definition of the shadow economy includes the following: The shadow economy includes all legally produced goods and services that are deliberately hidden from public authorities for the following reasons:

1. Avoiding taxes (for example, income or value-added tax).
2. Avoiding social security contributions payments.
3. Avoid using certain labor market standards, such as minimum wages, maximum working hours, safety standards, etc.
4. Avoid adherence to certain administrative procedures. Thus, summing up the analysis of existing approaches to the definition of SDE, the authors of this study propose the following definitions:
 - a. SDE is a specific domain of economic activity with its inherent structure and system of economic relations. Specificity is defined by illegality, informality, as well as the criminal nature of the economic activity and the concealment of income.
 - b. From an economic point of view - a sector of economic relations, covering all types of production and economic activity, which, by their nature, content, nature, and form, contradict the requirements of existing legislation and are carried out contrary to state regulation of the economy and bypassing control over it.
 - c. From a technological point of view, SDE is an individual and collective activity that is illegal, associated with the design, development, distribution, support, and use of information and communication technology components, which is hidden from society. Thus, SDE is all illegal and hidden goods and services that use and are

based on information technology. The most important economic elements of this sphere are the following: illegal economic relations, illegal activities related to the production, distribution, and use of prohibited products and services.

Thus, SDE is all illegal and hidden goods and services that use and are based on information technology. The most important economic elements of this sphere are the following: illegal economic relations, illegal activities related to the production, distribution, and use of prohibited products and services. The concept model of SDE is represented in Figure 1.

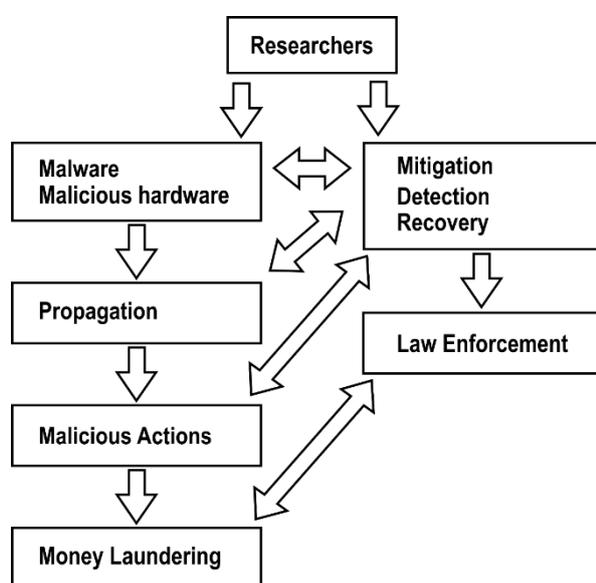


Figure 1. Concept model of SDE.

As a result of the research, it was concluded that the shadow digital economy is forming against the backdrop of the development of global digitalization processes. Let us formulate the definition of the shadow digital economy based on its specificity in terms of the production of products and services, the life cycle of products and services, etc. The following definition of SDE is proposed:

1. the shadow digital economy (SDE) is a sector of economic relations covering all types of industrial and economic activities, which in their direction, content, nature, and form contradict the requirements of the law and are implemented contrary to state regulation of the economy and bypassing control over it. All individual and collective activities that are

illegal, associated with the design, development, dissemination, support, and use of components of information and communication technologies, hidden from society are encompassed by the shadow information economy. That is, the shadow information economy is all the illegal and hidden products and services that use and are based on information technology. The following are the most important economic elements of this sphere: illegal economic relations, illegal activities related to the production, distribution, and use of prohibited products and services.

2. Shadow information economy - an activity related to the research, design, production, distribution, support, and use of components of information and communication technologies, hidden from society and the state, outside state control and accounting, and also, most often, illegal. Thus, the reason for the existence of a shadow information economy is the presence of conditions under which it is beneficial to hide their activities or own individual elements.
3. The shadow information economy is all the collective or individual activity that parasitizes in all areas of society, based on the use of information and communication technology components. This type of illegal activity should be considered as a special segment, which is characterized by the following systemic properties: universality, integrity, communication with the external environment, structure, ability to self-organization and continuous development, the presence of a constructive (productive sector) and a destructive (criminal sector) element.

The main conclusion is that the SDE represents a technical, technological, economic basis for cybercrime and combines a set of actions directed against the individual, society, and the state.

Another very important problem is the study of the economic foundations of cybercrime. In this regard, the data on the economy of cybercrime looks staggering against the background of the collected statistics on the activity of the SDE. Cybercrime was estimated at \$ 1.5 trillion in 2018, according to a study by Bromium. This was the first study of its kind to examine the “dynamics of cybercrime” in the context of revenue stream and profit distribution. The study identified new

criminal platforms and a thriving cybercrime economy that is self-sufficient and blurs the boundaries of legality. Gregory Webb, CEO of Bromium, commented on the study's findings as follows: "It's shocking how widespread and profitable cybercrime has become. The model of crime is to create malware and deliver it to cybercriminals as easily as shopping online. Not only is it very easy to gain access to the tools, services, and expertise of cybercriminals, this means that businesses and governments will face more sophisticated, costly, and destructive attacks as the network is profit-driven and gains traction. We cannot solve this problem with old thinking or outdated technology. The time has come for new approaches."

The report is accompanied by a summary table that provides data on the annual income generated from the implementation of selected cybercrimes (Williams, 2019).

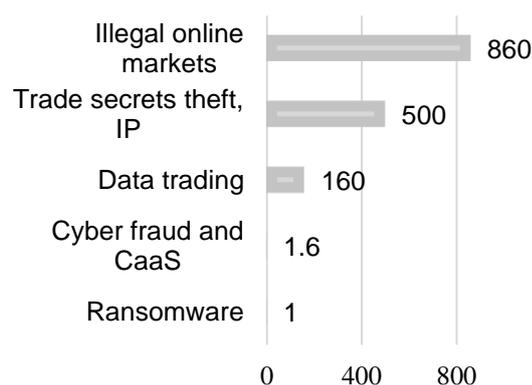


Figure 2. Yearly income from cybercrime in 2018 in billion USD.

Authors based on (Williams 2019).

This article makes an interesting suggestion that if cybercrime, from an economic point of view, were a sovereign country, it would rank 13th in the world in terms of GDP. The total income, according to approximate data, is equal to \$ 1.5 trillion and includes:

- \$ 860 billion - actions in illegal online markets;
- \$ 500 billion - trade secrets theft, IP;
- \$ 160 billion - data trading;
- \$ 1.6 billion - cyber fraud and cybercrime as a service;
- \$ 1 billion - ransomware.

The report points out that cybercrime operates at multiple levels, with some large "corporate"-style trading operations bringing in over \$ 1 billion and

"small and medium-sized business" orders ranging from \$ 30,000 to \$ 50,000.

A wide range of economic agents with their deep specialization (from the development of specific malicious software mechanisms to the rental of ready-made bot systems, etc.), economic relations, and other economic factors contribute to the generation, support, and confirmation of high incomes on an unprecedented scale.

Crimeware is a serious business. Developers model their activities following corporate standards to maximize profits. As an example, the emergence of "crimeware-as-a-service" (criminal software as a service) can be considered as a demonstration of its capabilities. For a short period, cybercriminals radically change their toolkits to achieve new results. An additional example is Cryptomining as an operation. The cryptocurrency market peaked at the end of 2017 and began to decline by February 2018. The downward trend in the Bitcoin index directly affected the activity of Cryptomining as an operation, which fell by more than 50% during the year. The statistical correlation between the jumps in the Bitcoin index and the popularity of "Cryptomining as an operation" can be considered as a highly profitable tool for influencing the business.

One more important feature of cryptocurrencies should be highlighted - receiving bribes by cryptocurrencies has been very popular among officials and lawyers for several years. Such transactions can be tracked, but neither actually nor legally can they be tied to a person. That is, formal evidence for the investigation and trial cannot be obtained a priori. Moreover, cryptocurrency immediately appears outside the state, and it is almost impossible to confiscate it. However, with the Internet, they always remain at the disposal of the owner. This is a kind of airbag for detainees.

We consider it possible to refer to the research by RAND Corp., titled Economic Competition in the 21st Century (Shatz, 2020). This report examines various forms of economic competition, including the concept of national competitiveness, competition for markets and investment, the use of economic instruments in areas of international competition, and competition for the nature of the global economic system. The main idea is the

thesis that geopolitical competition using economic instruments can be effective, but the use of such instruments can be very expensive. In any case, the costs of implementing them should be weighed against the benefits obtained. Among other economic instruments for geopolitical competition in the United States, the following stand out: trade policy; investment policy; sanctions; cyber tools; financial help; financial and monetary policy; production and export of energy and goods.

Cyber tools are of particular interest since they can be used to inflict damage (for example, a reference is made to the alleged shutdown of the Ukrainian power grid in 2015), as well as steal intellectual property, technology, and trade secrets.

4 CONCLUSIONS

Cybercrime and SDE are everywhere. Effects of a single criminal attack (for example, DDOS or MIM and others) affect supply chains beyond the realm of cyberspace.

A review of the content (qualitative and quantitative) is required using the following cybersecurity assessment metrics (Daultrey, 2017): Legal (cybercrime laws, regulations, training); Organizational (collection on metrics on cybersecurity, national strategy); Technical (industry standards); Capacity building (training for cybersecurity professionals, public awareness); Cooperation (international, interagency and public-private sector).

5G communication networks, which are just starting to be launched in several countries, by 2028 will hardly cope with the growing volume of data transfer. According to analysts of Bank of America Merrill Lynch, we should expect by this time the next generation networks - 6G. 6G mobile communication technologies may become one of

15 breakthrough technologies that will have a key impact on the global industry in the coming years among other similar breakthrough technologies (quantum computers, Hyperloop, nanosatellites, geoengineering, etc. Analysts believe that 6th generation networks will be able to increase speed up to 400 times higher than 5G, also, the advantages of AI will be used. Based on this, we can assume the expansion of capabilities for implementing various attacks.

A program to improve the warning system about new software abuse and countermeasures is needed. This work should be implemented with state and private institutions, primarily financial and banking activities.

The risk of using malware is underestimated, making protection efforts difficult. This leads to the fact that losses from the impact of criminal software are growing, and countermeasures are taken to reduce the effectiveness of the confrontation. The impact of criminal software is enormous, and if the resistance efforts are not significantly increased, more serious and widespread consequences in terms of coverage and cost may arise.

The growth of criminal software is steady; the frequency of distribution of new species is growing from year to year. Moreover, as a result, criminal software represents a more serious threat to business than targeted attacks on information systems.

The introduction of criminal software is not expensive and does not require much effort on the part of motivated participants, which ensures the optimization of ongoing attacks to achieve profitable goals. The ability to increase responsiveness and change strategies has led to the emergence of increasingly sophisticated and targeted attacks on business programs.

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Received for publication: 05.09.2020
Revision received: 23.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – **APA Sixth Edition:**

Ohrimenco, S., & Borta, G. (2021, January 15). The nature of shadow digital economics. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 146-156. doi:10.12709/mest.09.09.01.17

Style – **Chicago Sixteenth Edition:**

Ohrimenco, Serghei, and Grigori Borta. 2021. "The nature of shadow digital economics." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 146-156. doi:10.12709/mest.09.09.01.17.

Style – **GOST Name Sort**:

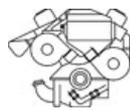
Ohrimenco Serghei and Borta Grigori The nature of shadow digital economics [Journal] // MEST Journal / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 146-156.

Style – **Harvard Anglia**:

Ohrimenco, S. & Borta, G., 2021. The nature of shadow digital economics. *MEST Journal*, 15 January, 9(1), pp. 146-156.

Style – **ISO 690 Numerical Reference**:

The nature of shadow digital economics. **Ohrimenco, Serghei and Borta, Grigori**. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, MEST Journal, Vol. 9, pp. 146-156



JUSTIFICATION OF MANAGEMENT SOLUTIONS FOR THE DELIVERY OF DIESEL FUEL TO THE MINES

Vladimir Olizarenko

Magnitogorsk State Technical University named after G.I. Nosov,
Magnitogorsk, Chelyabinsk region, Russian Federation

Azamat Allaberdin

Ufa State Petroleum Technical University, Ufa, Republic of Bashkortostan,
Russian Federation

Konstantin Vazhdaev

Ufa State Petroleum Technical University, Ufa, Republic of Bashkortostan,
Russian Federation

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JEL Category: **D24, M11**

Abstract

The development of copper-pyrite deposits in the southern Urals is characterized by an increase in depth and, consequently, a complication of mining and geological conditions. As a result, there is a significant increase in the volume of work on the sinking of mine workings, delivery, and rollback of the extracted ore mass. Justification of management decisions on the delivery of diesel fuel to the mine is executed to find the optimal model of the technological scheme of delivery of diesel fuel (diesel fuel) and other fuels and lubricants (further – fuels and lubricants) in the deep horizons of the underground mine (in the sequel - in the mine) with the development of recommendations on designing an optimal model of method of delivery. The latter is achieved by comparing the competitive models of delivery of DT to the mine: fuel tankers (hereinafter-TK) on an inclined ramp, through a pipeline laid in a cased well and in specially equipped mine trolleys and their combinations with a reasonable choice of the optimal model of the technological scheme. According to the results of the research developed methods of rational organization and management of the movement of diesel fuel based on material flows on the principles of logistics concepts, ensuring the formation of counter-flows model logistic schemes. From the above studies, it follows that the delivery of DT to the mine in special trolleys is optimal with minimal time and cost of delivery to deep horizons Gaiskiy underground mine.

Address of the corresponding author:

Vladimir Olizarenko

[✉ volizarenko@mail.ru](mailto:volizarenko@mail.ru)

Keywords: diesel fuel, tanker, model, scheme, delivery, horizon, economic efficiency, cost minimization.



The relevance of the delivery of diesel fuel (DF) to the deep horizons of underground mines is explained by an increase in the production of copper-pyrite ore to 6-10 million tons/year (Table 1) at the Gaiskiy and Uchalinskiy GOKs (Table 1) and in the regions of the Russian

Federation. At the same time, a decrease in the copper content in the ore to 1.8% is clearly expressed, which is accompanied by an increase in the cost of extracting 1 ton of ore in the cost of which 35% falls on diesel fuel.

Table 1. Production volumes (a) and wholesale prices (b) for diesel fuel, fuels, and lubricants

a)

| Mining enterprise | Production volumes, million tons/year | | | | | |
|-------------------|---------------------------------------|------|------|------|------|------|
| | 2010 | 2012 | 2014 | 2016 | 2018 | 2020 |
| Gaiskiy GOK | 5.0 | 5.25 | 6.0 | 7.0 | 7.9 | 9.0 |
| Uchalinskiy GOK | 4.2 | 4.8 | 5.0 | 5.25 | 5.5 | |

b)

| № | Name of the material, lubricant | Unit | Unit price with VAT |
|---|---------------------------------|---------|---------------------|
| 1 | Diesel fuel, winter fuel | RUB/ton | 37,000 |
| 2 | Diesel fuel, summer | RUB/ton | 34,000 |
| 3 | Oil: the average price | RUB/ton | 118,376 |
| | Motor | RUB/ton | 130,000 |
| | Industrial | RUB/ton | 55,000 |
| | Hydraulic | RUB/ton | 151,505 |
| | Compressive | RUB/ton | 60,375 |
| 4 | Lineshaft | RUB/ton | 195,000 |
| | Plastic lubricant | RUB/ton | 70,000 |

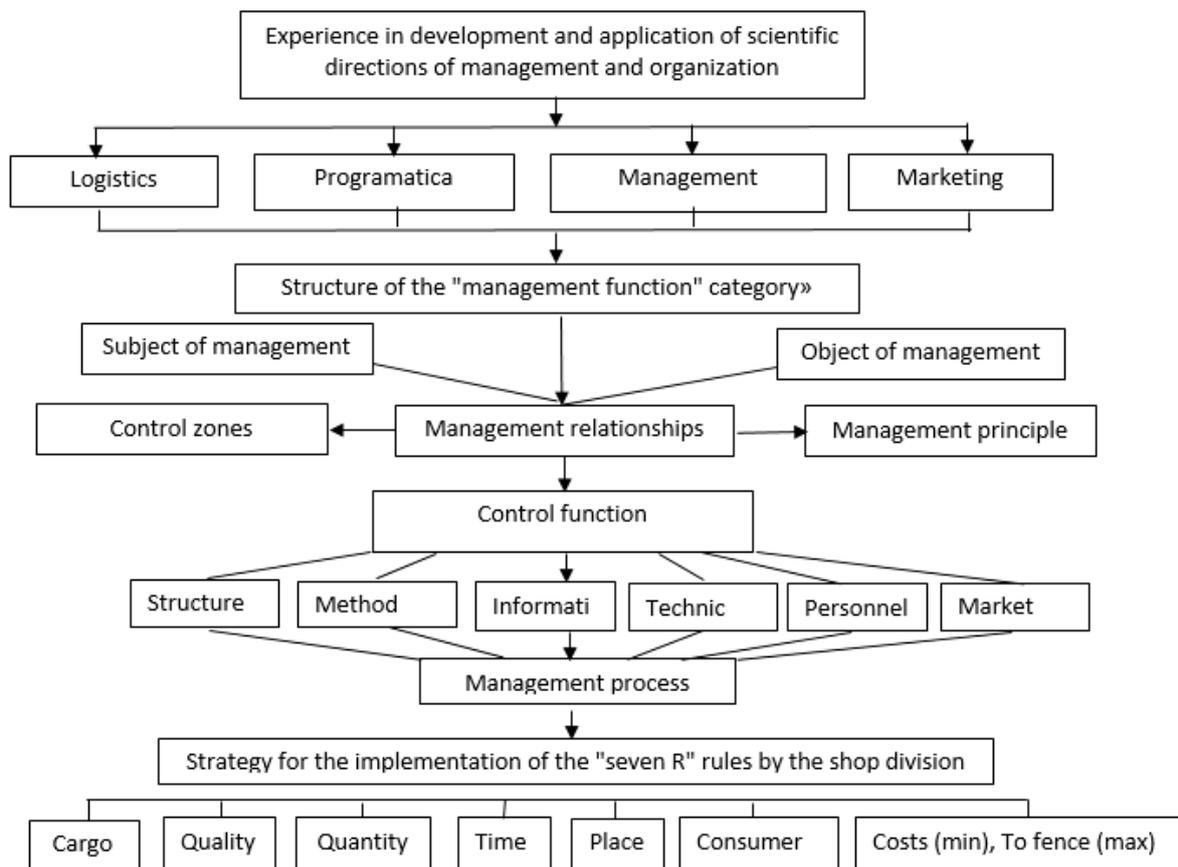


Figure 1. Place of the category "management functions" in the management process

At present, the experience of application and further development of modern scientific directions of management and organization of the development of the mining-technical system "mine-quarry-factory" as part of a mining and processing plant (GOK) is possible based on using the principles of the logistics concept, rochematics, management and marketing (n.d. 2017) (Gavrishev, Rakhmangulov, & Gryaznov, 2002) (Laptev, 2018) (Olizarenko, Krasavin, Abdrakhmanov, & Goltsov, 2013) (Fig. 1).

At the same time, the place of the category of "management functions" in the management process with the allocation of the category of "management functions" in the management structure (Fig. 1) using the principle of decentralization of the main task of profitable mining of ore mass and the allocation of one auxiliary task for the delivery of diesel fuel to the deep horizons of the mine with the implementation of the strategy and requirements of the modern rules of the "seven R" (Gavrishev, Rakhmangulov, & Gryaznov, 2002) underground mine.

A retrospective of the correctness of making strategic management decisions at all periods of the reconstruction of the Gaysky underground mine and the GOK based on the logistic concept and management principles for the development of three Gaysky open-pit mines No. ÷ 1310 m for the periods of 4 reconstructions (from 1960 to the present) of the Gaysky GOK and the underground mine, is confirmed by the positive results of the development of the Gaysky deposit and the empirical dependences obtained on the graphs (Fig. 3) from the beginning of the operation to the present time.

Achievement of such significant indicators of ore extraction volumes up to 6-10 million tons per year at underground mines is ensured both by further improvement of the applied ore mining technology and by solving the separate task of delivering diesel fuel to the deep horizons of mines.

A retrospective of the correctness of making management decisions on the development of open-pit and underground mining operations (OGR and PGR) and the ongoing reconstructions

at PJSC "Gaysky GOK" and the underground mine of the same name is shown both for the development of open-pit mine (Fig. 2), and on entering deep horizons. The positive management decisions of which are confirmed by the established dependencies of the volumes of ore mined for the periods of ongoing reconstruction (Fig. 3).

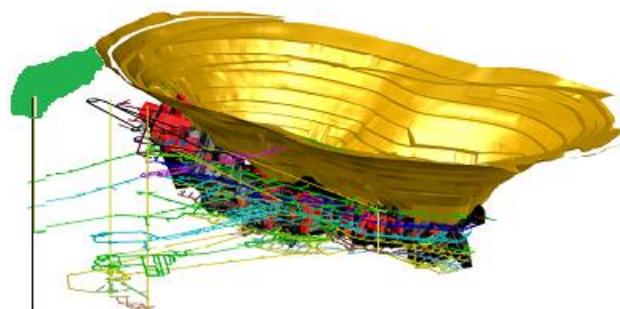


Figure 2. A retrospective of managerial decision-making on the development of Gaysky

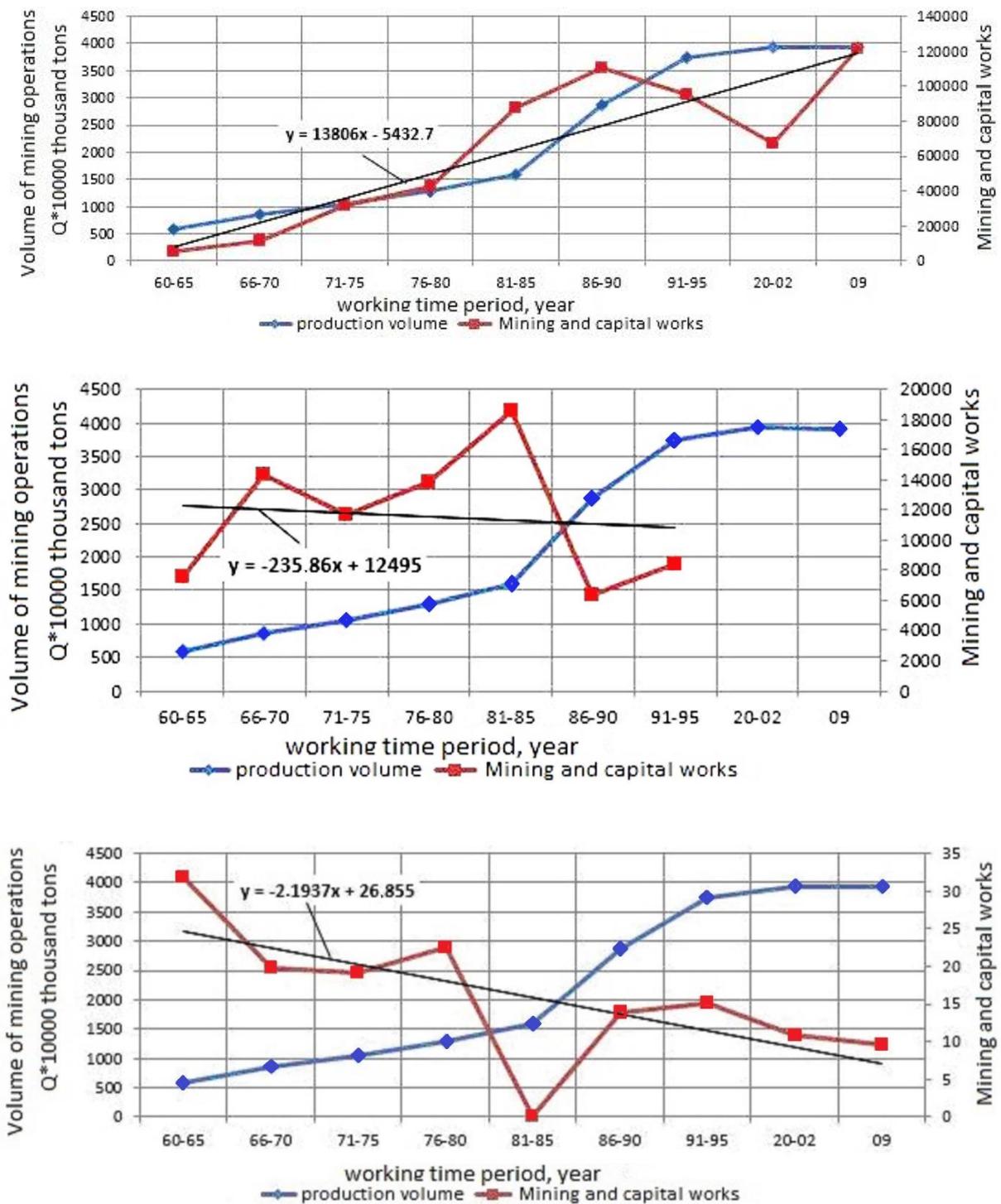


Figure: 3 Dependences of the volumes of mined ore for the periods of ongoing reconstruction (b)

The basis for the implementation and achievement of a high concentration of mining operations with an annual production capacity of 6 ÷ 10 million tons, is focused on the management decisions of the management of the Gaysky GOK, design organizations "UMMC-Mekhanobr" and other studies, where the idea of building

essentially a "new mine in an existing mine" (PJSC "Gaysky GOK"), which allows planning the operation of the underground mine and Gaysky GOK for decades in the near future.

