VII International Science Conference SER 2024

December 13th – 14th, 2024
Igalo (Herceg Novi), Montenegro

"NEW TRENDS AND BEST PRACTICES IN SOCIOECONOMIC RESEARCH"



Conference program

Organized by:

Economic Laboratory for Transition Research, Podgorica, Montenegro	
Adriatic University Bar, Faculty for Mediterranean Business Studies Tivat, Montenegro	
Center for Sociological Research Szczecin, Poland	
University "Mediterranean, Podgorica Montenegro	
NiuSradio (Szczecin, Poland)	

Publisher: *Economic Laboratory for Transition Research*, Podgorica, Montenegro; *Center for Sociological Research Szczecin*, Poland; *Adriatic University Bar*, *Faculty of Mediterranean Business studies Tiva*t, Montenegro; and *University Mediterranean, Podgorica*, Montenegro

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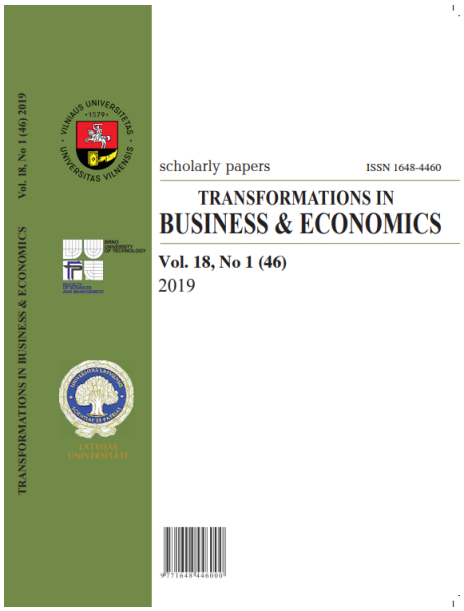
Printing: 100 Copies / **Printed:** "3M Makarije" , Podgorica

CIP - Каталогизација у публикацији
Национална библиотека Црне Горе, Цетиње
ISBN 978-9940-673-18-5

COBISS.CG-ID 35499792


Vol. 18, No 1 (46) 2019
TRANSFORMATIONS IN BUSINESS & ECONOMICS
scholarly papers
ISSN 1648-4460
TRANSFORMATIONS IN
BUSINESS & ECONOMICS
Vol. 18, No 1 (46)
2019


ISSN 2071-789X
Scientific Papers
ECONOMICS
& SOCIOLOGY
Vol. 10, No 4, 2017


ISSN: 2071-8330
JOURNAL OF
INTERNATIONAL STUDIES
Vol.10, №4, 2017


Montenegrin Journal of
Economics
Volume 15 ♦ Number 1 March 2019
ISSN 1800-5845
EKONOMSKI FAKULTET PODGORICA
Economic Laboratory for Transition Research Podgorica


Scientific Journal / Naučni časopis
ISSN 2337-0149
Montenegrin Journal of Ecology
Crnogorski časopis za ekologiju
Vol. 5 • No. 1-2 • September 2018
Broj 1-2 • September 2018.
Nobelovu nagradu za ekonomiju u 2018. godini dobili su Viljam Nordhaus i Paul Romer iz oblasti ekološke ekonomije.
Economic Laboratory for Transition Research Podgorica
Ekonomska laboratorija za istraživanje tranzicije Podgorica


ISBN 1800-2345
&Economics
&Economy
Vo. 1, No. 1, March 2013
Ekonomska laboratorija za istraživanje tranzicije
Economic Laboratory for Transition Research
Podgorica

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Foreword

We would like to thank all the contributors, discussants and participants of the V International Scientific Conference SER 2024, entitled "***New Trends and Best Practices in Socioeconomic Research***", successfully organized and held in Igalo (December 13th-14th, 2024), which contributed to the same success and has a high scientific quality.

Special thanks to the organizers:

- Adriatic University Bar, Tivat, Montenegro,
- University of Mediterranean, Podgorica, Montenegro,
- Center for Sociological Research, Szczecin, Poland,
- Economic Laboratory for Transition Research, Podgorica, Montenegro and
- Palmon Bay Hotel & Spa, Igalo, Montenegro.