At the same time, the search for management decisions on the scientific substantiation of the optimal model of the technological scheme for

delivering diesel fuel to the mine was carried out according to the experience of delivering diesel fuel to the mine:

- refuelers on an inclined ramp at the Gaysky mine.

- through a pipeline in a borehole and trolleys at analogous mines Oktyabrsky (a) Norilsk MMC, Nikolaevsky (b) LLP Kazmys, Uzelginsky (c) PJSC Uchalinsky GOK (Fig. 4).

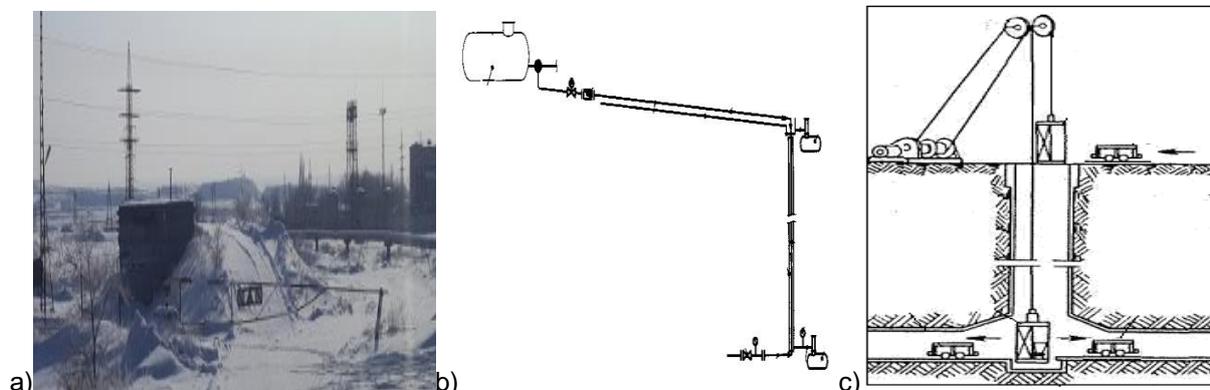


Figure 4. General types of surface equipment (a) downhole delivery of diesel fuel to the mine (b) and delivery of diesel fuel in special trolleys in the cage (c) along the auxiliary cage shaft

The correctness of managerial decision-making by the managers of underground mines based on the trends carried out by foreign and domestic

companies made it possible to form a fleet of self-propelled vehicles with internal combustion engines (Table 2).

Table 2. Distribution of self-propelled vehicles with internal combustion engines by purpose

| № | Name of self-propelled vehicles cars | Gaysky underground mine | | Uchalinsky underground mine | |
|---|--------------------------------------|-------------------------|--------|-----------------------------|-------|
| | | number of pieces | % | number of pieces | % |
| 1 | Drilling machine | 44 | 19.73 | 8 | 12.0 |
| 2 | Loading and delivery machine | 45 | 20.18 | 11 | 15.1 |
| 3 | Autodumpers | 42 | 18.83 | 23 | 32.3 |
| 4 | Auxiliary machine | 92 | 41.23 | 29 | 40.6 |
| | Subtotal: | 223 | 100.00 | 71 | 100.0 |

Based on the data of the studies carried out, a methodology for the rational organization and control of the movement of diesel fuel was developed based on the movement of material flows on the principles of a logistics concept, which ensures the formation of oncoming traffic flows according to the model of a logistics scheme (Fig. 5).

A logistic model for modeling the technological flow of diesel fuel delivery to the mine on the horizons of the operation of self-propelled vehicles with internal combustion engines makes it possible to track and determine the costs of transporting both ore mass and diesel fuel by self-

propelled vehicles with internal combustion engines in terms of the time of their delivery to the consumer at a given level of quality and transport services.

The final criterion for choosing the optimal method for delivering diesel fuel to the mine is determined by the adopted management decisions based on the principles of logistics and rochematics, marketing and management based on the final data of economic and mathematical modeling of cost indicators concerning the conditions of the Gaysky mine, considering the factors affecting environmental, social, and sanitary norms and rules.

Substantiated transport-complex modules and logistic models of diesel fuel flows made it possible to develop a technical and economic model for calculating the parameters of diesel fuel delivery to the mine:

$$C \sum_{i=1}^N (t_{dv.oc.i.sp.i} \cdot min_{min}) \quad (1)$$

- the main 3 competitive models of technological schemes:

$$t_{dv.TZ.i} = f(n_{TZ.i}, Q_{TZ.i}, L_{tr}, L_{nc}, v_{TZ.i}, q_{m.nas.i}) \rightarrow min \quad (2)$$

$$t_{dv.w.i} = f(L_{tr}, v_{TZ.i}, D_{w.i}, Q_{w.i}, H_{gor.i}, L_{gor.i}, v_{w.i}, q_{m.nas.i}) \rightarrow min \quad (3)$$

$$t_{dv.vag.i} = f(n_{vag.i}, Q_{vag.i}, H_{w.sep.i}, L_{gor.i}, v_{vag.i}, q_{m.nas.i}) \rightarrow min \quad (4)$$

$$t_{dv.ak.(TZ+vag)} = f[(n_{TZ.i}, Q_{TZ.i}, v_{TZ.i}, q_{m.nas.i}) + (L_{tr}, n_{vag.i}, Q_{vag.i}, H_{gor.i}, L_{gor.i}, v_{vag.i}, q_{m.nas.i})] \rightarrow min \quad (5)$$

- and 2 alternative combined models of technological schemes:

$$t_{dv.ak.(T3+w)} = f[(n_{TZ.i}, Q_{TZ.i}, L_{tr}, L_{nc}, v_{TZ.i}, q_{m.nas.i}) + (L_{tr}, n_{vag.i}, Q_{vag.i}, H_{gor.i}, L_{tr.i}, v_{vag.i}, q_{m.nas.i})] \rightarrow min \quad (6)$$

$$C_{sp.i} = t_{dv.i} \cdot q_{sp.i} \quad (7)$$

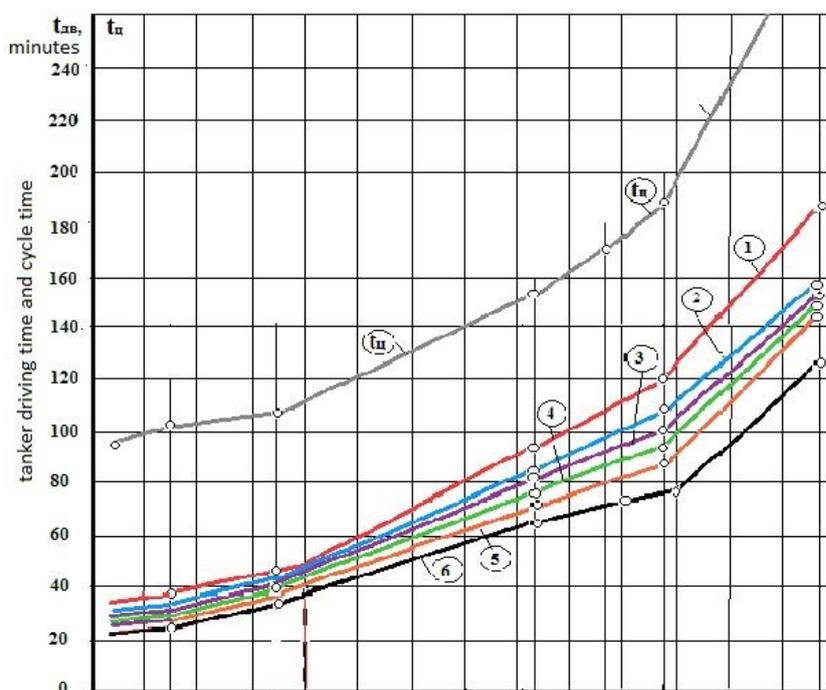
where $q_{sp.i}$ - unit cost costs for diesel fuel delivery to the mine according to competitive basic (f. 2-4) and alternative combined (f. 6, 7) models of technological delivery schemes, rubles/min.

Approbation of the developed mathematical and technical and economic model of technological schemes and methods for calculating the

where is the time of delivery (movement) along the route of a given (i-th) volume (Q_{dt}, t, m^3) of diesel fuel (DF) in a vehicle (refueller, trolley on a rail track) or a gravity flow through a fuel pipeline laid in a borehole with the determination of the diesel fuel movement time ($t_{dv}, i, min.$) along the length of the transportation path (l_{tr}, m) along:

parameters of diesel fuel delivery to the mine by i- types of fuel tankers, borehole delivery and delivery in special trolleys are described in detail and given in (n.d., 2017) and (Leptaev, 2018).

A consolidated model of technological delivery schemes combined with the results of calculating parameters in tabular form is shown in Fig. 5.



(a)

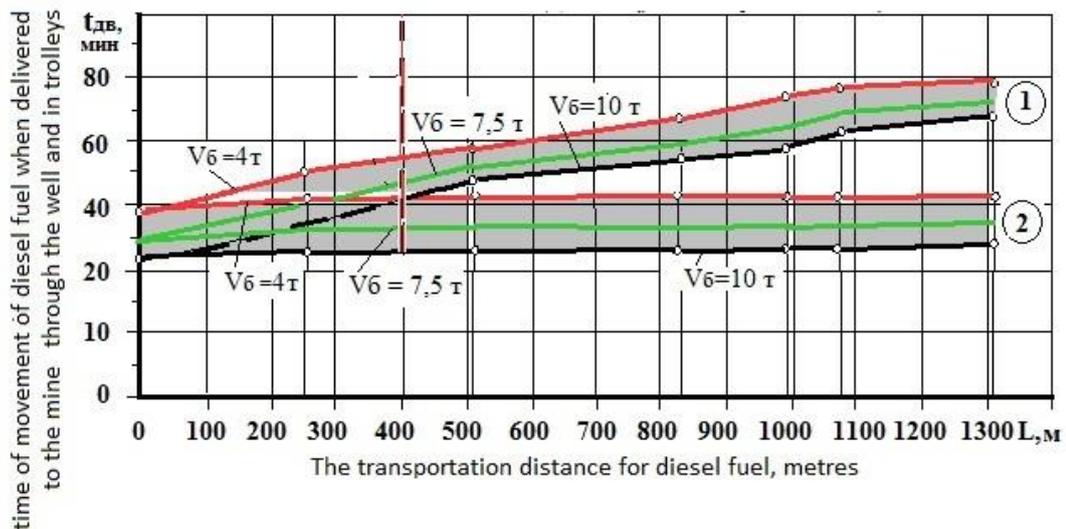


Figure 5. A generalized graph of the dependences of the time of movement (t_{dv} , min) of diesel fuel into the mine to the j -th horizon by delivery methods

On figure 5 there are presented dependences of the time of movement (t_{dv} , min) of diesel fuel into the mine to the j -th horizon by delivery methods:

- a. - by tankers No. 1-6 with a tank capacity, respectively, $V_b = 4, 5, 7, 7.5, 8.5, \& 10$ tons.
- b. 1 - through a pipeline installed in a borehole.
- c. 2 - in a special trolley in the cage of the auxiliary cargo and human cage lift.

d. 3 - in a combined way: in tankers up to the horizon of 510 m and below the horizon of 510 m - through a pipeline installed in a well.

According to the calculation of the parameters for the delivery of diesel fuel to the mine by the main and alternative delivery methods (Fig. 5), calculations were made and graphs of the cost costs (Fig. 6) for the delivery of diesel fuel to the mine using competing and alternative options were made.

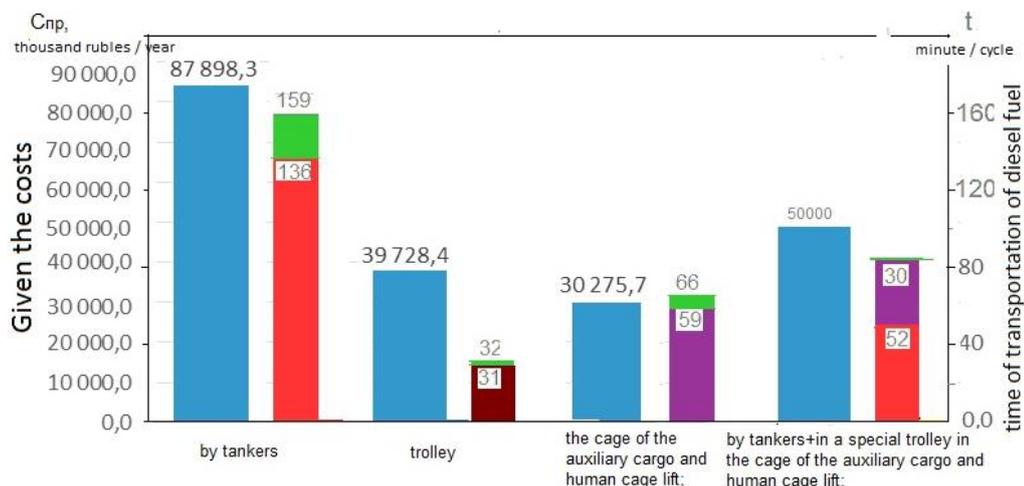


Figure 6. Graphs of the reduced costs for diesel fuel delivery to the mine by competing and alternative options

From the above data, it follows that the delivery of diesel fuel to the mine in special trolleys is optimal with minimal time and cost of delivery to deep horizons (horizons 510 ÷ 1310 m) of the Gaysky underground mine.

The performed studies have established:

1. The existing method of delivering diesel fuel to a mine of TK of the i -th types is among the competitive methods of delivering diesel fuel to the mine in terms of the time spent on the

- transportation distance at a depth of mining, not more than 400 m.
2. At depths of up to 400 m, in terms of the delivery time of diesel fuel to the mine, the option of borehole delivery is competitive, in the time spent, which does not take into account the difficulties of maintaining the system of wells in working order, the impact of mining on the borehole, possible losses of diesel fuel from leaks inside the borehole
 3. pipeline connections and the complexity of their elimination.
 3. At all depths of the mine, the most preferable option for delivering diesel fuel to the mine is delivery in special trolleys, but the calculated operating time in the cycle of delivering diesel fuel to the mine does not take into account the actual load of the cage lift and the possibility of its use for delivering diesel fuel in trolleys to the mine during the shift, days.

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Received for publication: 04.09.2020
Revision received: 26.11.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – **APA Sixth Edition:**

Olizarenko, V., Allaberdin, A., & Vazhdaev, K. (2021, January 15). Justification of management solutions for the delivery of diesel fuel to the mines. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 157-165. doi:10.12709/mest.09.09.01.18

Style – **Chicago Sixteenth Edition:**

Olizarenko, Vladimir, Azamat Allaberdin, and Konstantin Vazhdaev. 2021. "Justification of management solutions for the delivery of diesel fuel to the mines." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 157-165. doi:10.12709/mest.09.09.01.18.

Style – **GOST Name Sort:**

Olizarenko Vladimir, Allaberdin Azamat and Vazhdaev Konstantin Justification of management solutions for the delivery of diesel fuel to the mines [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 157-165.

Style – **Harvard Anglia:**

Olizarenko, V., Allaberdin, A. & Vazhdaev, K., 2021. Justification of management solutions for the delivery of diesel fuel to the mines. *MEST Journal*, 15 January, 9(1), pp. 157-165.

Style – **ISO 690 Numerical Reference:**

Justification of management solutions for the delivery of diesel fuel to the mines. **Olizarenko, Vladimir, Allaberdin, Azamat and Vazhdaev, Konstantin.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 157-165.



SEXUAL ORIENTATION AND WAGES

Ivan Pontiff

Loyola University New Orleans, New Orleans LA, USA

Walter E. Block

Harold E. Wirth Eminent Scholar Endowed Chair and Professor of Economics Loyola University New Orleans, New Orleans LA, USA

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JEL category: **J70, J78**

Abstract

We wrestle with the issue of whether or not discrimination, in favor of or against straight and gay people can account for wage divergences between these two groups of people. Section II is devoted to empirical evidence supporting the existence of a discrimination wage gap due to sexual orientation. The majority of studies provided have concluded that sexual orientation diminishes wages for homosexual and bisexual men, whereas it increases wage premiums for homosexual women. Discrimination due to sexual orientation, specifically homo/bisexual males, is present in foreign labor markets as well as in the United States. In these calculations, all other factors, such as age, education, race, marital status, etc., are identified and taken into consideration when calculating the effect of sexuality on wage differences. Section III strives to explain why the discrimination wage gap cannot exist through a theoretical approach. In equilibrium, sexual preference can play no role whatsoever in wage gaps. We are never in full equilibrium, but the “expected value” is that we are always exactly on point, in the absence of any reason to expect over or underestimating prices or wages. We expect that discrimination cannot account for gay people being paid less than straights, assuming equal productivity. At equilibrium, these economic boycotts are impotent due to profit opportunities. We conclude leaving the reader to decide which perspective is more true.

Keywords: *Discrimination, prejudice, wage differentials*

1 INTRODUCTION

While race and gender are generally the focus of wage discrimination issues, the awareness of sexual orientation as a possible discriminatory element has increased with the heightened

visibility of gay, lesbian, and bisexual people in the workforce. For decades, researchers have questioned whether the pay gap between these two demographics in the job market is due to overt prejudice or a result of other factors. Many studies¹ have concluded that sexual orientation diminishes wages for homosexual and bisexual men, whereas it increases wage premiums for homosexual women.

The address of the corresponding author:

Ivan Pontiff

[✉ ijpontif@my.loyno.edu](mailto:ijpontif@my.loyno.edu)

¹ Berg & Lien (2002); Blandford (2003); Black, Makar, Sanders, & Taylor (2003); Badgett, Sears, Lau, & Ho

(2009); These studies all reported results supporting the statement in the text.

In section II, we consider the case in favor of discrimination as an explanation for wage gaps based upon sexual orientation. Section III is devoted to exploring the very opposite perspective. We conclude in Section IV.

2 DISCRIMINATION ACCOUNTS FOR WAGE GAPS

Lee Badgett (1995), an economist at the University of Massachusetts Amherst, conducted some of the first studies on wages and sexual orientation. She used data from the General Social Survey (GSS) which began collecting data on sexual behavior with partners of either sex in 1989. While the GSS did not specifically ask about sexual orientation or identity, Badgett believed that same-sex sexual experiences were likely to be highly correlated with a self-identified gay or bisexual orientation. She used two definitions in her analysis. Homosexuality was defined as having had a same-sex partner since age 18. It was also defined as having had more same-sex than opposite-sex partners since age 18. Sample size can vary considerably depending on how sexual orientation is defined and which set of data is used.

Varied definitions, data collection methods, and researcher interpretation can yield different conclusions based on examinations of the same data sets. For example, studies using data collected from the National Health and Social Life Survey (NHSLs), the General Social Survey (GSS), the United States Census, and the National Health and Nutrition Examination Survey (NHANES III)² show that gay men earn anywhere between 10% to 32% less than their heterosexual male counterparts (Badgett, Sears, Lau, Ho 2009). Results involving lesbians are more complicated. In some studies, they earn more than heterosexual women but less than heterosexual or gay men. While the majority of early studies used the General Social Survey, new research³ has been conducted on a global scale.

Articles addressing labor market discrimination in Sweden, Greece, France, Canada, Australia, and

the United Kingdom have all come to the same conclusion. Discrimination due to sexual orientation, specifically homo/bisexual males, is present in foreign labor markets as well as in the United States. In these calculations, all other factors, such as age, education, race, marital status, etc., must be identified and taken into consideration when calculating the effect of sexuality on wage differences.

It may not be surprising that gender has an effect in addition to sexuality on wages. Blandford (2003) finds that lesbian and bisexual women enjoyed a wage premium of 17–23% but that differentials previously attributed to marital status, may reflect unobserved effects of sexual orientation. “The findings reported here for lesbian and bisexual women stand in sharp contrast to those reported by Badgett. The statistically significant findings for lesbian and bisexual female workers in this study likely result from more accurate identification of lesbian and bisexual female workers and the availability of a larger database” (Blandford 2003). This is one instance where lesbian and gender-associated factors produce more complexity compared to men.

In addition to examining gender by itself, the gender of same-sex relationships also seems to matter. Black, Makar, Sanders, and Taylor (2003) ran an updated analysis of Badgett’s research, using more current data from the GSS and a varying definition to determine sexual orientation. The two definitions of homosexuality were “having had exclusively same-sex sex or having had sex with both men and women over the past year, and having had exclusively same-sex sex or sex with both men and women over the past five years” (Black, Makar, Sanders, Taylor 2003). Black and his colleagues’ study resulted in a similar conclusion. “Depending largely on the definition of sexual orientation used, earnings are estimated as having been between 14% and 16% lower for gay men than for heterosexual men, and between 20% and 34% higher for lesbian than for heterosexual women” (Black, Makar, Sanders, Taylor 2003). The explanation of this evidence is consistent with

² NHSLs: <https://www.icpsr.umich.edu/web/HMCA/studies/6647/summary>; GSS: <https://gss.norc.umd.edu/>; NHANES III: <https://www.cdc.gov/nchs/nhanes/index.htm>; US Census: <https://www.census.gov/data.html>

³ Sweden: Ahmed (2013); Greece: Drydakis (2014); France: Laurent and Mihoubi (2012); Canada: Mueller (2014); Australia: La Nauze (2015); United Kingdom: Aksoy (2017)

Gary Becker's theory of household specializations or optimal human capital accumulation.