We had 59 authors from 22 countries (Austria, Australia, Bosnia and Herzegovina, Bulgaria, Canada, Czech Republic, Croatia, Estonia, France, Germany, Hungary, Italy, Lithuania, Montenegro, Morocco, Poland, Saudi Arabia, Serbia, Slovenia, South Africa, Thailand, and Ukraine.

Conference participants submitted 33 scientific abstracts, which were reviewed by the International review board (Prof. *Dalia STREMIKIENE*, Academician Prof. *Veselin DRASKOVIC*, Prof. *Yuriy BILAN*, Prof. *Radislav JOVOVIC*, Prof. *Mimo DRASKOVIC*, and Associate Prof. *Milica DELIBASIC*).

I hope that the conference participants, in dynamic, interesting and original reports and discussions, will succeed in moving the boundaries of knowledge about the current theme of this conference. I believe that many of the old questions, problems and dilemmas will get some new arguments, information and evidence.

Chair of Scientific Committee

Academician *Veselin DRASKOVIC*, Professor

P R O G R A M

DAY ONE:	***Friday 13th December 2024***

13:00-14:00	**R E G I S T R A T I O N of the participants**
11:00-11:10	***OPENING THE CONFERENCE*** **(Hotel Palmon Bay Igalo)** ***Radislav JOVOVIC***, Professor, Vice rector University of Mediterranean Podgorica, Montenegro
PLENARY SESSION **: Introductory Papers – Keynote Speeches** Head: ***Yuriy BILAN***, Professor	
12:10-12:30	QUALITY OF HIGHER EDUCATION AND ITS ROLE IN THE ATTRACTIVENESS OF COUNTRIES FOR STUDENTS Prof. ***Halyna MISHCHUK*** Department of Human Resources and Entrepreneurship, National University of Water and Environmental Engineering, Ukraine Keynote Speaker: Prof. ***Yuriy BILAN*** Bioeconomy Research Institute, Vytautas Magnus university, Kaunas, Lithuania Sumy State University, Symy, Ukraine
12:30-12:50	GENDER AND AGE INEQUALITIES IN LOW CARBON TRANSITION Keynote Speaker: Professor ***Dalia STREIMIKIENE*** Lithuanian Energy Institute, Kaunas, Lithuania
12:50-13:10	NEOLIBERALISM AS A QUASI-PARADIGM Keynote Speaker: Academician Professor ***Veselin DRASKOVIC*** University of Montenegro, Montenegro
13:10-13:30	USING DIGITAL TWINS TO INCREASE SHIP'S CYBER SECURITY Keynote Speaker: Professor ***Sanja BAUK*** Estonian Maritime Academy, Tallinn University of Technology, Tallinn, Estonia
13:30-13:50	RISK-ADJUSTED ANALYSIS OF PRODUCTIVITY IN AGRICULTURE Keynote Speaker: Professor ***Tomas BALEZENTIS*** Vilnius Gediminas Technical University, Vilnius, Lithuania
13:50 -14:30	**Sweet, tea, coffee, seasonal fruits**
14:30-14:50	MEDIATIZATION OF POLITICS AND POLITICIZATION OF THE MEDIA IN SELECTED SEE COUNTRIES Keynote Speaker: Professor ***Mimo DRASKOVIC*** University of Montenegro, Maritime Faculty Kotor, Montenegro

14:50-15:10	UKRAINIAN STUDENTS' MIGRATION: PECULIARITIES AND FACTORS Keynote Speaker: Assoc. Prof. ***Natalia SAMOLIUK*** Department of Human Resources and Entrepreneurship, National University of Water and Environmental Engineering, Ukraine Assoc. Prof. ***Monika GRABOWSKA*** Wroclaw University of Economics, Wroclaw, Poland
15:10-15:30	THE RELATIONSHIP BETWEEN DIGITAL LITERACY LEVELS AND INTERNET USAGE IN THE REGIONS OF KAZAKHSTAN Keynote Speaker: Professor ***Nurlan KURMANOV*** Faculty of Economics, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan Professor ***Aizhan SATBAYEVA*** Faculty of Economics, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan
15:30-15:50	INNOVATIVE APPROACHES TO SUSTAINABILITY COMMUNICATION FOR CLIMATE ACTION AND SUSTAINABLE DEVELOPMENT Keynote Speaker: Professor ***Asta MIKALAUSKIENE*** Vilnius University, Kaunas Faculty, Kaunas, Lithuania Professor ***Dalia STREIMIKIENE*** Vilnius University, Kaunas Faculty, Kaunas, Lithuania