Gender association segues into traditional male and female roles as they relate to marital status. Becker's model of household specialization is the theory that people at a younger age will make human capital investment decisions based on the expectation of forming a traditional household in the future. Individuals will have different specializations in the market and non-market production varying with their partner. Becker believed that men who remain single would earn less than married men because they would specialize less intensely in market production skills. This concept would follow through to a gay man, who are statistically less likely to be married. In planning for a future to support a family, heterosexual men may be more willing to accept more stressful jobs with longer work hours than gay men. This may contribute to a large part of the apparent earnings differences.

Whether income is reported as individual earnings or household income affects these analyses. Mueller (2014) tried to identify if there is any disparity in the wages of same-sex vs. different-sex couples in Canada. He used data from two different sources for the analysis: The General Social Survey 2006-10 and the Canadian Community Health Survey (CCHS)⁴. Men in same-sex couples earned roughly the same as their different-sex counterparts. For women, there was a 17% percent earnings loss in lesbian couples compared to heterosexuals. Although this was not a conclusive study, the results could be used to argue that there is no discrimination in the workplace.

Laurent and Mihoubi (2012) came to an opposing conclusion using data from the French Employment Survey. This data set accurately identified same-sex couples and estimated the wage gap due to sexual orientation in the private and public sectors. Even when controlling for the marriage premium, Laurent and Mihoubi still concluded that there was a wage gap in the French labor market for homosexual men. The estimated differences were 6% to 7% in the private sector and 5% to 6% in the public sector, which

are similar percentages to that of gender wage discrimination. Their study also discovered a higher level of education does not protect against sexual orientation discrimination. The higher the degree, the higher magnitude of wage discrimination felt by gay employees. The "pink glass ceiling" effect is more evident in highly skilled jobs that come with a significant "visible representation" component.

Laurent and Mihoubi also touched on the subject of perceived sexual orientation specifically from one's employer. They made a point to keep in mind that this analysis does not take into account whether the employer knows about the individual's sexual orientation or not. It is a variable that is hard to quantify in most data collection methods and usually cannot be considered due to a lack of information. Those who are identified as homosexuals in the workplace suffer a more significant wage penalty. One researcher was able to produce employer prejudice data by focusing on the job application process.

Drydakis (2014) investigated the potential discrimination of homosexual men compared to heterosexuals when applying for a job in the Greek private sector. Gay men faced a significantly lower rate of invitation to interviews measured solely on sexual orientation. He used a correspondence test to evaluate what factored into the disadvantages gay applicants were facing in the Greek job market. He focused on the rate of interview invitations, rather than the wages offered. Yet another study explored the opposing perspective: do gays and lesbians actively avoid prejudice in employers/occupations?

Plug, Webbink, and Martin (2014) conducted a study using data derived from the Australian Twin Registry. They specifically focused on a 1992 sex survey detailing each twin's sexual orientation, attitude toward homophobic sentiments, and their respective occupation. The results were consistent with Becker's model of employer and employee prejudice. It suggested that discriminatory tastes play a significant role in workplace segregation between homosexual and heterosexual workers. The study also showed that sexual prejudice was a factor contributing to

⁴ CCHS:
<https://www.statcan.gc.ca/eng/survey/household/3226>

homosexuals' choices in occupation. Lastly, personality traits could explain an apparent wage differential.

La Nauze (2015) conducted research specifically on the sexual orientation-based wage gap in Australia. Her methods of analysis included ordinary least squares and Blinder–Oaxaca decomposition. She used the battery of Big Five personality traits in wage regressions and estimated the contribution of endowments and returns to these traits. The results were that individuals sharing the same personality traits, but differing in sexual orientation had varying wages. Homosexual men specifically suffered a substantial unexplained wage penalty. These unexplained contrasts suggested discrimination due to sexual orientation may also exist in Australia. La Nauze focused on the role that personality traits play in wage determination and how it may explain wage differentials due to sexual orientation. “To identify the impacts of personality on wages, I use the ‘Big Five’ classification of personality traits as covariates in a wage regression. The Big Five is a classification of personality types based on five traits: Extroversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience” (La Nauze 2015). Using data from the household panel HILDA, she concluded: “ In Australia, women in same-sex relationships earn a positive wage premium of 0%–13%, whereas men in same-sex relationships experience a negative wage premium of 8%–18% depending on the model. These gaps are economically significant and consistent with those found internationally” (La Nauze 2015).

Even so, wage disparities due to sexual orientation were not all negative. A substantial number of studies have shown that lesbians, compared to their heterosexual counterparts, earn more money. Blandford concluded that “Gay and bisexual men experienced a 30–32% income disadvantage relative to heterosexual peers, while lesbian and bisexual women enjoyed a wage premium of 17–23%” (Blandford, 2003). Black and his colleagues (2003) goes further to include marital status in his study and determined that lesbians make more than their heterosexual single or married counterparts. When focusing on couples, the same findings were true: men in cohabiting same-sex couples earn significantly

less than men in different-sex relationships, and women in cohabiting same-sex couples earn significantly more than women in different-sex relationships (Aksoy 2017). Contrary to the findings of gay men earning less than their heterosexual counterparts, in this instance, identifying as a lesbian did not necessarily correlate to lower wages than heterosexual women.

Yet another factor to consider when comparing households' financial standing is the possibility of children and dependents. Berg and Lien (2002) uncovered that being a parent and being a homosexual are not correlated. This contradicts the theory that becoming a parent can account for the earnings differentials. The methodology used to discount the notion that most homosexuals are affluent was estimating a single earnings equation using categorical earnings data and a maximum-likelihood approach. While the estimates provided strong evidence, the results were inconclusive to resolve the question of whether homosexuals face workplace discrimination. They believed that gender specificity should be reconsidered when analyzing the sexual orientation discrimination question since males and females have such different results. All of this data should be considered when writing rules to address sexual orientation inequality.

Years of data struggle to support legislative initiatives to protect gay, lesbian, and bisexual members of the workforce. The Employment Non-Discrimination Act (ENDA) was proposed in the mid-1970s to protect gay workers but was defeated in the U.S. Congress. Although it failed at the national level, 10 states and the District of Columbia enacted it. In the remaining 40 states, it is legal to differently compensate, fire, harass, not hire, or withhold promotions to workers due to sexual orientation (Berg and Lien 2002). Extensive research concludes that gay men are making less than their heterosexual counterparts. Research suggests that this is predominantly due to bias.

To conclude, sexual orientation is a driving factor for lower wages for homosexual men. However, it may be a cause of income premiums for lesbians. This data has been corroborated in studies across the globe. Additionally, various research has examined the relationship between same-sex

couples, dual-income, and having children and concluded that sexual orientation is the cause of wage disparities. The legislation is one tool to rectify inequality as social norms play catch up. Ideally, the vast research performed at institutions worldwide will provide the support necessary to develop a more equitable society.

3 DISCRIMINATION DOES NOT ACCOUNT FOR WAGE GAPS

In equilibrium, racial, gender, sexual preference, can play no role whatsoever in wage gaps.⁵ It cannot be denied that we are never in full equilibrium. Yet, we are always and ever tending in the direction, sometimes overshooting it, undershooting it. But the “expected value” is that we are always exactly on point, in the absence of any reason to expect over or underestimating prices or wages. Thus, we expect that tastes for discrimination cannot account for gay people being paid less than straights, assuming equal productivity.⁶

Suppose, then, that the productivity of both a gay and a straight person was \$20 per hour, and that, in equilibrium, they were both paid precisely that amount. However, we now incorporate sexual preference discrimination into the analysis; it is against the former. As a result, homosexuals now earn \$15 per hour, while the wage of heterosexuals remains at \$20 per hour.

How much profit can an employer earn from having a straight person on his shop floor, or in his factory, or working his computer? Well, profits are

revenue minus costs. So, $\$20 - \$20 = 0$. This creates no problem since in equilibrium⁷ profits are zero. However, what of the gay individual? The calculation for him is as follows: $\$20 - \$15 = \$5$. Does anyone think this can be the end of the story? That we have reached equilibrium? That this discriminatory wage will not call forth further market responses?

The obvious answer is that someone, some employer⁸ will offer this “exploited” worker \$15.01 and earn a profit from hiring him of \$4.99. Will this hypothetical bidding process end at this point? No. It will go on to \$15.02, \$15.03, ... etc. Where will it end? Assuming there are no transaction costs (Coase, 1960), and there are none, can be none, in the long run, the bid will rise, again, to the original \$20. The point is, economic boycotts⁹ are impotent, at least at equilibrium. The difficulty with this kind of economic activity is that it contains the seeds of its destruction. Every time the boycott is successful, and, to the extent that it is, it opens up profit opportunities for those who act to destroy it.¹⁰ If sellers boycott a group, any group, the targets have to pay more for what they buy. But this makes it more profitable for others to supply them with the good in question. Or, as we have seen, if the buyers, employers, boycott a group, any group, the targets suffer lower recompense, but this means competitors can earn a profit by buying from them, labor in this case.

4 CONCLUSION

Section II made the case for discrimination based on sexual orientation as an important explanation

⁵ This is true unless these characteristics are intrinsically related to discounted marginal revenue productivity (Block, 1994) of labor. For example, in the Spike Lee movie on Malcolm X (<https://www.imdb.com/title/tt0104797/>), it was imperative for artistic purposes that the lead role be played by a black actor, Denzel Washington, in this case. A lesbian would be unlikely to seek a position in a house of prostitution, nor would a homosexual make a good gigolo. Similarly, a child actor would not be a good candidate to play the role of an old person.

⁶ For support of this claim see Becker, 1957; Benbow & Stanley, 1980, 1982, 1983, 1984; Block, 1982, 1985, 1992, 1998; Block & Walker, 1985; Block & Williams, 1981; Block, Snow, & Stringham, 2008; Gottfredson, 1986; Herrnstein & Murray, 1994; Jensen, 1981; Levin, 1987, 1997; Lynn & Vanhanen. 2002, 2006; MacDonald, 2018; McMaken, 2016; Mercer, 2005; Murray, 2007; Rothbard, 1982; Seligman, 1992; Sowell, 1975, 1981, 1982, 1983, 1984, 2000; Vance, 2017;

Walker, Dauterive, Schultz, & Block, 2004; Whitehead, Block, & Hardin. 1999; Whitehead & Block. 2002, 2004; Williams, 1982, 2011; Wood, P., 2015; Woods, T. 2016

⁷ Barnett, 1990; Cachanosky, 2011; Davidson, 2012; Fillieule, 2013; Garrison, 1991; Hülsman, 2000., 2018; Kirzner, 1976; Machlup, 1958; Manish, 2014; Newman, 2015; Tang, Unpublished

⁸ There are three sources of discriminatory behavior in the labor market. We are now considering only that on the part of the employer. The alternatives are that it can emanate from fellow employees (this leads to a segregated work force), or from customers (the analysis of the text applies here, too)

⁹ Of which discriminatory hiring is a sub-set

¹⁰ Anderson, 2003; Carden, 2011; Cwik, 2000; D’Amico, 2004; Futerman, et al, 2020; Sanchez, 2010

for wage divergences between straight and gay people. It heavily relied upon empirical findings. Section III offered the very opposite case and relied on theoretical considerations. We leave it to the reader to decide which perspective is more nearly correct.

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Received for publication: 15.09.2020

Revision received: 22.10.2020

Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Pontiff, I., & Block, W. E. (2021, January 15). Sexual orientation and wages. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 166-174. doi:10.12709/mest.09.09.01.19

Style – Chicago Sixteenth Edition:

Pontiff, Ivan, and Walter E. Block. 2021. "Sexual orientation and wages." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 166-174. doi:10.12709/mest.09.09.01.19.

Style – GOST Name Sort:

Pontiff Ivan and Block Walter E. Sexual orientation and wages [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 166-174.

Style – Harvard Anglia:

Pontiff, I. & Block, W. E., 2021. Sexual orientation and wages. *MEST Journal*, 15 January, 9(1), pp. 166-174.

Style – ISO 690 Numerical Reference:

Sexual orientation and wages. **Pontiff, Ivan and Block, Walter E.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 166-174.



RUBISCO PROTEIN PRODUCTION – LCA APPROACH

Dubravka Skunca

Faculty of Business and Law, Union – Nikola Tesla University, Belgrade, Serbia

Hedi Romdhana

AgroParisTech, Paris, France

Rob Brouwers

Royal Cosun, North Brabant, Netherlands

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JEL Category: **D15, O13**

Abstract

The objective of this paper was to assess the environmental performance of the system of RuBisCo protein extraction and isolation from sugar beet leaves. Life cycle assessment (LCA) calculations have been completed to identify and quantify the environmental impacts from a cradle-to-cradle perspective covering seven subsystems: milling and extraction, heat treatment, centrifugation, microfiltration, ultrafiltration, chromatography and spray drying. In this paper, six environmental impact categories were analyzed: global warming potential, ozone layer depletion, energy demand, eutrophication potential, acidification potential, and land use. When RuBisCo protein extraction and isolation from different raw materials are compared, the only crop that has a lower environmental impact than sugar beet leaves is alfalfa, while the higher environmental impact has yellow mustard, ryegrass (mixture), Italian ryegrass, Brussels sprouts, English ryegrass, carrot leaves, leaf radish, and chicory. The comparison of environmental impact categories of different protein concentrates indicated that protein powder containing RuBisCo affected the environment less than egg protein concentrate. Direct comparison to other highly functional plant proteins was not possible as these are not in the market or have no LCA data available. RuBisCo was more environmentally impacting than regular soy protein. Our results for RuBisCo were in accordance with the low end of the range of results for microalgae, which is representing Chlorella HTF (heterotrophic fermenter), for most of the analyzed impact categories. This study found that the largest contributor to the environmental profile of the entire system of RuBisCo protein extraction and isolation from sugar beet leaves is the usage of electricity, while mitigation options for optimization of environmental impacts rely on the energy pinch approach for spray drying¹.

The address of the corresponding author:
Dubravka Skunca
[✉ dubravka.skunca@ppf.edu.rs](mailto:dubravka.skunca@ppf.edu.rs)

Keywords: life cycle assessment, RuBisCo, environmental impact, GreenProtein

¹ The text of the paper reflects only the author's view and the Bio Based Industries Joint Undertaking is not responsible for any use that may be made of the information it contains.

1 INTRODUCTION

This paper covers LCA analysis of the RuBisCo protein extraction and isolation from sugar beet leaves related to the GreenProtein project, which has received funding from the Bio-Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation program. The GreenProtein project has established a demo plant for the extraction and isolation of RuBisCo protein from sugar beet leaves at an industrial scale in Dinteloord, the Netherlands. It allows defining of the optimal conditions for the extraction process to be an easily replicable system in the whole EU (GP, 2020).

2 MATERIALS AND METHODS

LCA methodology used in the research is based on the standard published by the International Organization for Standardization (ISO) and includes the following steps: mapping the process (setting the goal), setting scope and boundaries, collecting data, calculating and analyzing the results (ISO, 2006).

Environmental impact categories were calculated using the IMPACT 2002+ method. Ecoinvent and Agri-footprint database, as well as SimaPro 9.0 software, was used to process the inventories.

3 MAPPING THE PROCESS

The goal of the study is to provide insight into the environmental impacts of RuBisCo protein extraction and isolation from sugar beet leaves by using the LCA approach. The functional unit (FU) has been established as 1 kg of protein powder containing RuBisCo (87.72 kg of sugar beet leaves is transformed into a functional unit). Activities taken into consideration were the transport of the leaves from the field to the demo plant and all activities connected to milling and extraction, heat treatment, centrifugation, microfiltration, ultrafiltration, chromatography, and spray drying.

4 SETTING SCOPE AND BOUNDARIES

This study aims to evaluate the environmental impacts throughout the life cycle of RuBisCo protein extraction and isolation from sugar beet

leaves through a cradle-to-cradle perspective and to propose improvement actions for the environmental impact reduction.

The system boundaries covered seven subsystems: milling and extraction, heat treatment, centrifugation, microfiltration, ultrafiltration, chromatography, and spray drying.

5 COLLECTING DATA, CALCULATING AND ANALYZING THE RESULTS AND INVENTORY ANALYSIS

AgroParisTech has provided data needed for LCA calculations. These data were the components of the life cycle inventory for all subsystems. Transport, consumption of water, chemicals, energy, waste, and wastewater were calculated per 1 kg of protein powder containing RuBisCo, as it represents the chosen functional unit.

6 LIFE CYCLE ASSESSMENT RESULTS

Environmental impact categories analyzed in this research were Global Warming Potential (GWP), Ozone Layer Depletion (OLD), Energy Demand (ED), Eutrophication Potential (EP), Acidification Potential (AP), and Land Use (LU). For the entire system of RuBisCo protein extraction and isolation from sugar beet leaves GWP results were 16.41 kg CO₂-eq., OLD results were 1.21 mg CFC-11-eq., ED results were 205.24 MJ, EP results were 4.73 g PO₄ P-lim, AP results were 620.76 g SO₂-eq., while LU results were 0.19 m² org. arable.

Amount of waste dominated contributions of processes carried out during milling and extraction in the case of GWP, OLD, ED, and AP. Usage of calcium chloride had the highest impact for EP, while transport had a predominant impact for LU. For this subsystem GWP results were 3.50 kg CO₂-eq., OLD results were 0.40 mg CFC-11-eq., ED results were 46.68 MJ, EP results were 0.99 g PO₄ P-lim, AP results were 324.79 g SO₂-eq., while LU results were 0.11 m² org. arable. For OLD, EP, AP, and LU milling and extraction dominated with the impact on the environment in comparison with all other subsystems (Figure 1-6).

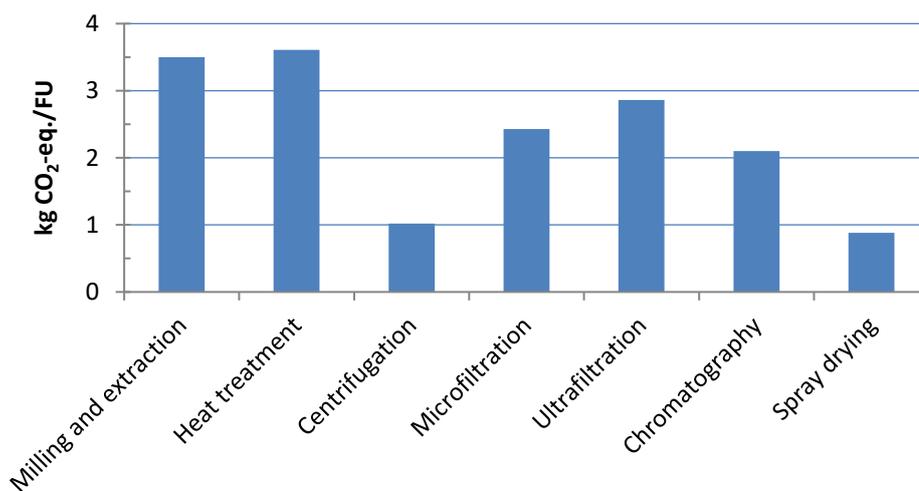


Figure 1. Global Warming Potential (GWP) per functional unit (FU) for each of the subsystems.

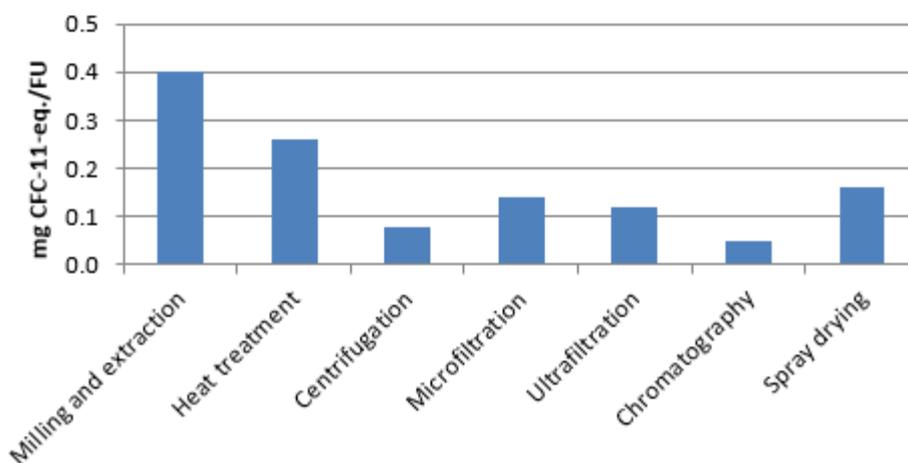


Figure 2. Ozone Layer Depletion (OLD) per functional unit (FU) for each of the subsystems

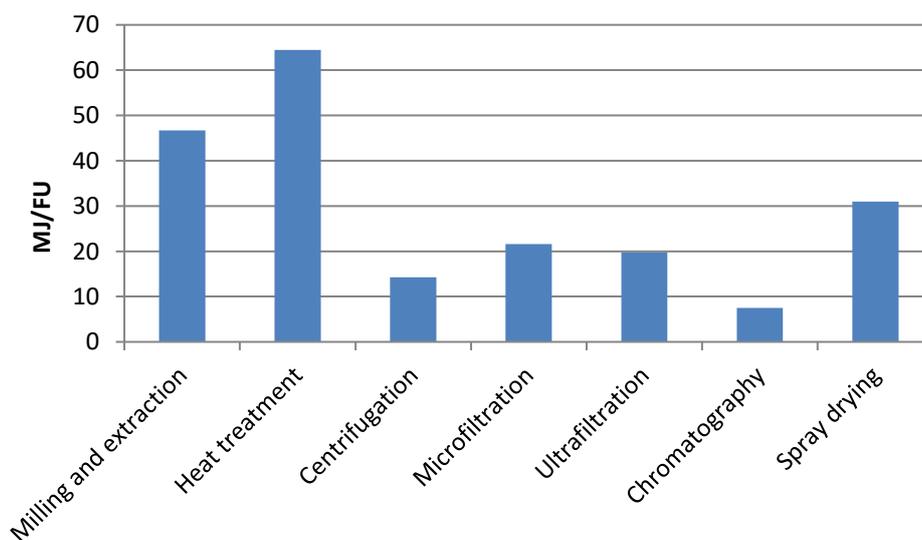


Figure 3. Energy Demand (ED) per functional unit (FU) for each of the subsystems.