DAY TWO:	***Saturday 14th December 2024***

PLENARY SESSION – EXTENSION : **Introductory Papers – Keynote Speeches** Head: ***Mimo DRASKOVIC***, Professor	
9:00 – 9:20	DIGITAL SKILLS OF UNIVERSITY GRADUATES AND PROFESSIONAL SUCCESS: ASSESSMENT OF LINKS Keynote Speaker: Prof. ***Halyna MISHCHUK*** Pan-European University, Faculty of Economics and Entrepreneurship, Bratislava, Slovakia Prof. ***Yuriy BILAN*** Faculty of Management, Rzeszów University of Technology, Rzeszów, Poland Faculty of Economics and Business, University of Debrecen, Debrecen, Hungary
9:20 – 9:40	ASSESSMENT OF THE RISK OF BANKRUPTCY FOR POLISH COMPANIES USING THE METHODOLOGY OF ENSEMBLE CLASSIFIERS Keynote Speaker: dr ***Tomasz PISULA*** Department of Quantitative Methods, Rzeszow University of Technology, Rzeszow, Poland

9:40-10:00	DISTRIBUTED ENERGY IN SCIENCES Keynote Speaker: dr ***Marcin RABE*** Centre of Sociological Research, Szczecin, Poland Institute of Management, University of Szczecin, Poland dr hab. Prof. US ***Jarosław KORPYSA*** Centre of Sociological Research, Szczecin, Poland Institute of Management, University of Szczecin, Poland
10:00 -10:20	IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT GOALS FOR UKRAINE: GOAL 7. AFFORDABLE AND CLEAN ENERGY Keynote Speaker: ***Ganna KHARLAMOVA*** Centre of Sociological Research: Szczecin, Poland; Department of economic cybernetics, Taras Shevchenko National university of Kyiv, Kyiv, Ukraine ***Andriy STAVYTSKYY*** Department of economic cybernetics, Taras Shevchenko National university of Kyiv,: Kyiv, Ukraine ***Svitlana BILAN*** Centre of Sociological Research, Szczecin, Poland
10:20 -11:00	**Sweet, tea, coffee, seasonal fruits**
11:00-11:20	GEOPOLITICAL EVENTS AND STOCK PRICES Professor ***Tomas BALEZENTIS*** Vilnius University, Vilnius, Lithuania ***Meinardas GRINIUS*** Vilnius University, Vilnius, Lithuania
11:20-11:40	TRANSITION TO GREENER ELECTRICITY AND RESOURCE USE IMPACT ON ENVIRONMENTAL QUALITY: POLICY BASED STUDY FROM EUROPEAN COUNTRIES ***Grzegorz MENTEL*** Rzeszow University of Technology, Department of Quantitative Methods, Rzeszow, Poland ***Beata SZETELA,*** Rzeszow University of Technology, Department of Quantitative Methods, Rzeszow, Poland ***Urszula MENTEL*** Rzeszow University of Technology, Department of Quantitative Methods, Rzeszow, Poland
11:40-12:00	MUTUAL INFLUENCE BETWEEN CULTURE, INSTITUTIONS, AND ECONOMY Associate Professor ***Milica DELIBASIC*** University of of Adriatic Bar, Faculty for Metiterranean Business Studies,