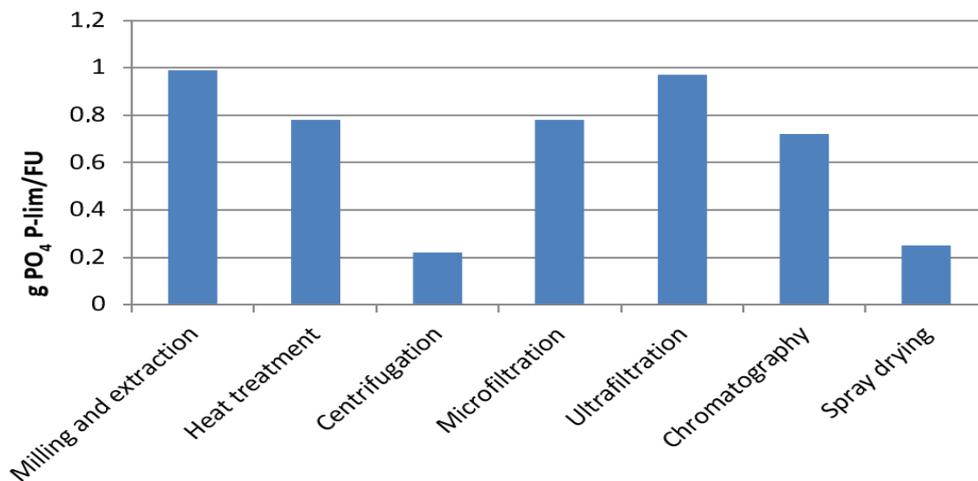


Figure 4. Eutrophication Potential (EP) per functional unit (FU) for each of the subsystems

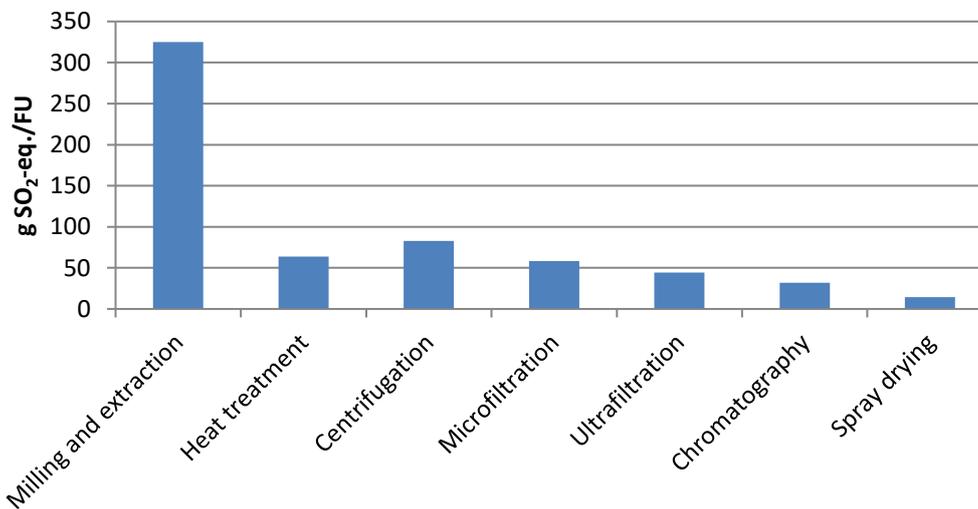


Figure 5. Acidification Potential (AP) per functional unit (FU) for each of the subsystems

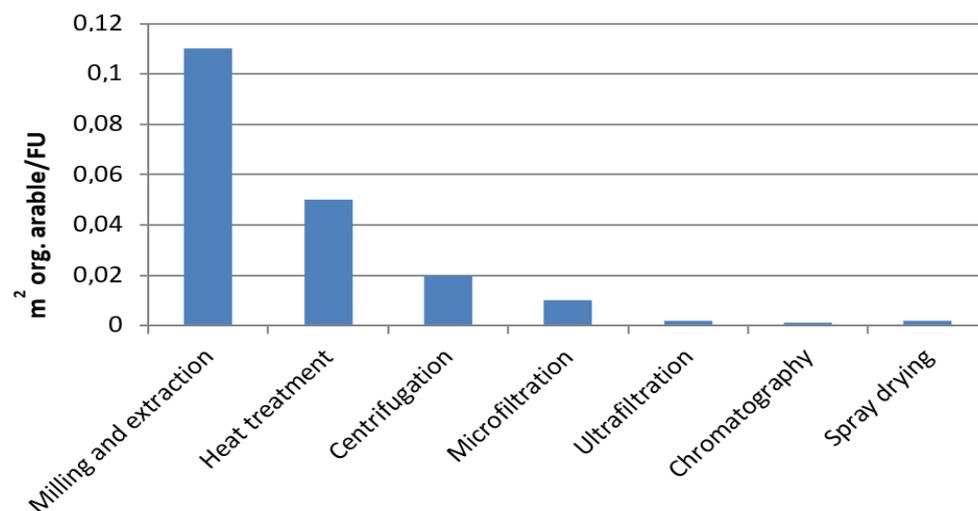


Figure 6. Land Use (LU) per functional unit (FU) for each of the subsystems

Electricity usage dominated environmental contributions of processes carried out during heat treatment in terms of all examined impact categories – GWP, OLD, ED, EP, AP, and LU. For this subsystem GWP results were 3.61 kg CO₂-eq., OLD results were 0.26 mg CFC-11-eq., ED results were 64.48 MJ, EP results were 0.78 g PO₄ P-lim, AP results were 63.97 g SO₂-eq., while LU results were 0.05 m² org. arable. For GWP and ED heat treatment dominated with the impact on the environment in comparison with all other subsystems (Figure 1-6).

The contributions of processes carried out during centrifugation were dominated by usage of electricity in the case of GWP, ED, and EP and by the amount of waste for OLD, AP, and LU. For this subsystem GWP results were 1.02 kg CO₂-eq., OLD results were 0.08 mg CFC-11-eq., ED results were 14.25 MJ, EP results were 0.22 g PO₄ P-lim, AP results were 82.86 g SO₂-eq., while LU results were 0.02 m² org. arable (Figure 1-6).

Amount of wastewater dominated contributions of processes carried out during microfiltration in the case of GWP, EP, and AP. Usage of natural gas had the highest impact for ED and amount of waste for LU. For this subsystem GWP results were 2.43 kg CO₂-eq., OLD results were 0.14 mg CFC-11-eq., ED results were 21.58 MJ, EP results were 0.78 g PO₄ P-lim, AP results were 58.18 g SO₂-eq., while LU results were 0.01 m² org. arable (Figure 1-6).

The contributions of processes carried out during ultrafiltration were dominated by the amount of wastewater in the case of GWP, EP, and AP, by the usage of natural gas for OLD and ED, and by the usage of demineralized water for LU. For this subsystem GWP results were 2.86 kg CO₂-eq., OLD results were 0.12 mg CFC-11-eq., ED results were 19.74 MJ, EP results were 0.97 g PO₄ P-lim, AP results were 44.29 g SO₂-eq., while LU results were 0.002 m² org. arable (Figure 1-6).

Amount of wastewater dominated contributions of processes carried out during chromatography in the case of GWP, ED, EP, and AP, while usage of demineralized water had the highest impact for OLD and LU. For this subsystem GWP results were 2.10 kg CO₂-eq., OLD results were 0.05 mg CFC-11-eq., ED results were 7.52 MJ, EP results were 0.72 g PO₄ P-lim, AP results were 32.10 g

SO₂-eq., while LU results were 0.001 m² org. arable (Figure 1-6).

The contributions of processes carried out during spray drying were dominated by the amount of wastewater in the case of GWP, EP, and AP, by the usage of natural gas for OLD and ED, and the usage of electricity for LU. For this subsystem GWP results were 0.88 kg CO₂-eq., OLD results were 0.16 mg CFC-11-eq., ED results were 31.00 MJ, EP results were 0.25 g PO₄ P-lim, AP results were 14.57 g SO₂-eq., while LU results were 0.002 m² org. arable (Figures 1-6).

7 DISCUSSION OF RESULTS

Contributions of processes involved in the RuBisCo protein extraction and isolation to GWP, OLD, ED, EP, AP, and LU have been examined since activities, inputs, and outputs are influenced by them. The first process Chemicals included calcium chloride, sodium metabisulfite, and sodium hydroxide used in subsystems 1-7. All types of energy and water used across the entire process were grouped under second process Resources. The third process Transport included transport of sugar beet leaves considered as part of subsystem 1. The fourth process named Waste and wastewater covered waste and wastewater from all subsystems.

The main environmental hotspot for environmental impact categories is the usage of electricity. Resources have been identified as the largest contributor to GWP in the second (99.38%), and third (60.50%) subsystem, as well as to OLD in heat treatment (99.85%) and subsystems 4-7. Resources had predominant contributions for ED in subsystems 2-5, as well as for spray drying (93.31%). Resources were the prevailing factor for EP in subsystems 2-3 and AP in heat treatment (99.48%). Concerning LU Resources had predominant contributions in heat treatment (99.99%) and subsystems 4-7.

Waste and wastewater had predominant contributions to GWP in milling and extraction (36.59%) and in subsystems 4-7, as well as to OLD in the first (37.05%) and third subsystem (55.39%). Waste and wastewater have been identified as the largest contributor to ED in the first (32.63%) and sixth subsystem (81.97%). Also, Waste and wastewater had the largest

contributions for EP in subsystems 4-7, for AP in milling and extraction (73.20%), and in subsystems 3-7 and for LU in centrifugation (55.66%).

Chemicals had predominant contributions to EP in milling and extraction (46.37%), while Transport was the largest contributor to LU in the first subsystem (35.40%).

8 SENSITIVITY ANALYSIS

Two types of sensitivity analysis were performed: the first concentrated on method change, while the second focused on potentially more optimized options for RuBisCo protein extraction and isolation from sugar beet leaves.

Sensitivity analysis was conducted by changing the assessment method from IMPACT 2002+ to CML IA baseline (Skunca et al., 2018). Method change had influenced the GWP results, while OLD results remained the same. GWP results for RuBisCo protein extraction and isolation from sugar beet leaves were 7.81% higher.

The sensitivity analysis for RuBisCo protein extraction and isolation from sugar beet leaves reviewed potentially more optimized options (Smetana et al., 2017).

The energy pinch approach for the spray drying consists of recovering part of the outlet gas to preheat the drying air. Based on the pinch analysis, a saving of 17.52% on primary energy can be obtained if a pinch of 20°C is considered between the discharged drying air and the drying air supplied into the dryer. The sensitivity analysis displays the lowering of the environmental impact of spray drying for 2.16% for GWP and 12.26% for ED.

The spray drying could be replaced with freeze-drying, which involves three steps: (a) freezing of protein gel between -30°C and -50°C; (b) primary drying under vacuum, the moisture content is removed by sublimation at a temperature above -20°C and (c) final drying under vacuum at a positive temperature below 50°C. This technique transforms the protein gel into protein powder and preserves the biological properties of the RuBisCo. In this case, sensitivity analysis showed seven times higher environmental impact for GWP and 2.93 times higher result for ED in

comparison with spray drying, as the result of using 51.72 times more electric energy.

The thermal conditioning consists of storing the final product in the liquid state. To ensure safe storage while avoiding microbiological development, pathogens must be reduced by a pasteurization step at 70-80°C. Subsequently, the protein gel is cooled at ambient temperature. If thermal conditioning is used instead of spray drying, the result of sensitivity analysis shows a higher environmental impact for GWP for 66.26% in comparison with spray drying, because of using 7.17 times more electricity for thermal conditioning than for spray drying. But the ED result was 16.48% lower in comparison with spray drying since thermal conditioning requires 3.25 times less natural gas than spray drying.

The outcomes of the sensitivity analysis show how the environmental results are affected by the method change, while the choice of the approach for the seventh subsystem of the RuBisCo protein extraction and isolation from sugar beet leaves plays a relevant role in the environmental profile. Freeze drying has a high environmental impact in categories GWP and ED in comparison with the energy pinch approach and thermal conditioning. Thermal conditioning has a slightly lower environmental impact related to ED than the energy pinch approach, but the energy pinch approach still has significantly lower results for GWP than thermal conditioning. If the energy pinch approach for spray drying would be used, the environmental impact of the seventh subsystem would be reduced by 2.16% for GWP and 12.26% for ED. Out of examined potentially more optimized options, the energy pinch approach for spray drying has been proven to be the best solution.

9 IMPROVEMENT ACTIONS

Process design improvement of the RuBisCo protein extraction and isolation from sugar beet leaves could be focused on mitigation options for environmental impacts optimization which rely on implementing an energy pinch approach for spray drying, as it has a lower environmental impact in comparison with freeze-drying and thermal conditioning.

10 COMPARISON OF RUBISCO PROTEIN EXTRACTION AND ISOLATION FROM DIFFERENT CROPS

When RuBisCo protein extraction and isolation from different raw materials are compared, the only crop that has a lower environmental impact in all examined impact categories than sugar beet

leaves is alfalfa, while the higher environmental impact has yellow mustard, ryegrass (mixture), Italian ryegrass, Brussels sprouts, English ryegrass, carrot leaves, leaf radish, and chicory, which has the highest environmental impact (Table 1). LCA analysis for these crops has included the same 7 subsystems (excluding transport) of RuBisCo protein extraction and isolation, as in the case of sugar beet leaves.

Table 1. Environmental impact comparison of different RuBisCo protein sources per 1kg of protein powder containing RuBisCo

| Protein source | Environmental impact ² | | | | | |
|--------------------------------|-----------------------------------|--------------------|---------|------------------------------|---------------------------|----------------------|
| | GWP (kg CO ₂ eq) | OLD (mg CFC-11 eq) | ED (MJ) | EP (g PO ₄ P-lim) | AP (g SO ₂ eq) | LU (m ²) |
| Sugar beet leaves ³ | 15.64 | 1.12 | 194.54 | 4.57 | 586.12 | 0.15 |
| Alfalfa | 8.49 | 0.61 | 105.71 | 2.48 | 318.57 | 0.08 |
| Yellow mustard | 21.89 | 1.57 | 272.30 | 6.40 | 820.20 | 0.20 |
| Ryegrass (mixture) | 26.27 | 1.88 | 326.60 | 7.69 | 984.09 | 0.25 |
| Italian ryegrass | 29.86 | 2.14 | 371.30 | 8.74 | 1119.55 | 0.28 |
| Brussels sprouts | 33.64 | 2.41 | 419.00 | 9.85 | 1258.37 | 0.31 |
| English ryegrass | 37.19 | 2.66 | 462.40 | 10.87 | 1393.86 | 0.35 |
| Carrot leaves | 78.69 | 5.58 | 980.20 | 23.05 | 2950.20 | 0.74 |
| Leaf radish | 78.69 | 5.58 | 980.20 | 23.05 | 2950.20 | 0.74 |
| Chicory | 131.39 | 9.41 | 1635.10 | 38.41 | 4926.90 | 1.23 |

Table 2. Environmental impact comparison of different protein sources per 1 kg of product.⁴

| Protein source | DM (%) | Protein (%) | Environmental impact | | | | |
|--------------------------------------|---------------------|--|---|--|--|--|---|
| | | | GWP (kg CO ₂ eq) | OLD (mg CFC-11 eq) | ED (MJ) | AP (g SO ₂ eq) | LU (m ²) |
| Sugar beet leaves protein powder | 95 | 92.15 ^a | 16.41 | 1.21 | 205.24 | 620.76 | 0.19 |
| Soy protein | 92 ^{1,spc} | 87 ^{2,spi} 90 ^{3,spi} | 5.14 ^{1,spc} 6 ^{2,spi,kp} 20.2 ^{3,spi} | 0.02 ^{1,spc} | 2.5 ^{3,spi} 19.3 ^{1,spc} | 48.83 ^{1,spc} | 4.6 ^{1,spc} 6 ^{2,spi,kp} |
| Whey concentrate | 86-89 ⁴ | 60 ^{4,5} 80 ^{6,kp} | 7.48 ⁵ 0.8-7.4 ¹ 12.1 ⁷ 28-43 ^{8,kp} 40.6 ^{6,kp} | 0.01-0.06 ⁴ 3.33 ⁵ 3.8 ^{6,kp} | 58.1 ⁷ 83.3 ⁵ 10.7-39.4 ¹ | 0.05-1.5 ¹ 56.6 ⁵ | 0.26- 8.27 ¹ |
| Egg protein concentrate ⁴ | 85 | 80 | 23.4 | 1.01 | 183 | 4000 | 40.1 |
| Microalgae ⁴ | 96 | 55 | 14.7-245.1 | 0.9-19.8 | 217.1- 4181.3 | 260.5- 1407.5 | 1.7-5.4 |

²Fine particulate matter formation is also important indicator, but sufficient data are not available.

³Environmental impact results for sugar beet leaves in Table 2 are given without transport, since transport was not included in results of other crops.

⁴Studies of protein sources in Table 3 include different production processes.

Legend for table 2: DM – dry matter; ^aThe protein content includes 62% of RuBisCo protein, source AgroParisTech; ^{spc} – soy protein concentrate; ^{spi} – soy protein isolate; ^{kp} – per kg protein; ¹ecoinvent v3 and Agri-footprint database; ²Thrane et al., 2016; ³Berardy et al., 2015; ⁴Smetana et al., 2017; ⁵Smetana et al., 2016; ⁶Wiedemann et al., 2017; ⁷Kim et al., 2013; ⁸Nijdam et al., 2012.

11 COMPARISON OF DIFFERENT PROTEIN SOURCES

The environmental impact of RuBisCo protein extraction and isolation from sugar beet leaves has been compared to the impact of other protein sources based on values found in the literature (Table 2). The comparison of environmental impact categories of different protein concentrates indicated that protein powder containing RuBisCo affected the environment less than egg protein concentrate but was more environmentally impacting than soy protein. The comparison of environmental impact results of protein powder containing RuBisCo with whey concentrate depended on the chosen study since results for whey concentrate differ in the literature. The wide range of results for microalgae in Table 2 covers different cultivation systems for *Chlorella* and *Spirulina* microalgae (Smetana et al., 2017). Our results were in accordance with the low end of the range of results for microalgae, which is representing *Chlorella* HTF (heterotrophic fermenter), for most of the analyzed impact categories.

12 CONCLUSIONS

When RuBisCo protein extraction and isolation from different raw materials are compared, the

only crop that has a lower environmental impact than sugar beet leaves is alfalfa, while yellow mustard, ryegrass (mixture), Italian ryegrass, Brussels sprouts, English ryegrass, carrot leaves, leaf radish, and chicory have a higher environmental impact. The comparison of environmental impact categories of different protein concentrates indicated that protein powder containing RuBisCo affected the environment less than egg protein concentrate. Direct comparison to other highly functional plant proteins was not possible as these are not in the market or have no LCA data available. RuBisCo was more environmentally impacting than regular soy protein. Our results for RuBisCo were in accordance with the low end of the range of results for microalgae, which is representing *Chlorella* HTF (heterotrophic fermenter), for most of the analyzed impact categories. The main hotspot for the environmental profile of the system of RuBisCo protein extraction and isolation from sugar beet leaves is the usage of electricity. Process design improvement is focused on implementing an energy pinch approach for spray drying. Also change to renewable electricity sources will have a positive impact on the environmental profile.

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Received for publication: 01.12.2020
Revision received: 22.12.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Skunca, D., Romdhana, H., & Brouwers, R. (2021, January 15). Rubisco protein production – LCA approach. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 175-183. doi:10.12709/mest.09.09.01.20

Style – Chicago Sixteenth Edition:

Skunca, Dubravka, Hedi Romdhana, and Rob Brouwers. 2021. "Rubisco protein production – LCA approach." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 175-183. doi:10.12709/mest.09.09.01.20.

Style – GOST Name Sort:

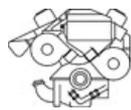
Skunca Dubravka, Romdhana Hedi and Brouwers Rob Rubisco protein production – LCA approach [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 175-183.

Style – Harvard Anglia:

Skunca, D., Romdhana, H. & Brouwers, R., 2021. Rubisco protein production – LCA approach. *MEST Journal*, 15 January, 9(1), pp. 175-183.

Style – ISO 690 Numerical Reference:

Rubisco protein production – LCA approach. **Skunca, Dubravka, Romdhana, Hedi and Brouwers, Rob**. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 175-183



EVALUATION OF THE ORGANIZATION'S PERFORMANCE IN CONNECTION WITH THE CREATION OF FINANCIAL STATEMENTS

Nora Stangova

Department of Small and Medium-Sized Enterprises, School of Economics and Management in Public Administration in Bratislava, Bratislava, Slovakia

Agnesa Vighova

Department of Public Administration, School of Economics and Management in Public Administration in Bratislava, Bratislava, Slovakia

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JEL Category: **G31, M41**

Abstract

The presented article is a summary of theoretical approaches for evaluating the results of the organization in accordance with the reflection of performance and performance measurement, as well as its reporting in financial statements, which are in the sense of Slovak legislation, the final reflection of the organization. The company has its attributes, and all the attributes affect individual indicators of financial analysis and they are the following: production program, the technology used, the complexity of products, participation of nature, technology and man, the composition of products, method and all operate in a three-balance system: cash-flow-balance sheet- profit and loss statements. In this context, it is necessary to monitor the performance in the organization, which has a direct impact on sales and revenues and then on the overall economic result, which is the main indicator of the successful operation of the company. The transformation process indicates the process and transformation of inputs into a process towards its results, and the interconnection of the three-balance system points to the importance of three types of statements, as follows: profit because of management from the profit and loss statement is also a source in the balance sheet, the result from the cash flow statement represents assets in the form of cash in the balance sheet. All three statements provide relevant data for the financial analysis of the organization.

Keywords: transformation process, balance sheet, profit, loss statement

1 THE COMPANY AND ITS BASIC ATTRIBUTES

We define a company as a combination of production factors through which the owners plan to achieve set goals (for example, maximizing their

The address of the corresponding author:

Nora Stangova

[✉ nora.stangova@vsemvs.sk](mailto:nora.stangova@vsemvs.sk)

income, improving social status, achieving economic power, etc.). Companies exist to produce and distribute products, provide services to their customers. It is their basic mission. However, their success is influenced by the high dynamics of changes in the environment in which they operate. The future state of the company (its products, production factors, transformation process, financial resources) is indicated by the company's goals. The goal of the company is a measure of the future, it expresses the future results of the company. It can be said that the goals of the company represent the endpoints to which the fulfillment of the company's mission is directed. The mission of the company creates in itself a set of specific, realistic, and achievable goals of the company. In business practice, a set of goals is monitored and created, we speak of a target system, which is proof that not only owners or managers are involved in creating goals, but also other entities are considered, such as employees, customers, etc. (Synek, M. 2007).

The production company and its activity can be characterized as a creative process, the function of which is the creation of utility values and represents the main activity of the company. The basic characteristics of its operation include:

- production program
- technology used
- complexity of products
- participation of nature, technology, and man
- composition of products, method, and degree of repeatability of production.

During business activities, the company undergoes a transformation process. It is divided into three basic activities, which are:

- procurement of production factors,
- production of products and services
- sales

In the procurement phase of production factors, various types of costs arise in the organization. In the production process, inputs are converted into outputs, and outputs are created. Revenues are generated in the sales phase. A business process can be defined as a dynamic system whose basic elements are activities. It has three parts that are interconnected and intersect. In mutual combination, they form a dynamic system - a business process.

Parts of the transformation process:

- material, which is reflected in the concept of "business transformation process" and in the narrower sense represents the process of material transformation of business inputs into outputs,
- value, which is reflected in the concept of "corporate reproduction process" and in the narrower sense of the word represents the monitoring and appreciation of invested funds (or capital), i.e. value relationship between inputs and outputs,
- organizational, which is reflected in the concept of "business combination process", which monitors the organization of transformation activities (transformation of inputs to outputs), mutual combinations of production factors, financial and information flows.

The company as a transformation system has basic characteristics.

It focuses on the creation of outputs, i.e. to prepare products for the market and customers in general, without specific direction to pre-known customers.

On this basis, the following model of the material and value course of the business transformation process was formed. Both spheres complement each other and overlap each other.

| TRANSFORMATION PROCESS | | |
|------------------------|-----------------|-----------------|
| INPUT | TRANSFORMATION | OUTPUT |
| short - term assets | cost generation | return |
| long - term assets | consumption | economic result |
| employees | depreciation | |

Fig. 1 Model of the course of the company's transformation process

2 PERFORMANCE AND EFFICIENCY OF THE COMPANY

Performance represents the finished item (i.e., manufactured products, served customers, etc.). Performance can be defined in a general sense as the result of a certain activity. It can have both tangible and intangible forms. However, if we consider performance in the economic sense, we can perceive it as the performance of the employee (the degree of performance of his tasks forming the content of his work, the performance of the company, which can be imagined as several results over time, i.e. what the company produces and provides). The monetary expression of external performance is the revenue recorded by the accounting system, which is one of the basic monetary (or rather cash) economic categories. (Sedlak, M. 2010) .

Performance increases the value of the organization's assets and the condition for its recording in accounting is its monetary expression. We call this money revenue in a broader sense, and mostly the main component of an organization's revenue is sales of goods, products, and services. Besides, the organization

may report e.g. sales of materials, fixed assets, or securities.

In a business environment, this quantity is well and accurately measurable. Internal services are then the results of the activities of internal departments, which are sold to internal customers - individual departments and their tasks are to ensure comprehensive conditions for the creation of external services.

In general, we can express the capacity of a production unit because of its performance and the time during which it is in operation. The performance of the production equipment is always considered as the maximum productivity per unit of time, usually one hour, with annotated quality and strict adherence to the technological process and product quality. Their determination is based on the label (rated) power, considering specific conditions. The performance of production equipment must be expressed in products, just as the production capacity is expressed, it can only be expressed in technical units. The performance of a production facility shall be determined based on production capacity standards, which determine the maximum quantity of products that can be produced per unit of production at a given production facility.

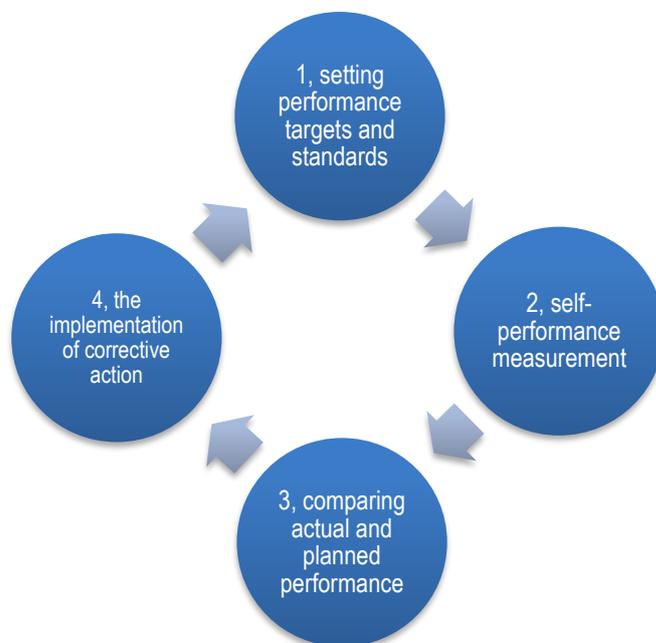


Fig. 2 Steps of the control process focused on evaluation of the efficiency of the company

The efficiency of the company is a measure of achieving the results of an organization or its processes. The relationship between performance

and the efficiency of the company can be described, to some extent, in a simplified way as

the relationship between the result and the course of the activity carried out, so that:

- performance is the final state, resp. the result of this activity,
- efficiency of the company is a characteristic (description) of the achieved result or its course.¹

Figure 2 shows the process for evaluating the efficiency of the company.

3 PERFORMANCE REFLECTION IN THE FINAL REPORTS

The basic financial statements according to the valid Slovak legislation consist of the balance sheet, profit, and loss statement (income statement) and cash flow statement.

Figure 3 shows the basic link between the company's financial statements, through profit and cash.

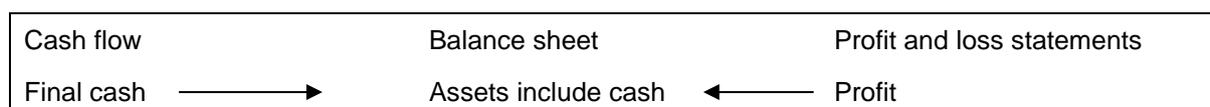


Fig. 3 Bindings in the statements of the company

| Assets | The Structure of the Balance Sheet | | Liabilities |
|--|-------------------------------------|--|---|
| the value of all items in which the company has invested | Long - term assets (fixed assets) | all sources, from which the assets were obtained | Own capital |
| | - long - term tangible assets | | - basic capital |
| | - long - term intangible assets | | - funds |
| | - long - term financial assets | | - retained earnings from previous years |
| | | | - profit from the current year (+, -) |
| | Current assets | | Other sources |
| | - inventories | | - long - term liabilities and loans |
| | - receivables | | - short - term liabilities and loans |
| | - investments (short - term assets) | | |
| | - money | | |

Fig. 4 Basic structure of the balance sheet

Source: Authors' processing

3.1 Balance sheet

The balance sheet is a transparent and arranged form of monetary comparison of assets and liabilities and findings of equity in accounting form as of a certain date. Its basic function is to provide the organization with an overview of its financial situation in the company on a certain day. Therefore, the balance sheet is compiled at least once a year at the end of the accounting period, but organizations also make the balance sheet more frequently, on a quarterly or monthly basis (as required) (Bascinova, A. 2007).

The accounting standard does not show exactly what the individual balance sheet items should look like but presents their minimum scope. Each company then expands them in more detailed way, as needed, and adds additional information.

It also remains up to the company to decide whether to report the items of assets and liabilities as short-term and long-term, or to decide to report them according to the degree of their liquidity.

The vertical structure of the balance sheet expresses the relationship between individual items of assets and liabilities in one period (evaluates the structure of assets and liabilities).

The horizontal structure of the balance sheet allows us to compare indicators over time, i.e. for two accounting periods. On the assets side, it consists of four columns, on the liabilities side, no adjustment is made.

The form of the balance sheet tells what the company owns, i.e. what is the structure of the company's assets, from what sources did it get its

assets, i.e. the structure of capital, such as its financial situation, the degree of its indebtedness and liquidity, and others. By comparing two balance sheets for two consecutive years (periods), it is possible to find out how the financial situation develops and to take the necessary long-term and short-term measures, accordingly, leading to the effective development of the company. (Grasseova, M., 2008)

3.2 Profit and loss statement (income statement)

The profit and loss statement, it is a statement that provides information about income and expenses

The profit and loss statement – company

| TOTAL COSTS : | TOTAL REVENUES : |
|--|---|
| <p>I. Costs of the economic activity:</p> <ul style="list-style-type: none"> - Costs incurred for the acquisition of goods - Consumption of energy material and other non-storable supplies - Services - Personnel costs - Taxes and fees - Depreciation and provisions - Residual value of sold property - Other costs of economic activity <p>II .Costs of financial activity:</p> <ul style="list-style-type: none"> - Securities and shares sold - Interest expense - Foreign exchange losses - Other financial expenses <p>Profit before tax</p> <ul style="list-style-type: none"> - Income tax <p>Profit after tax</p> | <p>I .Revenues of the economic activity:</p> <ul style="list-style-type: none"> - Revenues from sale of goods - Revenues from sales of own products - Revenues from sales of services - Revenues from the sale of fixed assets - Other income from economic activity <p>II Income from financial activities:</p> <ul style="list-style-type: none"> - Revenues from the sale of securities and shares - Income from short - term financial assets - Interest income - Foreign exchange gains <p>Other income from financial activities</p> |

Fig. 5 Form of profit and loss statement - simplified

The income statement is causally linked to the balance sheet, in the item profit or loss in the current accounting period, which is part of the equity recognized in the balance sheet and in the profit and loss statement is calculated as the difference between income and expenses for the accounting period.

The rule is that line 100 of the balance sheet = line 61 of the profit and loss account.

The profit and loss statement is compiled in the so-called stepped form. A single item in the income

of the company. Their difference results in the result of the company's management (profit or loss) for the analyzed (accounting) period. Revenues and costs, as well as the economic result, are divided in the profit and loss statement into three areas – economic, financial, and extraordinary. The data presented in the profit and loss account are streams, i.e. accumulated.

The recognition of costs and revenues within the financial statements is made in this statement (Income Statement).

statement is referred to as the income statement (we distinguish between cost and revenue). In this context, the term income statement is also used to refer to the income statement. (Stangova, N., 2012)

The economic result is the basic indicator assessing whether the activities in the company are performed successfully. It represents the difference between revenues and costs. This is even though the assessment of a company's value and changes is based more on discounted net

cash flows expected in the future. These are the primary cause of investors' interest in the company. Ideally, however, profit is the best expression of how the potential to generate positive cash resources has changed in the future.

The profit and loss statement are a source of information about the entity's profitability. The data for the compilation of the statement are drawn from accounting class 5 - Expenses and accounting class 6 - Revenues. It is compiled in a vertical form - items of costs and revenues are presented below each other in the required form. The internal breakdown of accounts in accounting classes 5 and 6 is based on the principle of incompatibility of costs with revenues (the gross principle applies to the accounting of costs and revenues, where each incurred cost is charged to the relevant cost account in accounting class 5 and 6). According to the law, costs and revenues cannot be offset against each other. Costs and revenues are recognized in the entity in the accounting period in which they are incurred, regardless of the date on which they are paid. They are accounted for and reported in the accounting period to which they are temporally and materially related.

The profit and loss statement is a source of information about the entity's profitability. The data for the compilation of the statement are drawn from accounting class 5 - Expenses and accounting class 6 - Revenues. It is compiled in a vertical form - items of costs and revenues are presented below each other in the required form.

3.2.1 Costs

In any type of operation, even if passive, costs arise. Therefore, the relationship of costs to the

volume of performance is one of the most important and therefore the most monitored data with respect to the results of management in the organization. The change in the volume of production directly affects the development of costs, while the individual cost types behave differently. In search of the optimal volume of production, we must know the development of costs and determine changes in costs since the change in volume of production. We calculate this using the response coefficient as the ratio of the percentage change in costs and the percentage change in performance. The resulting value can be positive or negative. (Wagner, J., 2009)

3.2.2 Revenues

Revenue is the performance that is expressed in cash and represents an increase in the economic benefits of an entity. They consist mainly of revenues from performed services. They express the amounts of money that have been received by the organization, regardless of when they were collected. Revenues are outputs, expressed in monetary units. From an economic point of view, they represent the reimbursement of costs that have been incurred in the production of services, while increasing by profit. (Kupkovic, M., 1996)

$$REVENUES = (PRICE \text{ of the unit of output or product}) \times QUANTITY.$$

Revenues are divided into individual activities according to:

- income from ordinary activities, which includes income from economic activity and
- income from financial activity. This division is shown in Fig. 6.

| | |
|--|---------------------------------------|
| Division of the revenues in the accounting | |
| Revenues from ordinary activities | Revenues from the economic activities |
| | Financial revenues |

Fig. 6 Division of the revenues in the accounting

3.2.3 Economic results

An important financial indicator that expresses the success and efficiency of business activities, especially in relation to invested capital, is the economic result. In monetary form, it expresses the effect of the cycle of assets in a given company and expresses whether the assets invested in the business in the form of inputs are less, or greater

than the valued results in the form of outputs. (Majtan, S., 2014). It can be identified in the accounts for a certain period (year or month) as a source of increase or decrease in assets. By monitoring the achieved profits or losses over time, analyzing changes in cost and revenue items, comparing the results achieved with the results of similar companies, investors and other

users of accounting information can evaluate the success, respectively failure of transactions made during the period and anticipate their future development. The profit or loss is an irreplaceable output that includes financial statements prepared by internationally accepted accounting standards. The result of management can theoretically be determined in accounting in two ways (Vodacek, L., & Vodackova, O., 2006).

The first method is based on the principle of accrual, i.e. the recognition of the financial benefits of transactions at the time they are incurred, not at the time organizations receive or issue funds for them.

The second method is based on cash flows. Using this method, transactions involving income and expenses are reduced to those in which there has been a corresponding change in the amount of cash at the same time.

The legislation of the Slovak Republic specifies the requirements for the classification and method of accounting for costs and revenues so that the reported profit is comparable with the profit reported by the company in the previous period. The creation and structure of the economic result within the accounting legislation of the Slovak

Republic is regulated by the Act on Accounting (431/2002 Coll.) And the measures of the Ministry of Finance of the Slovak Republic no. 4455/2003 - 92, which lays down the details of the accounting procedures in the general chart of accounts for entrepreneurs accounting in the double-entry bookkeeping system. Revenues, especially revenues from the sale of products or services and goods, are among the basic factors in generating profit or loss for a given period, so it is important to determine when they were recognized as revenue.

4 SUMMARY

As we outlined in the article, evaluation and measurement of performance requires monitoring of performance in a specific form, i.e. evaluation of individual processes that make up the overall production process, which raises the need to introduce management of individual processes, especially those that make up the highest amount in sales. Process management represents the continuous improvement of the results of the functioning of the organization and is therefore a promising step in improving the results of the organization.

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Received for publication: 30.08.2020
Revision received: 01.11.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Stangova, N., & Vighova, A. (2021, January 15). Evaluation of the organization's performance in connection with the creation of financial statements. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 184-191. doi:10.12709/mest.09.09.01.21

Style – Chicago Sixteenth Edition:

Stangova, Nora, and Agnesa Vighova. 2021. "Evaluation of the organization's performance in connection with the creation of financial statements." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 184-191. doi:10.12709/mest.09.09.01.21.

Style – GOST Name Sort:

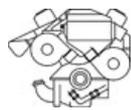
Stangova Nora and Vighova Agnesa Evaluation of the organization's performance in connection with the creation of financial statements [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 184-191.

Style – Harvard Anglia:

Stangova, N. & Vighova, A., 2021. Evaluation of the organization's performance in connection with the creation of financial statements. *MEST Journal*, 15 January, 9(1), pp. 184-191.

Style – ISO 690 Numerical Reference:

Evaluation of the organization's performance in connection with the creation of financial statements.
Stangova, Nora and Vighova, Agnesa. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 184-191



THE DEFINITION OF FAMILY IN INTERNATIONAL AND EU LAW

Marek Stych

Pedagogical University the National Education Commission in Krakow,
Institute of Law and Economics, [Center for Legal Research on Child and
Family of the Pedagogical University of Cracow], Krakow, Poland

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JEL Category: I11

Abstract

The family is the oldest social group. It can be observed at all the stages of the development of particular societies and in all countries, regardless of their political systems. Therefore it is a natural element of the social structure, defined as the basic unit of social life. Along with socio-cultural changes, it undergoes various transformations. The changes affect the adopted models of family life or intra-family relations. They also leave a mark on the concept of family itself. Its definition and status are determined by factors such as: one's place of residence, being part of a specific social structure (education, professional group, financial situation), and religious affiliation. Another relevant factor is one's political affiliation. Although the family is evolving (e.g. the way we understand it and its functions are changing), it still remains the basic unit within which specific processes take place, such as passing on values, norms, and patterns of behavior. The article aims to present selected international, European, and Polish legal solutions about the definition of the family and some of its features. The interpretation of international standards relating to the family and its members aims to answer the question of whether the concept of the family itself is permanent in the law, or whether it is evolving. The research method used in the paper is the dogmatic and legal method. The article ends with conclusions.

Keywords: family, marriage, man and woman, same-sex relationships.

1 INTRODUCTION

The family is the oldest social group. It can be observed at all the stages of the development of particular societies and in all countries, regardless of their political systems. Therefore, it is a natural element of the social structure, defined as the basic unit of social life (Article 10 of the International Covenant on Economic, Social and Cultural Rights of 1966, ratified by Poland in 1977). Its special role manifests itself in the fact

that it has so far been the only natural environment for human birth and development. It allows both the child and the adult to satisfy their basic needs.

The development of contemporary civilization is a result of:

- the rapid technicization and computerization of societies, regardless of their political systems,
- the development of science, especially medicine and biology,
- the far-reaching emancipation of women.

On the one hand, all the above factors contribute to further development, but on the other, they force

Address of the corresponding author:

Marek Stych
stycma@interia.pl

a conscious need for changes in the way the basic institutions of social life are organized.

Along with socio-cultural changes, the basic unit of social life undergoes various transformations. The changes affect the adopted models of family life or intra-family relations. They also leave a mark on the concept of family itself. Its definition and status are determined by factors such as one's place of residence, being part of a specific social structure (education, occupation, financial situation), religious affiliation, and finally, political sympathies. Although the family is evolving (e.g. the way we understand it and its functions are changing), it still remains the basic unit within which specific processes take place, such as passing on values, norms, and patterns of behavior.

The article aims to review selected international, European, and Polish legal solutions pertaining to the definition of family and some of its features. The interpretation of these regulations will be focused on the concept of family and its selected elements. The analysis of the definition has been carried out on the basis of selected international, European, and Polish regulations. The interpretation of international standards relating to the family and its members aims to answer the question of whether the concept of family itself is legally permanent or whether it is evolving.

The research method used in the paper is the dogmatic and legal method. The article ends with conclusions.

2 ANALYSIS OF SELECTED INTERNATIONAL AND EUROPEAN REGULATIONS

The fundamental legal act providing for the definition of family is the Universal Declaration of Human Rights (UN, 1948). It is the first international document on the protection of human rights the observance of which has been declared by signatory states. At the same time, the provisions of the UDHR are binding upon UN bodies¹ in the performance of their tasks. The significance of the UDHR is manifested in the fact

that its provisions find reflection in numerous international acts and court decisions. The provisions of Articles 12 and 16 are of particular importance. They recognize the need to protect the family through the right to contract a marriage and the right to start a family. This elementary standard for the protection of family rights established by the UDHR attempts to cater to the cultural and religious differences of UN member states. The right to start a family (Machnij, 2013, pp. 82-99) has aptly been differentiated from the obligation to contract a marriage. Pursuant to Article 16 Paragraph 1, the right to start a family in practice means a union of two people, a woman and a man, which entails the right (possibility) to have children. At the same time, it is the state's duty to provide protection to the family, which is formally a natural and basic unit of social life (Article 16 Paragraph 3). Undoubtedly, the wording of Article 16 is closely related to Article 12. The said provision prohibits unjustified interference in one's private, family, and home life. Thus, a linguistic interpretation allows for the conclusion that every human being has the right to protection from such interference.

The UDHR is a non-binding document, thus it does not have its own system for the protection of individual rights. Therefore, it is difficult to pursue one's individual rights by invoking the provisions of the UDHR directly before both international and domestic courts.

However, taking into account its universal and universalist character, it constitutes an ideological standard for regulating the protection of human rights. It exerts an impact on three levels: international, EU, and national.

The rights stipulated in the UDHR are repeated, inter alia, in two international agreements adopted by the United Nations on 16 December 1966:

- the International Covenant on Civil and Political Rights (Journal of Laws of 1977, No. 38, item 167),
- the International Covenant on Economic, Social and Cultural Rights (Journal of Laws of 1977, No. 38, item 169).

¹ The United Nations has six main organs:

- General Assembly,
- Security Council,
- Economic and Social Council,

- Trusteeship Council,
- International Court of Justice,
- Secretariat.

The elements that define the family contained therein constitute part of human rights and are considered an international standard for legal regulation in this area. The two cited documents extend the scope of regulations pertaining to the family by pointing also to the economic and social aspects of family life. The above Covenants are undoubtedly binding, which in practice means that their provisions are implemented by the signatory states.

When it comes to the EU, it should be noted that its regulations extensively cover various aspects of the family, including legal, social, and economic issues. Those include:

- the Convention for the Protection of Human Rights and Fundamental Freedoms, drawn up in Rome on 4 November 1950 amended by Protocols No. 3, 5 and 8, and supplemented by Protocol No. 2 (Journal of Laws of 1993, No. 61, item 284),
- the European Social Charter, drawn up in Turin on 18 October 1961 (Journal of Laws of 1999, No. 8, item 67),
- the Revised European Social Charter of 3 May 1996 (Poland acceded the European Social Charter in 1997, but did not ratify the Revised European Social Charter and did not ratify the Additional Protocol to the European Social Charter of 1995 introducing a system of collective complaints),
- the European Convention on the Adoption of Children, drawn up in Strasbourg on 24 April 1967 (Journal of Laws of 1999, No. 99, item 1157),
- the European Convention on the Legal Status of Children Born out of Wedlock, drawn up in Strasbourg on 15 October 1975 (Journal of Laws of 1999, No. 79, item 888),
- the European Convention on the Exercise of Children's Rights, drawn up in Strasbourg on 25 January 1996 (Journal of Laws of 2000, No. 107, item 1128),
- the Council of Europe Convention for the Protection of Children against Sexual Exploitation and Sexual Abuse, drawn up in Lanzarote on 25 October 2007 (Journal of Laws of 2015, item 608),
- the Council of Europe Convention on preventing and combating violence against women and domestic violence, drawn up in

Istanbul on 11 May 2011 - not ratified by Poland - (Journal of Laws of 2015, item 961).

3 FAMILY DEFINITION PROBLEMS

To properly tackle the analyzed issue, it is important to answer the question of what "family" is according to the selected legal provisions. The analysis of the provisions of international law allows for the conclusion that none of those regulations attempts to define the term "family". Given the social, cultural, or religious differences of contemporary societies, this seems to be a plausible approach. The aforementioned acts stipulate that the starting of a family is a result of entering into a marriage (Cf: Barlow, Duncan, James, & Park, 2005, p. 65).

Thus, the question arises whether the concept of "family" in international law refers only to an "institutionalized family" or the so-called natural one. It seems that the right direction has been set in Article 25 Paragraph 2 of the UDHR, which explicitly provides protection to both children coming from institutionalized families and children from natural (out of wedlock) families. This means that entering into a marriage cannot be regarded as a *sine qua non* for the international protection of the family.

The very concept of "family" is difficult to explain. It appears in sciences such as sociology, psychology, and law (Szwed, 2007, pp. 23-40). It can be understood in a variety of ways, e.g.:

- parents and their children,
- a wider group of people sharing a common ancestor (blood bonds),
- people living together.

A provision useful for defining "family" can be found in Article 8 of the Convention for the Protection of Human Rights and Fundamental Freedoms, which safeguards the right to family life (Cf: Folak, 2015, p. 41) and therefore assumes the existence of a structure called "family". A linguistic interpretation of the provision allows for the conclusion that it does not make the legal status of the family conditional based on its existence:

- a legal relationship confirmed with e.g. a marriage certificate,
- a factual relationship, the functioning of which does not result from a formal legal act.

Hence, the type of relationship cannot be, both legally and practically, a factor discriminating non-formalized relationships. National provisions should not introduce measures aiming at infringing upon or diminishing the status of families that have not been "legally sanctioned".

A teleological interpretation of the provision of Article 8 allows for the conclusion that the "informal family" (Oszkinis, 2014, pp. 193-213) should be protected to the same extent as traditional family members.

Another notion that needs to be analyzed is the so-called "family life" mentioned in Article 8. The meaning of the provision is unambiguous because the "family life" is not an exclusive activity of formalized relationships only. The term may also refer to other actual family ties, i.e. when the members live together out of wedlock. It is commonly assumed that a child born in such a relationship ipso iure becomes part of the basic unit of social life called family.

Another important element to be considered when attempting to define "family" is its permanent nature resulting from the fact of living together. This quality was pointed out in a judgment of the European Court of Human Rights (Judgment of 21 December 2010 in the case of *Anayo v. Germany*, LEX 675439, thesis 1). The Court stated that "the mere biological relationship between the biological parent and the child, in the absence of any other legal or factual elements indicating the existence of a close personal relationship, is not sufficient to fall within the scope of the application of the protection under Article 8". The condition of living together seems to be reasonable, as it constitutes a requirement for recognizing a given relationship as living a "family life" and thus being a family. Other factors that may be referred to deem a relationship sufficiently durable to form genuine "family bonds" include kinship and the nature of the relationship between particular individuals, i.e. mutual interest, attachment, and dependence.

The question that emerges at this point is whether the national law may allow interference in family

life. Such interference, irrespective of the political option of the ruling party, will be allowed only if a provision of a national statute so provides. Article 8 of the Convention for the Protection of Human Rights and Fundamental Freedoms lists the exceptions allowed under the national law:

- state and public security and economic prosperity;
- social needs, e.g. protection of order, health, and morality;
- protection of the rights and freedoms of others.