	Tivat, Montenegro
12:00 -13:00	**Lunch**
SESSION 1 Head : ***Radislav JOVOVIC***, Professor	
13:00 – 13:10	IT-INDUSTRY DEVELOPMENT IN UKRAINE: CURRENT PECULIARITIES IN WARTIME ***Viktoriia MISHCHUK*** National University of Water and Environmental Engineering, Ukraine ***Tomasz PUDŁO*** West Pomeranian University of Technology in Szczecin Poland
13:10 – 13:20	TRANSITION TO RENEWABLE ENERGY AS A PRECONDITION OF RESILIENCE TO ENERGY SHOCKS ***Manuela TVARONAVIČIENĖ*** Department of Business Technologies and Entrepreneurship Vilnius Gediminas Technical University (VILNIUS TECH), Vilnius, Lithuania; General Jonas Žemaitis Military Academy of Lithuania, Vilnius, Lithuania ***Salvatore MONNI*** Università degli Studi "Roma TRE", Rome, Italy
13:20 – 13:30	CRITICAL ROLE OF ENERGY EFFICIENCY AS MEDIATING FACTOR BETWEEN DIGITAL ECONOMY AND CARBON NEUTRALITY: A SYSTEMATIC LITERATURE REVIEW ***Ruta NEDZINSKIENE,*** Vytautas Magnus University, Lithuania Professor ***Dalia STREIMIKIENE*** Vytautas Magnus University, Lithuania
13:30 – 13:40	LAND RENT PRICES AND THEIR DRIVES IN THE EU ***Vaida SAPOLAITE***, PhD Lithuanian Centre for Social Sciences, Vilnius, Lithuania
13:40 – 13:50	THE INFLUENCE OF POLITICS ON THE VALORIZATION OF THE PORT OF BAR PhD student ***Dalibor PELEVIC*** University of Montenegro, Maritime Faculty of Kotor, Kotor, Montenegro
13:50 – 14:00	ENERGY INTENSITY AND GHG EMISSION IN THE EU AGRICULTURE PhD Student ***Bo PENG*** Lithuanian Centre for Social Sciences, Vilnius, Lithuania
14:00 -14:10	THE ROLE OF THE BLUE ECONOMY IN THE DEVELOPMENT OF ECONOMIES IN TRANSITION: REGIONAL AND NATIONAL PERSPECTIVES PhD student ***Oleksandra OVCHYNNYKOVA*** Department of Economics Faculty of Social sciences and humanities,

	Klaipeda University, Klaipeda, Lithuania Prof. ***Valentinas NAVICKAS*** School of Economics and Business, Kaunas University of Technology, Kaunas, Lithuania
14:10 -14:20	THE ECONOMICS OF SHARING: UNDERSTANDING THE IMPACT OF THE SHARING ECONOMY ON TRADITIONAL MARKET STRUCTURES ***Ieva PETROKĖ*** Kaunas University of Technology, School of Economics and Business, Lithuania
14:20 -14:30	MAPPING ENERGY POVERTY INDICATORS ACROSS EUROPEAN NUTS2 REGIONS PhD student ***Francesco CHIARADIA*** Department of Business Studies, Roma Tre University, Italy
14:30 -14:40	BARRIERS TO INVESTMENT IN RENEWABLE ENERGY SOURCES IN THE GROUP OF ENTREPRENEURS WHO DO NOT USE RES ***Katarzyna CHUDY-LASKOWSKA*** Rzeszów University of Technology, Rzeszów, Poland ***Łukasz NAWROT*** Centre of Sociological Research, Szczecin, Poland ***Teresa PIECUCH*** Rzeszów University of Technology, Rzeszów, Poland ***Najiba EL AMRANI EL IDRISSI*** Horizon Europe NCP -Digital, Industry & Space Faculty of Science and Technology – USMBA**,** Morocco
14:40 -14:50	CHALLENGES IN USING CAF CERTIFICATION TO IMPROVE THE PUBLIC SECTOR INSTITUTIONS' CAPACITY PhD student ***Mariana LICHEVA*** Department of Management and Administration, University of Economics, Varna*,* Bulgaria
14:50 -15:00	SUSTAINABILITY ASSESSMENT OF THE AGRICULTURE SECTOR OF BALTIC STATES ***Ahmad BATHAI*** Institute of Economics and Rural Development, Vilnius, Lithuania
15:00 -15:10	SUSTAINABLE RURAL DEVELOPMENT: INDICATORS AND MEASURES PhD Student ***Mindaugas KUKLIERIUS*** Lithuanian Centre for Social Sciences, Vilnius, Lithuania

15:10 -15:20	CLIMATE CHANGE AND AGRICULTURAL PRODUCTION: A SYSTEMIC ANALYSIS PhD Student ***Arturas LAKIS*** Lithuanian Centre for Social Sciences, Vilnius, Lithuania
15:20 -15:30	ANALYSIS OF FOOD WASTE IN LITHUANIA: A COMPREHENSIVE APPROACH ***Ovidija EICAITE*** Lithuanian Centre for Social Sciences, Vilnius, Lithuania
15:30 -15:40	FROM TALK TO ACTION. NFRD VERSUS CSRD – A PILOT STUDY FROM EUROPE Ph.D. ***Magdalena WÓJCIK-JURKIEWICZ*** Department of Accounting; Institute of IT, Accounting and Controlling; College of Management Sciences and Quality; Krakow University of Economics, Kraków, Poland
15:40 -15:50	THE IMPACT OF FINTECH ON BANKING IN SOUTHEASTERN EUROPE PhD ***Nebojsa JOVOVIC*** Montenegrin agency for competition protection, Podgorica, Montenegro
16:00 -17:00	**Sweet, tea, coffee, seasonal fruits**
19:00 – 23:00	**Cocktail**

Prof. *Halyna MISHCHUK*,

Department of Human Resources and Entrepreneurship,
National University of Water and Environmental Engineering,
Ukraine

Prof. *Yuriy BILAN*,

Bioeconomy Research Institute, Vytautas Magnus University,
Kaunas, Lithuania
Sumy State University,
Symy, Ukraine

QUALITY OF HIGHER EDUCATION AND ITS ROLE IN THE ATTRACTIVENESS OF COUNTRIES FOR STUDENTS

Abstract

The students' migration became especially obvious on the global map of academic migration due to the war in Ukraine and the large-scale migration of youth trying to find a secure country and use the "window of opportunity" caused by the development of supportive policies toward refugees from Ukraine. However, there is not only one feature of the global tendency to attract talented youth. Developed countries constantly improve their policies regarding intellectual migrants using different tools. Under these circumstances, the quality of higher education may lose its role among the factors of country attractiveness. The analysis also investigates this assumption using temporary cases based on the trends typical for OECD countries. It was found that higher education financing plays a decisive role in assessing the impact of the selected indicators on the level of attractiveness for international students in the country. Therefore, governments should consider the financial aspect as a priority in ensuring the quality of higher education. In this case, a positive experience is an increase in financial allocations for the development of higher education institutions and the introduction of the principle of their economic autonomy. Such a mechanism is successfully operating in European countries, where the financial autonomy of universities is one of the rights respected by all countries. Education development policies in European countries aim to increase state budgets for higher education, ensure greater financial autonomy, develop links between funding and results, and encourage diversification of funding sources and partnerships.

Somewhat unexpected and controversial is the low correlation between the factors characterising university staff's research and teaching achievements and the country's attractiveness for migrant students. On the one hand, such factors impact other important factors (e.g., university rankings). Still, on the other hand, students

have not yet assessed their impact as a direct factor in the attractiveness of the quality of the education system in another country. Such factors include the development of mechanisms for financing the higher education system, the formation of a positive image, including ranking indicators (which include not only indicators of research and teaching activities but also a set of university achievements), the development of graduates' competencies that meet the needs of the modern labour market, and the establishment of practical cooperation with business environment representatives.

KEYWORDS: *Higher education, migration policy, students' migration.*

ACKNOWLEDGEMENT

This study is funded by the Ministry of Education and Science of Ukraine under the project "Higher education in the conditions of war and post-war recovery: Determinants of development to overcome threats to the restoring of human capital" (State registration number 0124U000351).

Professor ***Dalia STREIMIKIENE***
Lithuanian Energy Institute,
Kaunas, Lithuania

GENDER AND AGE INEQUALITIES IN LOW CARBON TRANSITION

ABSTRACT

Low carbon transition is crucial in dealing with climate change and achieving decarbonization targets. However, it has been realized that benefits from this transformation may not be fairly shared, and this greatly depends on diversity within implemented policies. The paper addresses the negative impacts of gender and age inequalities on low-carbon energy transitions in terms of their efficacy and equity. It draws on interdisciplinary literature and case studies to assess these systematic barriers to low-carbon energy transition and economic opportunities for women and older populations, which are the most vulnerable groups of the population. These groups face numerous obstacles to the use of low-carbon modern technologies. The results of the study show why policies should adopt a gendered and aged-based perspective to achieve equilibrium and improve the chances of any successful change towards a carbon-neutral society. Strategies are proposed for policymakers, implementers, and scholars to narrow these gaps, focusing on the specific areas of enhancement, policy inclusivity, and stakeholders' engagement. This approach adds the dimensions of equity to the low-carbon energy agenda, broadening the benefits of the transition process while enhancing sustainability and social justice in the outcomes.