The condition is that such legal actions be proportionate to the intended purpose.

It should be noted here that the recently adopted UN Human Rights Council resolutions (Resolution of 3rd of June 2015, A/HRC/RES/29/22 and Resolution of 1st of July 2016, A/HRC/32/L.35) emphasize the need to protect the family. The analysis of their provisions allows for the conclusion that they do not introduce a legal definition of the family. At the same time, they point to the fact that the family is a natural and basic social group that has the right to be protected by society and the state. The linguistic interpretation of the above-mentioned Resolutions allows for the conclusion that the family is based on biological or legal ties.

Article 2 Paragraph 2 of the Directive 2004/38/EC of the European Parliament and of the Council² presents a different approach to defining the family. Under its provisions, the family member is the spouse, the partner with whom an EU citizen has entered into a registered partnership, provided that the Member State recognizes the equivalence between such a relationship and a marriage, the direct descendants who are under the age of 21 or are dependants and those of the spouse or partner, and the dependent direct relatives in the ascending line and those of the spouse or partner.

It should be emphasized that the family within the meaning of the above directive is based on biological and legal ties between its members. At

²Directive 2004/38/EC of the European Parliament and of the Council of 29 April 2004 on the right of citizens of the EU and their family members to move and reside freely within the territory of the

Member States amending Regulation (EEC) No 1612/68 and repealing Directives 64/221/EEC, 68/360/EEC, 72/194/EEC, 73/148/EEC, 75/34/EEC, 75/35/EEC, 90/364/EEC, 90/365/EEC and 93/96/EEC.

the same time, the presence of the "recognition of partnerships" clause indicates that the EU does not have the competence to shape the concept of family (Slany, 2002, pp. 135–136).

4 DEFINITION OF FAMILY IN POLISH LAW

The analysis of the provisions of Polish law should start from the Constitution of the Republic of Poland of 2 April 1997 (Journal of Laws of 1997, No. 78, item 483). The issue of family and its definition appears already in the Preamble and provisions such as Article 41 Paragraph 2, Article 233 Paragraph 1, Article 18 and Article 71, which stipulate the special status of the family and confirm that it is under the protection and care of the Republic of Poland. Carrying out its policy, the state should take into account the family's well-being. Families in a difficult financial and social situation, especially those with many children (Piotrowski, 1981, pp. 12-21), or those with only one parent, have the right to special assistance from public authorities (Article 71 of the Polish Constitution). As interpreted by the Constitutional Tribunal, these provisions require the state to undertake actions aimed at strengthening the ties between family members, especially the ties between parents and children and between spouses. In the opinion of the Constitutional Tribunal, these provisions oblige the state authorities to take positive actions, i.e. the ones that strengthen the ties between the family members rather than weaken them. It does not mean, however, that the Constitution favors persons who have families over persons who do not (singles) (Judgment of 18 May 2005, K 16/04). The constitutionally preferred vision of the family is "a durable relationship between a man and a woman, oriented towards motherhood and responsible parenthood" (Zubik, 2007, pp. 26-43).

The constitutional imperative to protect motherhood and parenthood in the context of the marital relationship between a woman and a man creates conditions for the preference of protecting the best interests of the child. For the Catholic Church, this is a natural state of affairs justified by objective biological conditions (Paździor, 2007, p. 184). The importance of the latter was noticed by the Constitutional Tribunal, according to whom the possibility to bring up a child in a natural family, where the relationship between parents and

children is of biological nature, shall be a protected value (The judgment of the Constitutional Tribunal of 28 April 2003, K 18/02, OTK ZU No. 4/A/2003, item 32; The judgment of the Constitutional Tribunal of 26 November 2013, Journal of Laws of 2013, item 1439).

The Constitution of the Republic of Poland confirms the international and European law guarantees which allow to protect the family and to strengthen its positive role in society.

The perception of the family in the Polish legal system has been influenced by the Supreme Court's opinion on the parliamentary draft act on the civil partnership agreement (SEJM, 2012). The Court pointed out that "it is constitutionally preferable to form a family through marriage, understood as a permanent relationship between a man and a woman, oriented towards motherhood and responsible parenthood."

The constitutional legislator made an axiological choice to guarantee the "traditional" normative model of marriage and family (Supreme Court, Opinion on the draft law "on civil partnership agreement" presented by the parliamentary club "Platforma Obywatelska" of 17 October 2012, BSA I - 021 - 345/12).

5 SAME-SEX FAMILY STATUS

Recently we have been witnessing rapid changes in social attitudes towards same-sex couples, which in some countries has resulted in recognizing such couple's right to legalize their relationships and form a family. It can be said this tendency is growing (Cf: Smoczyński, 2013, p. 73).

It should be emphasized that social, economic, and family aspects justify giving the cohabitation of homosexual persons a legal form. Thus, the protection of individual rights provided for in Article 8 of the Convention for the Protection of Human Rights and Fundamental Freedoms can be said to have changed radically with respect to marriage and family. However, same-sex couples do not fall under the category of "family life" provided for in Article 12 of the said Convention.

The extension of the list of persons allowed to form a "family" depends on the decisions of the European Court of Human Rights. The above-mentioned interpretation of the notion of "family life" does not in practice oblige the state to

consider "same-sex relationships" equivalent to "marriages" and provide them with protection under the said Convention. In this respect, particular states have considerable freedom of regulation. The European Court of Human Rights has pointed out that the legislative authorities of individual states have a mandate to assess the social needs of this kind. The institution of marriage itself has deeply rooted social and cultural connotations, which shows significant differences between societies. Thus, it is at the discretion of individual states to assess the legislative need to shape the legal situation of same-sex relationships. In its recent judgments, the European Court of Human Rights has pointed to the narrowing margin of the states' discretion to recognize the need to institutionalize same-sex relationships (Vallianatos and others v. Greece - Judgment of 7 November 2013, applications no. 29381/09 and 32684/09 and Oliari and others v. Italy - Judgment of 21 July 2015, applications no. 18766/11 and 36030/11).

The states have not been obliged to grant parental rights to partners in respect to their partners' children. The granting of parental rights to transsexuals as well as the way of regulating the relationship between a child conceived through artificial insemination and a person acting as biological father (Judgment of 22 April 1997 in the case of X., Y. and Z. v. Great Britain, application no. 21830/93) have also been left to the discretion of the signatory states.

6 CONCLUSIONS

There is no legal definition of "family" in international, European, and Polish law, which should be perceived positively. The lack of an unambiguous definition makes it possible for the concept of family to evolve along with ever-developing societies. Both the formal and the informal family remain a concern for international and European law, which protects them as basic

units of social life and sets standards for the protection of the rights and obligations of individual family members. In Polish law, the family is fully protected only after a marriage has been concluded.

However, the so-called welfare regulations at the international and EU level cover also informal families in matters such as e.g. social assistance for one-parent families or children brought up in informal families.

Due to the changing attitudes towards entering into a marriage, a considerable number of individuals living as singles, and the growing divorce rate, the social acceptance of the new forms of a family becomes greater and greater. In countries characterized by the strong position of the Catholic Church, the traditional family model, the one in line with the Convention for the Protection of Human Rights and Fundamental Freedoms, is deeply rooted in social life and awareness. Nevertheless, in the era of rapid social changes, the definition of "family" becomes less and less clear-cut. The roles assigned to spouses and partners are undergoing significant transformations both in formal and informal relationships.

The tendency towards the partnership model is visible not only in preferences but also in declarations about the actual division of roles. Yet, given the rigidity of international law regulations, it cannot be assumed that the institution of the family is fading away.

All things considered, it is at the discretion of individual states to assess the legislative need to shape the legal situation of same-sex relationships. One can currently observe the emergence of European consensus regarding the legal recognition of same-sex relationships. Therefore, the contemporary family is undoubtedly evolving.

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Received for publication: 07.09.2020
Revision received: 06.10.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Stych, M. (2021, January 15). The definition of family in international and EU law. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 192-198. doi:10.12709/mest.09.09.01.22

Style – Chicago Sixteenth Edition:

Stych, Marek. 2021. "The definition of family in international and EU law." Edited by Zoran Cekerevac. *MEST Journal (MESTE)* 9 (1): 192-198. doi:10.12709/mest.09.09.01.22.

Style – GOST Name Sort:

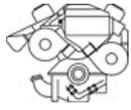
Stych Marek The definition of family in international and EU law [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 192-198.

Style – Harvard Anglia:

Stych, M., 2021. The definition of family in international and EU law. *MEST Journal*, 15 January, 9(1), pp. 192-198.

Style – ISO 690 Numerical Reference:

The definition of family in international and EU law. **Stych, Marek**. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 192-198



THE BEHAVIORAL ECONOMICS: AN INFLUENCE OF PSYCHOLOGICAL FACTORS ON THE ECONOMIC GROWTH

Dmitry Vukolov Mikhailovich¹

Financial University under the Government of the Russian Federation,
Moscow, Russia

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JEL Category: **D91, E71**

Abstract

Psychology as a branch of science could not take its place in the world for a long time. This fact says about a huge omission of a mass of intelligence by a human. However, the time overtook its own, and psychology became more significant for people and the economy in general. Being a science that would not exist without a human, it is impossible to omit its influence in it. Therefore, the main goal of this work is to consider the influence of behavioral mechanisms on decision-making by economic agents and, as a result, on economic growth. The theoretical part is closely interconnected with the practical part. This explains why the article does not have a clear separation between the two ones. Openings within the frame of behavioral economics embrace both the present and the past, which are aimed at showing both the fundamental nature of this knowledge and its undisputable relevance. These factors together represent a brief history of the development of this branch of knowledge. Through the prism of the main achievements of scientists of different years in the sphere of behavioral economics the irrational behavior of consumers was analyzed. This behavior was reflected in the examples, which showed simultaneously both: the main flaws of the classical macroeconomic models, and the importance of considering behavioral economics when analyzing aggregate demand and aggregate supply.

Keywords: *behavioral economics, decision making, effect, expectations, inflation, economic growth, rationality*

The address of the corresponding author:

Dmitry Vukolov Mikhailovich

[✉ dmitrii.vukolov@mail.ru](mailto:dmitrii.vukolov@mail.ru)

1 INTRODUCTION

Economics is one of those sciences that has the peculiarity of constantly developing and supplementing itself with new and new aspects, which, it would seem, should contribute to its understanding, but in practice, they complicate the subject even more. This is facilitated by the person

¹ Scientific supervisor: **Dinara Orlova Rustemovna**

Department of Economic Theory, Financial University under the Government of the Russian Federation, Moscow, Russia

who is the central element because without him the very concept of economy as a system of social relations would just be impossible. A person is the subject of the economy that is most difficult to formalize. This statement means that it mostly needs to be studied. This fact determines the relevance of this topic. The results of economic policy entirely depend on the level of understanding of humans' decision-making mechanisms. But how will it change?

The article is an attempt to prove that the regularities of behavioral economics can have a significant impact on economic growth.

To prove our hypothesis, we are going to rely on the works of the classics (Adam Smith, John Keynes). All of them create the underlying base to which some research by the founders of behavioral economics (Daniel Kahneman, Herbert Simon, and Richard Thaler) will be complemented.

As we already mentioned, human is the central link of the economy. Without him, the economy would not exist, but with him, it becomes so complicated that every century a new generation of scientists discovers new and new facets of a person and the economy as a whole. Each such new facet of the human personality and its role in the economic process was described by different paradigms. A fundamental example is the A. Smith's model, also known as "homo economicus", which is quite a long time dominated as a support for the understanding of the human role in the economy, though it was not the only one: to some extent, it is complemented by the other paradigms, each of which gave policies, institutions, norms and values and other important concepts the primacy of influence on a human.

Every action and shift of thought entail a certain chain of events that led a person to this type of thinking, to reasoning in this new framework. Thus, the Great Depression in the 1930s became a strong impetus for the studying of consumers' psychology. It has increased the concern of policymakers and scientists about the empirical significance of the standard model of rational agents' behavior in macroeconomics. The first steps to understanding were the works of a representative of the Cambridge school, John Maynard Keynes, who formulated the basic psychological law describing the dynamics of

income and consumption dependence, introduced the concepts of the crowd effect, waves of pessimism and optimism, propensity to save and consumption. In the second third of the XX century, the world saw the work of John Cohen, which includes a new paradigm "homo psychologicus", which promotes the idea that psychological factors have a significant impact on the decision of a person as an economic subject. It is impossible not to say that the financial crisis of 2007-2008 which clearly showed the failure of existing macroeconomic models also became a significant impetus to the studying of consumers' psychology. In November 2010, the President of the European Central Bank (ECB), Jean-Claude Trichet, expressed the following concerns: "When the crisis came, the serious limitations of existing economic and financial models became immediately apparent. Macro models failed to predict the crisis and seemed to be unable to explain convincingly what was happening to the economy." (Nikiforov & Antipina, 2016) All this together means that it is impossible to ignore the connection of the two sciences: psychology and economics because only considering them together can provide comprehensive (at this stage of the development of economics) information about the economic processes.

To understand the limitations of classical models of macroeconomics about the developing behavioral economy, it is necessary to understand what exactly human features exist which are not included in the classical models. And at this stage, it is very important to understand that there are different factors and different levels of generalization in various works of different authors.

Thus, O. N. Patosha in his article divides factors into personal (such as personality properties, state, and various processes at the mental level) and situational (i.e., the influence of the environment) (Hommes, 2018). T. V. Kornilova, in turn, identifies risk-taking and rationality as psychological features of decision-making, as well as cognitive styles and characteristics of a person, which are particularly strong in her research of decision-making in dialogue with a computer (Kornilova & Tikhomirov, 1990)

Referring to western society, we will see a slightly different picture. Sidney Dietrich, an educator at

Walden University in Minneapolis, consolidating information from other sources, states that significant factors include experience, various cognitive distortions, escalating commitment and lost results, individual differences, including age and socioeconomic status, and a belief in personal significance. All this, he believes, affects the decision-making and decision-making process. (Pocheptsov, 2016)

So now it seems to be clear how convoluted behavioral economics is. But this intelligence was essential to be said because it mostly fits for forming the general impression. Now it is time to cover one more piece of key information that deserves to be paid attention to. Now all the thoughts and discoveries are going to be reinforced by the examples in terms of science, modern life, and the past.

2 RESEARCH

As I mentioned earlier it is more rational to emphasize the most basic factors out of the whole massive discoveries of behavioral economics. After this, we should better consider their impact on the macroeconomic situation. For this, it would be preferable to go back to the middle of the XX century to study Herbert Simon's work, whose authoritative opinion is proved by the Nobel prize in the sphere of economics which he received in 1978. The scientist studied the decision-making process, which plays a key role in economic processes and as a result in economic grows and drops. "People are intentionally rational, but they have this ability only to a limited extent...". So, in this statement we can observe the idea of "bounded rationality", which implies memory that is not perfect, not always a correct assessment of future events, not immeasurable cognitive and mental abilities, and so on. The idea of "bounded rationality" (it is also worth noting that this idea was promoted in the future by Richard Tyler, who will be discussed later) was presented by Herbert Simon in contrast to the neoclassical ideal of considering human behavior in the economic process. A human, from the point of view of the neoclassicists, had an inert and unchanging nature, which was found contradictory not only by Simon Herbert himself, but also, for instance, Torstein Veblen — the founder of institutionalism. (Otrokhova, 2013)

Thus, bounded rationality is more or less related to every person as an economic agent. But, in what situations can this behavioral feature have the greatest impact on the macroeconomic environment? It is known that the most stressful situation for consumers is the economic crisis. And it is important to understand that panic among the smallest market participants, a person, appears much earlier than the potential crisis itself. Firstly, there are some consumer's expectations to be formed. They can be based on both objective and non-objective factors, which is explained by the concept of bounded rationality because the consumer is not always able to correctly assess the future situation in the market. At this stage, another psychological effect will be activated — the crowd effect. Some light was spilled on this effect as early as 1895 when G. Lebon introduced the term "group consciousness". He suggested that getting into a crowd, a person who experiences its influence becomes poorly controlled and unpredictable (Kahneman & Tversky, 2003). Everything happens as Lebon himself suggested: an individual when he gets into a crowd, not necessarily physical, but even informational simultaneously goes under its influence. This means that the probability that an individual will act in the same way as a crowd increases at times. Thus, an individual, looking at the behavior of another individual, is highly likely to act like the last one. And expectations, for example, inflationary ones, which are most strongly escalated during the crisis, acquire the format of an information cascade, which implies deciding which is not only based on their assessment but also based on observing the behavior of other market agents.

It was mentioned earlier that Herbert Simon's theory was put forward in opposition to the neoclassical theory. However, this model can be clarified by adding consumer inflation expectations. The modern neoclassical model of labor market equilibrium includes the differentiation of inflationary expectations of economic agents and the nominal level of inflation, which is expressed in price changes. This difference is the motive for deciding. So, naturally including price expectations in the function of wages, as well as in the aggregated labor supply (AS), the price level begins to depend directly on the expectations of inflation. This can be proved

by the macroeconomic formula (1), which sets the total nominal wage, where W is the nominal wage, P^e is the expected price level, u is the unemployment rate in the country, and z is all other factors that can affect wages.

$$W = P^e F(u, z) \quad (1)$$

This will affect the equilibrium of AD and AS. So, it seems to be that when price expectations increase, the level of nominal wages which is set by agents who express the demand for labor will also increase. This non-price factor of aggregated supply significantly affects aggregated demand. The curves change their position to reflect price expectations, which force a review of pay. And as you know, labor remuneration is one of the most significant production costs. As we know the more the costs are the more the price for products is. This is also evident from formula (2), which is derived from formula (3)

$$P = P^e (1 + \mu) F(u, z) \quad (2)$$

Where μ is the cost addition in price

$$P = (1 + \mu) W \quad (3)$$

The amount of costs affects the price level of goods produced. An increase in price, with an expected high level of inflation, causes a decrease in aggregate demand because the price that the consumer will be willing to pay will be significantly lower than the price for which the producer is willing to sell the product. So, the analysis of this example in the framework of pricing in the economy shows that prices are set at the level at which they are seen by economic agents (Makashova, 2015). This indicates the importance of behavioral economics in modern models.

Other equally influential scientists are George Caton, to whom we owe the very concept of "behavioral economics" and Daniel Kahneman, who considered behavioral economics as a sphere of the economy that is studied about the cognitive, emotional, and social factors that influence the decision-making. However, this decision, according to Kahneman, may not take into account certain destructive consequences that indicate an initially incorrect assumption made within the framework of the inherent "illusory optimism" (Patosha, 2019). This cognitive distortion, combined with the "myopia" effect described in the work of A. A. Nikiforov and O. N.

Antipina, which implies reliance on a short-term period, but threatening significant risks in the future, can together lead, for example, to a crisis and other socio-economic consequences. (Permitin)

The impact of this effect on the country's governance level can be particularly strong. Such an example is the adoption of prohibition in the USSR in the 1985's. So, this campaign failed in the United States in the 1920s. At the initial stages, it seemed that the law had nothing but advantages: the demographic situation improved, the productivity of labor in factories increased, the number of crimes committed by the people being intoxicated decreased — in short, the American people became wealthier and healthier. But things turned out very differently. In the long run, the policy has led to an increase in crime, corruption, mortality, and drug addiction. And what do we see in 65 years? The policy that has repeatedly tried to be implemented in the USSR since the 1920s was finally implemented in 1985 by Mikhail Gorbachev. Despite many positive effects, the result was the same as in the USA. The campaign had a very negative impact on the wine industry, significantly reducing the supply of alcohol. The long-term supply curve (LRAS) reacted accordingly to the policy and, being completely inelastic, shifted to the left. Observing the same level of demand, it is clear that the price has increased, as it was in reality (about twice its previous level). The unsatisfied demand found its product in other markets, but already in black markets. The shadow economy began to grow steadily. After not holding out for 2 years, the law was repealed, but it was too late. In 1987, the economic crisis began. During this time, the state budget collapsed, because the alcohol market gave about 25% of revenues to the budget. With the beginning of the crisis, inflation rises. The cycle closes again if you remember all that was mentioned earlier.

Well, now we will continue to consider inflation expectations again. And in this topic, it is impossible not to say about the Fischer model (equation). It reflects the dependence of the nominal interest rate on 2 variables: the real interest rate and the expected rate of inflation.

$$i = r + \pi \quad (4)$$

This formula has only a few limitations: the first is accuracy, since from the point of view of mathematics it is correct to say that this formula is suitable for calculating the approximate level of the nominal interest rate, and the second is the borders of use since this formula is valid only for the rate of moderate inflation. However, this pattern allowed us to create the "Fischer's effect", which is that if the expected rate of inflation increases by 1 percentage point, then the nominal interest rate will increase by 1 percentage point, accordingly.

So, we should try to consider the impact of this on aggregated demand (AD) from the point of view of J.Keynes. In accordance with the effect of Keynes, the interest rate naturally causes a decrease in aggregate demand (AD). There is a reason for this. The growth rate means the growth rates of credit and reduction in real incomes of the population. It can be seen that in this model, too, behavioral mechanisms significantly influence aggregate demand. From a behavioral point of view, the effects described above can be factors that induce an increase in the nominal interest rate: the crowd effect, the information cascade, the waves of optimism and pessimism. All this together with "bounded rationality" changes the equilibrium point at the intersection of the AD and AS curves in different models

Now let's look at another equally important discovery of behavioral macroeconomics. For example, Richard Thaler, a professor at the University of Chicago who won the 2017 Nobel Memorial Prize in Economic Sciences for his contributions to behavioral economics, co-wrote with Cass Sunstein in 2008 the book "Nudge: The architecture of choice", which reveals the theory of nudging. He stressed that under certain conditions, the context and presentation of options can influence the choice, not just the main product. R. Tyler defines the nudge as "any aspect of the decision-making process that encourages people to change their behavior in a certain way, without putting any restrictions on their choices." Let's look at the foreign experience of using "nudges" to change consumer decisions

For instance, Great Britain. In this country, the health care system is mainly socially oriented, and therefore almost completely free. However, to reduce the number of missed appointments of

doctors for disrespectful reasons or without notification, in 2015, it was decided to introduce fines for this type of patient. (Pettinger, 2015) A system was introduced to send text reminders by SMS on the day of the visit or a certain number of days before the scheduled doctor's appointment to reduce absences. And it successfully increased the attendance (or aggregated demand). However, research in behavioral economics shows that changing SMS words can affect the success of the outcome. For example, if text messages refer to direct NHS expenses that patients are required to reimburse for a missed appointment (£160), this helps reduce the number of missed appointments from 11.1% to 8.5%. (Safronchuk, 2017). Thus, it is clear that nudging can have some impact on the consumer, which in turn allows you to recover potential costs that the state would have incurred. But why did this method work so successfully, reducing the percentage of unfulfilled techniques by almost 3%? I think another behavioral concept plays a very important role here, namely loss aversion. This is a well-known and important concept, which was discovered by D. Kahneman and A. Tversky, whom we have already mentioned in the framework of "illusory optimism". Loss aversion is one of several features of the value function built in the framework of the extremely important because of its practicality "theory of prospects" (Dietrich, 2010). The essence of the loss aversion property is the tendency of people to prefer to avoid losses rather than acquire equivalent benefits. It has been proven that the 'pain' of losing something is psychologically about twice as strong as the pleasure of receiving it (Sheresheva & Kostanyan, 2016). In this case, the patient loses money, and he knows exactly how much money he loses. And it can be considered quite large. So, taking the statistics of average salaries for September 2019 in England, for example, Manchester, we will see a number equal to 1735 pounds. Even now, the fine is about 10% of the salary. However, excluding other mandatory expenses and taxes, we can assume that the percentage will be slightly higher. The effectiveness of the measure, for example, for residents of Manchester, which we have already discussed, is explained by another property of the value function of the "perspective theory", called decreasing sensitivity. So, with a salary that is a large amount of money, the difference would not

be felt as much as with a smaller one. This simple truth put forward by D. Kahneman and A. Tversky, with the discovery of R. Thaler, has a significant impact on aggregate demand, reducing government spending, which in turn can be invested in other sectors of the economy and the state as a whole. This is a positive prerequisite for economic growth.