KEYWORDS: *Low carbon transition, gender inequality, age inequality; equity, justice.*

Academician Professor ***Veselin DRASKOVIC***
University of Montenegro,
Montenegro

NEOLIBERALISM AS A QUASI-PARADIGM

ABSTRACT

This manuscript suggests a critical review and consideration of ending (eliminating) the abuse of neoliberal „theoretical" concepts into practical interest purposes, ending a deadly, sophisticated and dogmatic neoliberal metaphor for numerous national and state troubles and anti-developmental contradictions. He can show to quasi-neoliberals as review of the author's knowledge, but also of every other aforementioned opinion and critic of neoliberalism. On the other hand, someone and sometimes (when necessary) puts knowledge into the function of apologetics. I am not only talking about metaphorically labeled quasi-neoliberals, but also some of their followers, who fail to notice devastating results of quasi-neoliberalism. They are labeled enough by their flawed assessment of character, duration and intensity of the current global economic crisis. Those "gurus" have been careful here, not interfering with these assessments. Sophistic stopgap and sophisticated quasi-neoliberal rhetoric and practice have generated original methods of organized use of privilege: privatization, intercommune economy, economic clockotrism and protectionism against his own people (my terms). Their mission continues in conditions of extremely reduced market and "entrepreneurship" based on further robbing of the state and reproducing the non-market acquired wealth. Even if I did not create this indicative cover, the text that follows and positive reviews from respected economists, will surely explain the title of this manuscript. Everything else will be a specific analysis, criticism and variations on a given topic, which should justify specified name. Its intention is not to be associated with theoretical discussion of neoliberalism, as it is too late for that, but with phenomenology of neoliberalism and quasi-neoliberalism, and the need for a critical attitude towards them and unforeseen practical consequences that have caused.

KEY WORDS: *Neoliberalism, institutional monism, alternative institutions, selective "individualism, privilege.*

Professor ***Sanja BAUK***
Estonian Maritime Academy, Tallinn University of Technology
Tallinn, Estonia

USING DIGITAL TWINS TO INCREASE SHIP'S CYBER SECURITY

ABSTRACT

Shipboard technologies commonly lag behind contemporary standards due to their long and complex service circles, making it difficult to handle cyber risks resulting from outmoded operational principles. Comprehensive cybersecurity measures are therefore urgently needed to protect maritime operations. Threat modelling is a systematic approach to identifying, understanding, and mitigating cyberthreats. It helps anticipate and defend against cyberattacks on ship bridge, engine, and supporting systems by identifying vulnerabilities and implementing preventative measures. Nevertheless, there are significant shortcomings in using advanced analytics to successfully reduce cyber risks. The dynamic and complex cyber environments of contemporary ships' information and operation technology (IT/OT) systems make the threat and risk assessment models that are currently in use - inadequate. Particularly when ship subsystems interact with one another and their vulnerabilities are reinforced, these restrictions of current threat modelling result in inadequate protection mechanisms. Furthermore, there are no standardized frameworks in the current approaches that are suited to the needs of manned and autonomous ships. Inadequate integration of real-time data and predictive analytics erodes threat detection and response capabilities. Static models based on expert input are unable to anticipate real-time threats and adjust to cyber risks.

By serving as a virtual representation of the ship's systems, the digital twin (DT) offers real-time information on operations, performance, and condition. The DT helps identify vulnerabilities, assess system performance, and improve operational decision-making, especially in the context of cybersecurity. Cyber threat modelling and assessment algorithms should be integrated with the DT to proactively identify, assess, and mitigate cybersecurity risks in shipping industry. DTs enable the simulation of cyberattacks, the identification of vulnerabilities, and the evaluation of how ship systems react to various threats. This allows the examination of crucial connections and possible attack routes to gain a better understanding of the vulnerabilities. To guarantee alignment with best practices, the strategies should be developed using industry standards, such as NIST 2.0. DTs should use threat intelligence protocols to help identify new threats and ensure a rapid and effective response. Threat modelling can be integrated with Cyber Threat Intelligence (CTI) using cutting-edge tools like the Malware Information Sharing Platform (MISP). Early detection and proactive mitigation of cyber threats, in the ship's DT setting, can be made by real-time network monitoring and pen testing that includes

experimental firewall and network segmentation configurations. Simulating cyber-attacks on ship components via DTs is essential. The knowledge gained through pen testing can be applied to the development and implementation of advanced intrusion detection systems (IDSs), which will follow the cybersecurity measures developed in the merged real-world (real-test ship) and simulation (DT) environments.