Another example of the effectiveness of "nudges" is also associated with the UK, but it is more important in terms of tax concerns. In 2010, British Prime Minister David Cameron created a new government unit connected to the studying of citizens' behavior. Since then, a lot of effort has been devoted to developing a system that would reduce the number of tax non-payments. And the New York Times in one of its newspapers notes that the British authorities have significantly succeeded in this case. By coming up with a good text about the fact that most people with the same level of taxes have already paid this tax and sending it to taxpayers, the state managed to increase budget revenue by 210 million pounds (Tziokas, 2017). Because the United Kingdom is the second country after the United States that is most radically focused on the fact of non-payment of taxes, you can understand why this "push" has worked so effectively. Citizens do not like the idea of paying a fine for late tax payments, and therefore most people strive to pay the tax in time. So as not to lose more than the minimum set by the tax amount itself. This, it seems to be, is one of the manifestations of loss avoidance. Also, tax revenues are one of the few sources of state funds. Therefore, this example is a very positive prerequisite for stable economic growth, because the more this system is improved, the more amount of money received will be increased. This means that if all negative factors are taken as a constant, this is an excellent result and a direct hint of economic growth.

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3 CONCLUSION

We found out how diverse the discoveries of scientists working in the field of behavioral economics are. All of them allow us to bring economic analysis closer to reality and confirm the opinion that the consumer is guided by cognitive distortions rather than rationalism when deciding. Although many distortions were identified in the late XX century and early XXI century, behavioral Economics as a separate branch of science that stands at the intersection of psychology and economics, formally appeared only recently. This is proved by the fact that the JEL code (E03) for behavioral macroeconomics exists only since 2017 (Hommel, 2018).

Nevertheless, the influence of behavioral economics on consumer decisions is significant, which means that the changes that occur in the economy are also significant. But in which direction do they go? In the direction of a growth or a decline? The answer largely depends on both the consumer and other subjects who use information about consumer mental processes.

So, the role of the consumer, from the point of view of behavioral economics, is, for example, to form a positive way of thinking that will allow you to cope with critical economic situations faster. Or in education to make the right decisions.

Other subjects may be government agencies representing the state, or various types of marketing companies. All of them form policies that try to use invisible means to direct the consumer to the place where (from the point of view of the subject implementing the policy) the best solution is. This means that it is rational to say that behavioral economics is a tool that can be used both for the benefit of the economy and for its harm.

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Received for publication: 04.09.2020

Revision received: 05.09.2020

Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Vukolov, D. (2021, January 15). The behavioral economics: an influence of psychological factors on the economic growth. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 199-206. doi:10.12709/mest.09.09.01.23

Style – Chicago Sixteenth Edition:

Vukolov, Dmitry. 2021. "The behavioral economics: an influence of psychological factors on the economic growth." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 199-206. doi:10.12709/mest.09.09.01.23.

Style – **GOST Name Sort**:

Vukolov Dmitry The behavioral economics: an influence of psychological factors on the economic growth [Journal] // MEST Journal / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 199-206.

Style – **Harvard Anglia**:

Vukolov, D., 2021. The behavioral economics: an influence of psychological factors on the economic growth. *MEST Journal*, 15 January, 9(1), pp. 199-206.

Style – **ISO 690 Numerical Reference**:

The behavioral economics: an influence of psychological factors on the economic growth. **Vukolov, Dmitry.** [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, MEST Journal, Vol. 9, pp. 199-206



INDICES OF ENVIRONMENTAL PERFORMANCE OF THE COMPANIES FROM THE AUTOMOBILE SECTOR IN THE CONTEXT OF INTEGRATED REPORTING

Desislava Yosifova

Todor Kableshkov University of Transport, Sofia, Bulgaria

Magdalena Petrova-Kirova

Todor Kableshkov University of Transport, Sofia, Bulgaria

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JEL Category: **L62, Q01**

Abstract

Until very recently business operations were most strongly motivated by the ambition to maximize financial return and the purpose of the corporate accounting statements was to present information mainly on the cash flow, the financial and the asset position, as well as the financial outcome of the company. Development of world economy and the thereby arising positive and negative effects on society are not fully covered by conventional accounting and financial reporting system. The insufficiency of such information obstructs satisfying the information needs of various interested parties, resulting in growing expectations and pressure over the companies to accept not only the positive, but also the negative effect on their behaviour in economic, environmental and social aspect. All of the above prerequisites, along with the capital restriction the companies are facing, require a change towards an appropriate upgrade of traditional corporate reporting. This problem is particularly significant for Bulgaria, which, being a member state of the EU, is expected to apply all European Directives for implementation of environmental requirements essentially related to transport sector. In addition, the country's geostrategic position, through which territory 5 of the ten Pan-European transport corridors run through, makes the problems related to the development and the application of methodologies and the toolkit for covering, registration and reporting of the effect of transport companies' activities (especially those in the automobile sector) on environment, people and society as a whole, particularly important. Integrated reporting is ready to face these challenges and to solve a significant part of the problematic fields, which, in complex with the data and the indicators, registered and accounted for by traditional financial reporting, can provide together, to a sufficient and full extent, the demand for information in the implementation of environmental policy on national, local and global scale.

The address of the corresponding author:

Desislava Yosifova

[✉ diosifova@abv.bg](mailto:diosifova@abv.bg)

Keywords: automobile transport, integrated reporting, sustainable development, capital types, key indicators



1 INTRODUCTION

In terms of geostrategy, Bulgaria's geographic position is a prerequisite for the country to become a transport bridge between the West and Central European countries and those from the Near East, West and Central Asia, not to mention the convenient access from the country's territory to the Black Sea region. Bulgarian transport network is called upon to collaborate in improving the functioning of the European single market by providing efficient transport links through Bulgaria, ensuring the movement of people and goods and the access to other countries and markets. Bulgaria's accession to the EU established the relevant geoeconomic opportunities for the use and the development of the cross-border transport corridors TC№4, TC№7, TC№8, TC№9 и TC№10. The total length of Pan-European transport corridors on the territory of Bulgaria only by land is 1960 km (and 470 km more on the river Danube).

Furthermore, the picture illustrating the age structure of the automobiles in Bulgaria is far from optimistic. The major part is represented by automobiles of above 20 years of age, whereas 69% of all light vehicles are above 15 years of age. The share of the new light vehicles is the smallest, those under 5 years are under 3%, and the ones between 6 and 10 years – 7%. Bulgaria's largely depreciated vehicle fleet, as well as the continuing trend of growing import of 'second hand' cars, requires that Bulgaria strictly complies with European environment related legislation and implements an adequate national policy in the field of control, recycling and utilization of the 'end-of life' vehicles. Due to the data, reported by the

relevant structure – Executive Environment Agency (2018), the average annual volume of the recycled vehicles for the past 2-3 years is approximately 2.5%.

In view of meeting the provisions laid down in the European Directives and the specific environmental requirements of Bulgarian legislation (2016), it was concluded that along with the accounting information, the integrated reporting is one of the significant instruments to implement environmental policy and subsequently follow and control the responsibility of the relevant segments along the chain for value creation in all waste producing sectors. Automobile sector is without a doubt one of the most harmful sectors for the environment, but also has the highest potential for management and treatment of the harms and waste caused by it, to the benefit of global nature and economy.

European Directives define quantitative targets for a few types of widespread waste:

- end-of life vehicles;
- out-of-use electrical and electronic equipment;
- spent batteries and accumulators;
- packaging waste.

Bulgaria has established quantitative targets for collection, reuse, recycling, and utilization of 6 types of widespread waste, where apart from the above mentioned 4, there are individual legal acts in regard with waste tyre and waste oils¹. Accordingly, of all 6 types of widespread waste, 5 are in one way or another, related to vehicle manufacture and use.

¹There is a specific regime regulation regarding the waste oils (WO) at EU level. The act that used to regulate this type of waste initially, was Directive 75/439/EEC on the disposal of waste oils (WO Directive). The Directive was cancelled in 2010 and currently the waste oils matter is fully transferred to and covered by the framework Directive 2008/98/EC on waste. This Directive establishes requirements for the Member States to undertake relevant measures to guarantee that:

- waste oils are collected separately, where this is technically feasible.

- waste oils are treated with priority to regeneration or as an alternative to other recycling activities.
- waste oils of different characteristics are not mixed, and waste oils are not mixed with other kinds of waste or substances if such mixing impedes their treatment. There has been regulated the application of measures, such as: technical requirements, manufacturer/importer's responsibility, economic instruments, or voluntary agreements.

To take responsibility for their behaviour and operation and the thus arising positive and negative economic, social, and environmental effects, significant to the interested parties and the society as a whole, the transport sector companies should prepare integrated statement.

The need for integrated reporting is intensified by the fact that during the last decade, in Bulgaria, we observe a serious growth in the volume of the freight (and passenger as well) road transportation on one hand, and on the other hand – the related environmental pollution, as well as increase in the number of road accidents. Approximately 65% of the share of the transported goods in Bulgaria is taken by the road freight transport (RFT).

Table 1. Transported Goods – Automobile Transport thousand tons for the period 2010 – 2016

| Years | 2011 | 2013 | 2015 | 2016 |
|---|---------|---------|---------|---------|
| RFT against payment | 58,884 | 79,398 | 85,234 | 82,543 |
| RFT against payment and for its own account total | 135,276 | 160,267 | 161,806 | 147,136 |

Source: prepared authors based on data from the National Statistical Institute (NSI, 2016)

The purpose of this research is to present opportunities to expand and improve the non-financial reporting while paying particular attention to the business model of the company. Based on the analysis² carried out, there have been deduced some key indicators for environmental performance, which, along with the developed matrix of interaction between the different types of capital and the business model, are to be included as a part of the integrated reporting of the transport companies, whereas the model is particularly appropriate for the automobile sector being one of the biggest sources of environmental pollution. Thus, the given companies would perform the modern expectations and requirements for implementation of the environmental policies in Europe and globally much more reliably .

²Due to the limitations in the volume of the research, the analysis is not part of this report.

2 BUSINESS MODEL AS A KEY FACTOR IN THE STRUCTURING AND THE ESTABLISHMENT OF INTEGRATED REPORTING

According to the International Integrated Reporting Framework (IIRF), the success of each company greatly depends on the various resources used by the company and the links between them. These resources can be considered within the context of the various types of capital: financial, productive, human, intellectual, social and environmental. The various companies (from the various sectors of economy) have various types of capital, as not all capitals are applicable to all companies. The interaction between the types of capital for the different companies is different. This has to do with the extent, to which the various companies benefit from and influence each and every type of capital. As of accounting and economic point of view, this interaction is the so called circulation of capital, as a result of which, the company implements its activity and achieves certain results and accordingly creates value for the relevant parties.

Crucial significance for the process of value creation has the business model of the company.

Economy related literature contains numerous definitions about the essence of the business model. Most often, it is considered “a process through which the organization aims to create and maintain value.”(Yonkova, 2012) The creation of value in short-term, medium-term and long-term period is achieved via organization and management of the various types of capital, the business operation, the products, accordingly the services, and the performance and its directing towards achieving the strategic goals of the company. On the other hand, “‘model’ in the economic sense of the term is being considered a theoretical construction presenting economic processes via a set of variables, as well as a set of logical and/or quantitative relations between them. The economic model is a simplified framework meant to illustrate complex processes”. (Kolev, Raynov, 2017)

The business model concept is presented in the companies, reporting in accordance with Conceptual Financial Reporting Framework, i.e., IAS/IFRS, to include a business model of their there has been included a requirement for the company in their financial statements.

Table 2 Interaction Between the Types of Capital in the Value Creation Process

| Direction of the impact | Financial | Productive | Human | Intellectual | Social | Natural |
|-------------------------|--|---|--|--|--|---|
| Financial | X | Increase in the volume and the quality of the manufactured products | Growth in financial results, productivity, and labor quality | Growth in the manufacturing of competitive products, decrease of financial risk | Usage of union organizations' opportunities | Manufacturing of ecological production |
| Productive | Production facilities modernisation | X | Introduction of innovations in business processes | Introduction of technological equipment in the construction of facilities | Implementation of beneficial capital investments for society | Energy saving as a manner of environmental protection |
| Human | Engaging and training qualified specialists | Creation of improved working conditions | X | Expansion of the opportunities for development of all types of competencies/skills | Trust, readiness to cooperate | Health protection of staff's creativity |
| Intellectual | Intellectual property acquisition | Opportunity for creation of intellectual property | Creation of intellectual property – "organizational capital" | X | Discussion of common regulations in corporate precedures | Maintaining ecosystems' well-being by intellectual property |
| Social | Implementation of social investments, development of long-term relations | Opportunity to participate in union organisations | Exchange of experience for welfare development | Opportunity to participate in strategic alliance | X | Environmental protection institutions |
| Natural | Implementation of investments in relation to environmental protection | Reduction of negative environmental effects | Care for environmental wellbeing | Development of ecological manufacturing processes and products | Environmental initiatives' legislative consolidation | X |

Source: prepared by authors

In the context of the International Integrated Reporting Framework (IIRF), the business model of the company is regarded as a system for conversion/transformation of capitals through their (of the company) business activity, in products,

accordingly – services, and performance directed towards achieving the strategic goals of the company and creation of value in short-term, medium-term and long-term period.

The participation of the different types of capital in the company operation leads to their conversion/transformation from one form of capital to another. Using this constant circulation of the capital, the company creates value in time.

This capital circulation differs, depending on the scope of activity of the company and should be presented in more detail, including the interaction between the different types of capital as an element of the company business model and accordingly – as a part of the Annual Integrated Statement.

The interaction between the various types of capital (Malinovskaya, 2016) within the matrix is bidirectional: the vertical direction presents the influence of one type of capital over another and the respective arising transformation. Horizontally, the table demonstrates the result of this influence, respectively – transformation. Depending on the phases of the capital circulation, the interactions between the different types of capital can be classified into five relations:

- **Financial – Productive Capital** or the modification is in the form of the capital – from cash to material form. This transformation will not lead to a change in the asset value of the company but will cause structural modifications.
- The same applies to the relation **Financial – Intellectual Capital**, which is practically investment in intangible assets of the company. The reversed relation – Productive – Financial Capital presents the effect/result of the investment, related to the raise in the sale profit. That, in turn, leads to modification in the equity.
- **Financial – Human Capital**: training, qualification and retraining of staff is of essential importance to a company. Investment in knowledge and skills, necessary to perform the company operational activity, is a part of the second phase of the capital circulation – manufacturing. The effect of this investment, presented along the horizontal of

the matrix, is related to an increase in labour productivity, which, in turn, reflects on company's profitability.

- **Financial – Social Capital**: transformation of financial into another type of capital with social impact suggests positive change regarding the company's social image. This, on the other hand, influences the market assessment of the company (in case it is listed on the Stock Exchange) or raises the index of market capitalisation.
- Investments related to natural capital: **Financial – Natural capital** can also be regarded in view of capital transformation from cash to material. Environmental protection related investments are of an essential significance for the achievement of sustainable development. Referred to transport sector as a major pollution maker, the acquisition of vehicles complying with the highest environmental standards – EURO 5 and EURO 6 – leads to a decrease in the exhaust emissions, released into the atmosphere. Capital transformation affects cash form which is being converted into material in the process of investment.

3 SUSTAINABLE DEVELOPMENT REPORTING STANDARDS IN ACCORDANCE WITH THE GLOBAL REPORTING INITIATIVE

By establishing standards for sustainable development reporting, the Global Reporting Initiative (GRI, 2018) provides secure and reliable reporting structure which can be used by small-, middle- and large-scale enterprises, regardless of the industrial sector they operate in. The standards say that "GRI's reporting structure is intended to serve as a reporting model for the economic, environmental and social performance" of the companies in all sectors. As by GRI data³ 93% of the largest 250 enterprises in the world report their sustainability. Many of the companies that have adopted integrated reporting as a form

³The Global Reporting Initiative is an international non-governmental organization based in Amsterdam, the Netherlands, founder of the sustainable development reporting. It was established in 1997 in Boston, and its mission is to

create opportunities for solutions, via which the companies can create economic, social, and environmental benefits for all parties.

of reporting, prepare their integrated reports mainly in compliance with the GRI standards (2018) and the indices of economic, social and environmental performance along with the International Integrated Reporting Framework (IIRF).

3.1 Environmental Indices

- 1) **EN3** is a key environmental indicator, related to the direct energy consumption as by major energy resources

For the needs of the analysis, the costs for resources, fuels and lubricants for the vehicles of a transport company⁴, electricity and other type of energy are included as the major energy costs:

Table 3. Costs for Raw Materials, Fuels, Electricity and Other Types of Energy

| Year | Costs for Raw Materials, Fuels, Electricity and Other Types of Energy (thousand BGN) |
|------|--|
| 2016 | 59 421 |
| 2015 | 66 912 |
| 2014 | 69 840 |
| 2013 | 61 138 |
| 2012 | 61 138 |
| 2011 | 41 325 |

Source: prepared by authors

- 2) The **EN16** indicator reflects the total weight of the greenhouse gas emissions, emitted into the atmosphere (GRI, 2016).

The implementation of road freight transportation by emitting dust and exhaust emissions, as well as the arising noise pollution, affect biosphere in a negative way and cause damage to human health, climate changes and greenhouse effect.

⁴For the needs of the analysis, data from Annual Financial Statements has been used, as well as additional information about the transport company PIMK LTD, which is one of the largest enterprises in the international transport and freight forwarding sector in Bulgaria with more than 20 years of experience in the field of transportation of goods with deliveries all over Europe, parts of Asia and Africa.

Approximately 94% of the greenhouse gas emissions from transport are a result of automobile transport.⁵ For 2014, automobile transport was the source of approximately 99% of the carbon dioxide, emitted by transport as a whole.

The total fuel consumption in Bulgaria for 2014 in automobile transport grew by 6.44% (as compared to 2007).⁶ (The Integrated Transport Strategy, 2017)

Fig. 1 clearly demonstrates the growing trend in road freight transportation in Bulgaria.

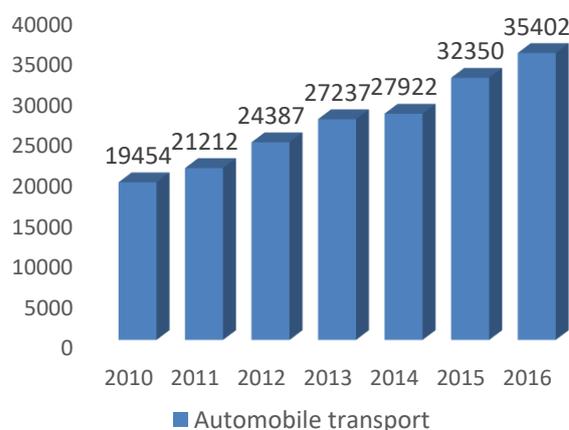


Fig. 1 Freight Transport by Road

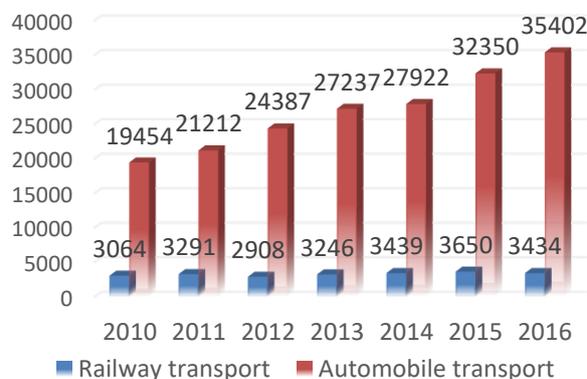


Fig. 2 Structure of Road and Railroad Freight Transport

⁵The main greenhouse gases, included in the United Nations Framework Convention on Climate Change (see Integrated Transport Strategy for the period until 2030) are as follows: carbon dioxide (CO₂), methane (CH₄), dinitrogen oxide (N₂O), hydrofluorcarbons (HFCs), perfluorcarbons (PFCs), sulphur hexafluoride (SF₆)

In Bulgaria the freight forwarding activity in automobile transport for 2016 increased with approximately 82% in comparison with 2010-2011. There was an increase by 12% for the same period in railway transport as well. Comparing the same data to 2015, it is appropriate to summarize that the growing trend in freight forwarding activity in the automobile transport continues. The increase rate is approximately 9.5%, compared to 2015. There was a decrease in railway

transportation for 2016 in comparison with 2015 by approximately 6%. (NSI, 2016) This fact obstructed the implementation of strategic goal No. 3 from the Integrated Transport Strategy (2017) for the period until 2030 – limitation of the negative impact from the development of transport sector. The priority for the achievement of this goal is limitation of the negative impact of transport on environment and people’s health, which is related to achieving sustainable development in transport.

Table 4. *Emissions of Pollutants in the Air by Automobile Transport in Bulgaria [in tons]*

| Pollutants | Year | | | | | |
|--|---------|---------|---------|---------|---------|---------|
| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Sulphur Oxides (SOx) | 124 | 126 | 99 | 107 | 37 | 38 |
| Nitrogen Oxides (Nox) | 40145 | 41645 | 36002 | 38833 | 45407 | 47196 |
| Non-Methane Volatile Organic Compounds | 14884 | 14922 | 12889 | 12822 | 13468 | 11522 |
| Methane (CH ₄) | 1060 | 1061 | 980 | 1109 | 1118 | 1030 |
| Carbon Oxide (CO) | 82023 | 76448 | 65258 | 70642 | 72396 | 67860 |
| Carbon Dioxide (CO ₂) | 7492640 | 7822170 | 6849525 | 7899542 | 8684244 | 8795963 |
| Dinitrogen Oxide (N ₂ O) | 211 | 222 | 201 | 231 | 259 | 268 |
| Ammonia (NH ₃) | 741 | 739 | 772 | 901 | 959 | 900 |

Source: as by NSI data

Table 5. *Relative Share of PIMK LTD's Carbon Dioxide Emissions in the Air*

| Year | Absolute values (tons) | Relative values (%) | Coefficient |
|------|------------------------|---------------------|---------------|
| 2016 | 337 765 | 3.84% | 0.0384 |
| 2015 | 426 396 | 4.91% | 0.0491 |
| 2014 | 344 420 | 4.36% | 0.0436 |
| 2013 | 298 639 | 4.36% | 0.0436 |
| 2012 | 283 945 | 3.63% | 0.0363 |
| 2011 | 216 537 | 2.89% | 0.0289 |

Source: as by data of PIMK Ltd.

PIMK LTD's automobile fleet complies with European environmental emission standards Euro 5, 6 and EEV. The relative share of the exhausted emissions of the company is presented in table 5.

3) The environmental indicator EN30 represents the total costs (investments) made by the companies in relation to environmental protection (GRI, 2016).

For the needs of the research, there has been used the value of the fixed assets, accordingly – the amount of vehicles complying with the requirements of Euro 5 and Euro 6 environmental standards, in which the company is investing.

Table 6. Fixed Tangible Assets (FTA) for Road Freight Transport Sector and for PIMK Ltd for the period 2011 – 2016, in BGN (in thousand BGN)

| Year | FTA – sector RFT | FTA PIMK Ltd. | Vehicles PIMK Ltd. | Relative Share of Vehicles in the Structure of FTA |
|------|------------------|---------------|--------------------|--|
| 2016 | 5 796 224 | 148 650 | 144 224 | 97,02% |
| 2015 | 5 443 788 | 155 571 | 148 067 | 95,18% |
| 2014 | 4 608 400 | 113 322 | 108 655 | 95,88% |
| 2013 | 4 348 302 | 115 904 | 103 324 | 89,15% |
| 2012 | 3 979 398 | 82 179 | 71 540 | 87,05% |
| 2011 | 3 872 330 | 61 949 | 54 304 | 87,66% |

Source: prepared by authors

For the needs of the analysis, table 7 presents the data about the purchased vehicles in thousand BGN as by years for the period 2011 – 2016:

Table 7. Vehicles – PIMK LTD (thousand BGN) 2011 – 2016

| Year | Vehicles as by Carrying Amount (thousand BGN) | Purchased Vehicles as by Book Value (thousand BGN) |
|------|---|--|
| 2016 | 144 224 | 40 429 |
| 2015 | 148 067 | 88 518 |
| 2014 | 108 655 | 45 335 |
| 2013 | 103 324 | 64 000 |
| 2012 | 71 540 | 36 440 |
| 2011 | 54 304 | 40 418 |

Source: prepared by the authors as by data from the Annual Financial Statement of PIMK LTD

4 CONCLUSION

By preparing a unified integrated statement, the company should upgrade from reporting format oriented mainly towards financial performance to a format demonstrating how the company business model participates in the transformation of the available capitals (producing, natural and human resources) and the creation of value for the major related parties.

The proposed model of matrix of interaction between the various types of capital adjusted for transport sector companies and particularly applicable to those from the automobile transport, along with the deduced key environmental indices, provides opportunities for periodic improvement of the business model and subsequent achievement of higher created value by these companies as an instrument for implementation of the environmental policies in Europe and globally, in medium-term.

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Received for publication: 06.09.2020
Revision received: 23.09.2020
Accepted for publication: 30.12.2020

How to cite this article?

Style – APA Sixth Edition:

Yosifova, D., & Petrova-Kirova, M. (2021, January 15). Indices of environmental performance of the companies from the automobile sector in the context of integrated reporting. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 207-215. doi:10.12709/mest.09.09.01.24

Style – Chicago Sixteenth Edition:

Yosifova, Desislava, and Magdalena Petrova-Kirova. 2021. "Indices of environmental performance of the companies from the automobile sector in the context of integrated reporting." Edited by Zoran Cekerevac. *MEST Journal (MESTE)* 9 (1): 207-215. doi:10.12709/mest.09.09.01.24.

Style – GOST Name Sort:

Yosifova Desislava and Petrova-Kirova Magdalena Indices of environmental performance of the companies from the automobile sector in the context of integrated reporting [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 207-215.

Style – Harvard Anglia:

Yosifova, D. & Petrova-Kirova, M., 2021. Indices of environmental performance of the companies from the automobile sector in the context of integrated reporting. *MEST Journal*, 15 January, 9(1), pp. 207-215.

Style – ISO 690 Numerical Reference:

Indices of environmental performance of the companies from the automobile sector in the context of integrated reporting. **Yosifova, Desislava and Petrova-Kirova, Magdalena**. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 207-215.



ECONOMIC SECURITY MANAGEMENT OF FINANCIAL INSTITUTIONS AS OBJECTS OF THE STATE CRITICAL INFRASTRUCTURE

Nataliia Zachosova

Bohdan Khmelnytsky National University of Cherkasy, Cherkasy, Ukraine

Zinaida Zyvko

Lviv State University of Internal Affairs, Lviv, Ukraine

Oleksii Koval

Bohdan Khmelnytsky National University of Cherkasy, Cherkasy, Ukraine

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JEL Category: **G21, G22, G23**

Abstract

The need to form a system of economic security for the effective operation of financial institutions is determined. Peculiarities of ensuring economic security of different types of financial institutions are found out, characteristic features of functional systems of economic security of financial intermediaries are revealed. It is offered to understand the management of economic security of financial institutions as a direction of management activities aimed at achieving a high level of protection of the institution's resources from the negative impact of internal and external threats by implementing a wide range of management decisions to use available opportunities and resources while providing financial services. The basics of the mechanism of economic security management of financial institutions are formed. It is assumed that the organization of the economic security system of a financial institution is carried out in several stages, such as the formation of the economic security system, ensuring the economic security system, identification, assessment, ranking of threats, and development of countermeasures; assessing the level of readiness of institutions to implement a mechanism for managing economic security; assessment of the level of economic security, development of management decisions. It is determined that the purpose of economic security management is to achieve the maximum possible level of realization of the institution's interests and meet the interests and needs of clients with optimal resource costs to minimize the impact of threats that accompany the activities of institutions.

Keywords: *economics, management, security, financial institutions, financial markets*

Address of the corresponding author:
Nataliia Zachosova
[✉ natazachosova@gmail.com](mailto:natazachosova@gmail.com)

1 INTRODUCTION

An important problem of national security and defense of the state is to ensure a highly functional

state of the critical infrastructure of the country, which is based on efficient and continuous operation of economic entities. The list of critical infrastructure of the state includes enterprises and institutions of such industries as energy, chemical industry, transport, banks and finance, information technology and telecommunications, food, health care, utilities, which are strategically important for the functioning of the economy and security of the state, society, and population. Thus, financial institutions, especially those that have the status of systemic and strategically important for the functioning of the internal financial market, belong to the objects of critical infrastructure of the state.

We have already paid attention to the study of fundamental issues of ensuring the economic security of financial institutions in previous studies (Zachosova, N. & Babina, N. & Zanora, V. (2018), Zachosova, N. (2019)). The issue of ensuring the proper functional condition of critical infrastructure facilities has also become known within the scientific community. (Alcaraz, C. & Zeadally, S. (2015), Mosadeghi, R. & Richards, R. & Tomlinson, R. (2017), Giannopoulos, G. & Filippini, R. & Schimmer, M. (2012), Rehak, D. & Senovsky, P. & Slivkova, S. (2018), Pursiainen, C. (2018)). Given the differences in the tasks and mechanisms of different types of financial institutions, we conclude that there is currently no universal methodological approach to the formation of their economic security system as an object of management. Each system of economic security is a unique project, effective only for the type of financial institution for which it is designed and implemented. For the economic security system to be rational, it must be built based on a careful and professional study of all external and internal threats that affect the business processes of the financial institution. The functioning of the system of economic security of financial institutions should help ensure the state of their assets, which will allow them to conduct financial and investment activities without hindrance at the current time and guarantee such an opportunity in the future; provide resistance to the negative impact on the performance of institutions of external and internal threats, minimize the risks of adverse events for institutions, and in case of their occurrence, will compensate for the losses caused by them. The existence and functioning of an economic security system is a prerequisite for

financial institutions to achieve a competitive advantage in the fight for consumers of financial services. Conceptual approaches to the formation of the economic security system as an independent object of management in the management system, which would be able to provide a full range of measures to protect the resources of financial institutions, regardless of the specifics of each type, but at the same time, was built taking into account functioning of business entities engaged in professional activities in the field of financial services.

For the formation of the system of economic security is important a specific scientific approach, the implementation of which in practice will achieve the stated goal.

In the process of forming the system of economic security of financial institutions as an object of management, it is important to take into account several rules tested at the applied level. Security experts sometimes call them "golden security rules":

- There are three concepts: safety, speed, and economy. When forming a system of economic security, you can choose only two indicators from these three. Choosing the optimal combination is the prerogative of managers who make management decisions.
- In the management of economic security, there are all economic laws and concepts, such as efficiency, although it is somewhat more difficult to calculate than financial efficiency because here the effect is not profiting savings, sometimes it is "virtual".
- Security and complexity of business processes - the phenomena are inversely proportional. The more complex the process, the more security issues there are, and the less reliable it is.
- Security is an investment, not an expense. It is expensive and a reasonable cost, but it does not mean that you need to invest in it indefinitely. There comes a time when a further increase in costs does not increase the level of economic security. Determining this point correctly means working cost-effectively. This can be called a kind of break-even point in the system of economic security.
- Any system of economic security slows down the development of the institution. The only

way out is to follow the changes and predict the unknown.

Based on the above scientific paradigms and postulates, we will form a conceptual framework for managing the economic security of financial institutions.

2 FORMATION OF THE ECONOMIC SECURITY SYSTEM OF FINANCIAL INSTITUTIONS

The rapid increase in the number and intensity of threats affecting the activities of financial institutions in Ukraine has made their owners and managers realize the importance of building effective economic security systems. Industry 4.0 creates additional risks for the activities of financial institutions, which forces professionals in the management of financial and economic security to be more prudent in the formation of systems for its provision and use a systematic and comprehensive approach in the process of its management. Limited financial resources, which characterizes the current state of professional participants in the domestic financial market, does not allow them to incur unnecessary costs in the process of ensuring their economic security. Therefore, it is very important to establish effective management of the economic security system, because, in its absence, even professionally organized protection of resources will be ineffective and will not benefit the activities of the financial institution. The existing conceptual principles of forming the system of economic security of different types of financial institutions as an object of management, namely system (complex), hierarchical, functional, organizational - were formed on the practical basis of banks and insurance companies.

The formation of the system of economic security of financial institutions should be based on a mixed approach, which combines the features and characteristics of all four mentioned scientific approaches. Therefore, it is proposed to form a system of economic security of financial institutions, highlighting in its structure such elements as goals, objectives, functions, principles, functional components, mechanism, objects, entities, policies (which will include strategy, measures, evaluation indicators).

The expediency of introducing a system-process approach in the mechanism of managing the system of economic security of financial institutions is based on the following postulates.

First, at the stage of formation of the system of economic security of a financial institution as an object of management, it is necessary to realize that it can be neither identical to the system of production or trade enterprises, nor a template for different types of financial institutions. For banks, the list of its tasks must be broader than, for example, for the system of economic security of a credit union or pawnshop. Insurance companies, leasing companies, private pension funds, mutual investment institutions, and other types of financial intermediaries have their purpose and mechanisms for achieving it, which are different from each other, and therefore the organization of economic security management for each of them and even for different institutions within one type must be unique, because the level of its organization depends on the state of development and structure of financial potential, the efficiency of its use and direction of the institution, quality of personnel, labor discipline, competitive environment, risk of work, etc. Fulfillment of a wide range of different tasks to be solved within the functioning of economic security systems of financial institutions does not seem possible without the involvement of management staff, which suggests the need to build a mechanism for managing the economic security system of financial intermediaries.

Secondly, the system of economic security of a financial institution at the stage of its provision should be independent, individual, separated from similar systems of branches or subsidiaries. This circumstance should be emphasized, for example, when managing the economic security system of a bank that has an extensive network of branches or has related insurance or leasing companies (relatively independent, separate legal entities, but with a significant share of financial resources of the bank in its capital). But despite the necessary independence, the isolation of their economic security system is quite conditional, because the economic security system of any financial institution is an integral part of a higher-level security system - city, region, state, etc. A large number of tasks to ensure the economic security of financial institutions cannot be solved by them

alone, without decisions taken at a higher systemic level, and primarily at the state level. As an example, we can cite the instructions of state regulators of financial market participants, such as NBU. It is at this level that the most important political, macroeconomic, legal, and other decisions are made, which form the environment of banking security and security of the non-banking financial sector. The organization and functioning of the economic security system of a particular financial institution also depend on the activity of economic security services of competitive financial intermediaries, and above all, their intelligence units. It is created and operates based on legislative acts, depends on the possibility of acquiring means of protection, the level of training and qualification of personnel, and taking into account many external and internal factors. The need to respond to orders, their implementation, making independent decisions on the vectors of economic security of a financial institution as a separate economic unit on the one hand, and an element of the national economy on the other, proves the feasibility of managing the economic security of financial institutions.

Third, the system of economic security of modern financial institutions must be comprehensive. It is designed to ensure financial and investment, intellectual and personnel, information and analytical, technical and technological, physical (force), legal and external (territorial, market and legislative and political) security, etc. Consequently, it must contain the relevant elements, bodies, tools, resources, the search, and rational use of which involves the implementation of certain management work. There is a need to combine management actions aimed at ensuring the economic security of a financial institution, but the implementation of which is provided in different areas of its operation, using a system-process approach, into a single management mechanism capable of managing the economic security of financial institutions.

To implement the process of professional management of the economic security system in financial institutions, the internal subjects of such management must be identified. The best solution to this problem may be the creation of security services (or economic security) of financial institutions. The purpose of their security activities should be to prevent the leakage of commercial

and confidential information, identify and prevent possible encroachments on the legal rights and interests of the financial institution, assess the effectiveness of resource management and economic security, assist managers in making management decisions, and more.

The responsibilities of the security or economic security service of the financial institution include the following tasks:

- protection of life and health of management staff and employees of the financial institution.
- protection of property, commercial and secret information, values of the financial institution, and other its resources.
- advising and recommending on issues of lawful protection against unlawful encroachments and conducting internal investigations.
- assessment of the level of economic security and advising the management of institutions in making management decisions based on the assessment.

To solve a wide range of functional tasks, the economic security service of a financial institution should work in close contact with marketing departments (if any), especially the study of competitors and competition conditions, ensuring the economic security of the financial institution in interaction with partners and customers, other external stakeholders.

3 FINANCIAL INSTITUTIONS ECONOMIC SECURITY SYSTEM MANAGEMENT

Defining the conceptual foundations of economic security management for different types of financial institutions allowed us to identify two possible models of economic security of financial institutions - comprehensive and fragmentary, to identify three options for economic security - self-sufficiency, transfer of security functions, mixed mechanism combining elements of previous two, to propose three approaches to ensuring the system of economic security - according to the first - security is a priority in the process of activity, according to the second - it is necessary to form a budget for security and accordingly the third - security is at the expense of residual resources. Three approaches to the management of the economic security system used in practice are

identified - profit-oriented, threat-oriented, customer-oriented, as well as the fourth approach, which is promising for application - reputational-image; proposed the use of two models of security-oriented mechanism for managing the economic security system - basic and specific-oriented (is a basic mechanism with the addition of a block of specific elements) and identified the need for three methods of assessing the level of economic security in the management of its security system, assessing the reliability of consumers of financial services, assessing the level of economic security from the standpoint of management.

Tasks of ensuring economic security, which must be performed at the level of economic entities, financial institutions:

- development of internal documentation for the organization and management of the system of economic (including financial and investment) security (Regulations on the economic security service, job descriptions of economic security management specialists, the Concept of economic security of a financial institution, economic security policy, etc.).
- introduction of periodic diagnostics of the state of economic security of the institution and its financial component.
- strict compliance with economic and financial standards established at the legislative level or the level of regulators.
- expanding the range of financial products and services.
- diversification of pricing policy of financial products and services.
- mandatory inspection of the state of economic and financial security of potential customers.
- creation of a single information base with free access for all types of financial institutions with information on persons who, as employees of financial institutions, committed fraudulent acts against them, misused insider information, dishonestly performed their duties, as well as data on financial client's institutions that have not fulfilled their financial obligations or have also been exposed to fraud against financial institutions and their resources.

- introduction of loyalty programs with special conditions for providing financial services for regular customers.
- diversification of activities in the direction of reducing the number of risky financial transactions.
- increase the level of information transparency by expanding the access of actual and potential clients to financial statements and other documents that specify certain aspects of financial institutions, and information from which can positively influence the decisions of individuals and legal entities to use financial products and services of a particular financial establish.

Thus, the essence of managing the economic security of financial institutions is that this process should be understood as a direction of management activities aimed at achieving a high level of protection of the institution's resources from the negative effects of internal and external threats by implementing a wide range of management decisions, resources to guarantee the economic interests of the financial institution and its customers in the provision of financial services. The object of management is the level of economic security, which ensures the functioning of the economic security system. The subjects of economic security management of financial institutions are divided into internal - which include the security service (economic security), employees, management staff, owners and managers of the institution, and external - the state represented by supervisory authorities, financial ombudsman, competitors, intermediaries, customers, counterparties and other categories of stakeholders.

The purpose of economic security management - to achieve the maximum possible level of realization of the interests of the institution and meet the interests and needs of customers with optimal resource costs to minimize the impact of threats that accompany the activities of institutions. Functions of economic security management in general are reduced to the formation of a system of economic security, assessment of the level of economic security, management decisions. Forms of implementation of the management process are the creation of a unit for economic security, development of internal documentation, in particular the concept of

economic security management, monitoring compliance with the rules and regulations adopted by the institution.

An important element of management is the evaluation of its effectiveness, which is analyzed based on the level of economic security that the institution has managed to achieve. Methods for assessing the level of economic security include: assessing the level of readiness of financial institutions to implement a mechanism for managing the economic security system, assessing the level of economic security from the standpoint of external stakeholders, assessing the reliability of consumers of financial services, internal assessment of economic security from the standpoint of management.

Management methods that should be used in the process of economic security management are: institutional and legal, administrative (organizational, directive, command), economic, organizational and technological, information, socio-psychological, legal, ideological, technological. Effective levers of management are administrative (state influence), organizational, economic, informational, socio-psychological.

Vectors of management force that can be recommended for use in the process of economic security management include organization and quality control of information and analytical support of the economic security system, selection, and control of personnel involved in the economic security system, system financing, risk management (in including reputation threat management), control of compliance with the law, optimization of resources used to ensure economic security, internal control, legal audit.

The organization of the economic security system of a financial institution is carried out in several stages, such as the formation of the economic security system, ensuring the economic security system, identification, assessment, ranking of threats and development of measures to counter them; assessing the level of readiness of institutions to implement a mechanism for managing economic security; assessment of the level of economic security, development of management decisions.

The implementation of the mechanism for managing the economic security system of a

financial institution within the system-process approach should be based on compliance with certain principles. In particular, the management of economic security should be comprehensive, ie have signs of systematization in addressing issues of economic security with the mandatory involvement of representatives of management and all types of resources of the financial institution; be a continuous process, ie there should be a permanent evaluation of the functional components of the economic security system, a constant collection of data on the financial and economic condition of competitors and partners of the institution, its customers, and their analysis to prevent both internal and external threats to the financial institution; the principle of efficiency - ie rapid response to the manifestations of internal and external threats, timely notification of management of available data for informed management decisions; the principle of centralization - a single approach to the conscientious performance of ordinary employees while leaving the coordination role and methodological guidance of the unit or service of economic security of the financial institution and the principle of transparency - ie the maximum possible openness of management of the financial security of the financial institution).

Economic security system management of financial institutions should have a strategic and tactical level (and ideally - even operational). At the strategic level, an economic security management strategy or a strategy for the functioning of the economic security system should be developed, which would be organically integrated into the overall development strategy of the financial institution and guarantee its prospects for the future.

At the tactical level, it is recommended to develop specific management programs for financial and investment, intellectual and personnel, information and analytical, legal and other components of the economic security system, indicating the desired management results and the number of resources that can be spent. The implementation of these programs takes place at the operational level.

4 CONCLUSIONS

Thus, the study of the conceptual foundations of the formation of the system of economic security

of financial institutions as an object of management has revealed the fact of a polystructural system of economic security, which involves the separation of several lower-level components. When forming the system of economic security of financial institutions, it is advisable to use a functional approach. But since the study revealed the existence of a large number of elements important for the effective functioning of the economic security system, and identified several levels at which the stages of building an economic security system, the need for both systemic (integrated) and hierarchical approaches cannot be denied to build a system of economic security of financial institutions.

The state of the economic security system of financial market participants, to the professional category of which financial institutions belong, is influenced by regulators of financial services markets and the securities and stock market, as well as the National Bank of Ukraine. Their instructions, orders, regulatory requirements lay the foundations of economic security, which must meet the activities of financial institutions. Therefore, the organizational approach to building a system of their economic security of financial institutions is also relevant. Thus, the formation of the system of economic security of financial institutions as an object of management should be a mixed approach, which combines the features and characteristics of all considered scientific approaches.

The management of the economic security system of financial institutions, taking into account all the

above recommendations, is an important task facing the owners and management of financial market participants, given the many threats that accompany their activities in today's economic environment, and given the important role of financial institutions in ensuring the sustainability of the economic system of the state and in the process of ensuring the economic security of Ukraine, this task is currently gaining national importance. Focusing on the management of the economic security system of financial institutions for specific purposes will ensure a high level of readiness of financial institutions to implement a mechanism for managing the system of their economic security within security-oriented management and ensure the effectiveness of its operation.

Scientific works of many scientists do not answer the questions about what the strategic directions of economic security of financial institutions should be, in particular, in a political and economic crisis and the deployment of hostilities, hybrid war, and European integration, because such a combination of threats to the proper functioning of professional financial market participants in Ukraine has not existed since its independence. Therefore, it is necessary to form a list of strategic priorities in the management of the economic security of financial institutions, taking into account the specific circumstances in which they carry out their professional activities. This area of scientific research is planned to be chosen by the authors as a prospect for further research.

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Received for publication: 03.09.2020

Revision received: 23.09.2020

Accepted for publication: 30.12.2020

How to cite this article?

Style – **APA Sixth Edition:**

Zachosova, N., Zyvko, Z., & Koval, O. (2021, January 15). Economic security management of financial institutions as objects of the state critical infrastructure. (Z. Cekerevac, Ed.) *MEST Journal*, 9(1), 216-223. doi:10.12709/mest.09.09.01.25

Style – **Chicago Sixteenth Edition:**

Zachosova, Nataliia, Zinaida Zyvko, and Oleksii Koval. 2021. "Economic security management of financial institutions as objects of the state critical infrastructure." Edited by Zoran Cekerevac. *MEST Journal* (MESTE) 9 (1): 216-223. doi:10.12709/mest.09.09.01.25.

Style – **GOST Name Sort:**

Zachosova Nataliia, Zyvko Zinaida and Koval Oleksii Economic security management of financial institutions as objects of the state critical infrastructure [Journal] // *MEST Journal* / ed. Cekerevac Zoran. - Belgrade – Toronto : MESTE, January 15, 2021. - 1 : Vol. 9. - pp. 216-223.

Style – **Harvard Anglia:**

Zachosova, N., Zyvko, Z. & Koval, O., 2021. Economic security management of financial institutions as objects of the state critical infrastructure. *MEST Journal*, 15 January, 9(1), pp. 216-223.

Style – **ISO 690 Numerical Reference:**

Economic security management of financial institutions as objects of the state critical infrastructure.
Zachosova, Nataliia, Zyvko, Zinaida and Koval, Oleksii. [ed.] Zoran Cekerevac. 1, Belgrade – Toronto : MESTE, January 15, 2021, *MEST Journal*, Vol. 9, pp. 216-223.

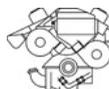


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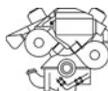
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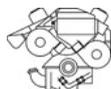
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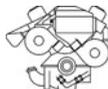
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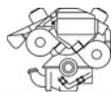
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| | |
|------------------------|--|
| General comment | |
| Introduction | |
| Methodology | |
| Results | |
| Discussion | |
| Findings | |

SECTION II (continue) (Click on the box next to the appropriate answer and check in one of the categories, or delete unnecessary in the event that you are unable to check the desired box)

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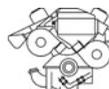
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ISSN 2334-7058 (Online)
DOI 10.12709/issn.2334-7058