KEY WORDS*:* Ship, digital twin (DT), intrusion detection system (IDS), development, cyber-resilience.



Professor ***Tomas BALEŽENTIS***
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Vilnius, Lithuania

RISK-ADJUSTED ANALYSIS OF PRODUCTIVITY IN AGRICULTURE

ABSTRACT

The frontier approach allows one to assess the technical efficiency among other measures of performance in a comprehensive manner within a neo-Walrasian framework. The use of the frontier methods, however, do not take into account production risk in case conventional approaches are used. To address this issue, various extensions have been proposed (e.g., state-contingent models). The research seeks to develop a quantitative framework for assessment of the European Union (EU) agricultural performance with respect to the underlying production technology. The non-parametric approach can be adapted with inclusion of the production risk. The latter can be achieved either by adjusting the outputs with regards to the downside risk measures or including risk as an undesirable output. The research allows one delivering policy guidelines that are topical in the light of current debate on the EU and its agricultural sector.

KEYWORDS: *Productivity; efficiency; primary sector; risk.*

Professor ***Mimo DRASKOVIC***

University of Montenegro, Maritime Faculty Kotor,
Montenegro

MEDIATIZATION OF POLITICS AND POLITICIZATION OF THE MEDIA IN SELECTED SEE COUNTRIES

ABSTRACT

The subject of the research is the theoretical and practical analysis of two interdependent, connected, and inseparable processes in society: mediatization of politics and politicization of the media in selected SEE countries. The aim of the research is to prove two hypotheses: first, that the degree of politicization of the media is much higher than the medialization of politics, and second, that both phenomena depend on the degree of institutionalization of society, which in this case refers to membership in the European Union (EU), and the appropriate institutional structure, i.e. the level of existence of institutional deficits. In addition to the methods of abstraction, description, and other basic methods of social sciences, the results of a survey conducted in selected SEE countries were used. In the conclusion, the topicality of the mediatization of politics and society has been stated, and both research hypotheses have been verified.

KEY WORDS: *Mediatization, political discourse, media, communications, politics*.

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THE RELATIONSHIP BETWEEN DIGITAL LITERACY LEVELS AND INTERNET USAGE IN THE REGIONS OF KAZAKHSTAN

ABSTRACT

In today's world, where digital transformation permeates all aspects of societal life, exploring the relationship between population digital literacy and Internet usage becomes particularly relevant. This article analyzes two indicators: the level of digital literacy and the proportion of Internet users across different regions of Kazakhstan from 2018 to 2022. The study examined statistical data provided by the Bureau of National Statistics of the Republic of Kazakhstan. Descriptive statistics and correlation analysis methods were utilized in Microsoft Excel. It was found that the level of digital literacy in the country has increased, which was accompanied by a growth in the proportion of Internet users. The correlation coefficient between the level of digital literacy and the proportion of Internet users was 0.76, indicating a significant positive relationship between these two indicators. The research results demonstrated the importance of digital literacy as a factor contributing to more active Internet usage. A relationship between the two studied indicators was identified, confirming the hypothesis that increasing the population's level of digital literacy could lead to a rise in the number of Internet users. The conclusions drawn have significant practical implications for the development of strategies in the fields of education and information technology aimed at enhancing digital literacy, especially in the context of the development of the information society and digital economy. Future research could further explore the factors affecting digital literacy and their interplay with various aspects of socio-economic development.

In the conducted study, an analysis of the level of digital literacy of the population in the regions of Kazakhstan and the proportion of Internet users was carried out. It was found that from 2018 to 2022, the level of digital literacy in Kazakhstan increased, which was accompanied by an increase in the proportion of Internet users. The statistical analysis conducted revealed a significant positive correlation between the two variables, confirming the hypothesis of a close relationship between the digital literacy of the population of the regions of Kazakhstan and the use of the Internet.

This research contributes to the understanding of how the development of digital skills facilitates more active and effective use of digital technologies. The results have significant practical importance, as they can serve as a basis for the development of educational programs and strategies to increase the level of digital

literacy, especially in regions with relatively low levels of Internet access and digital skills.

Future research should focus on studying the factors affecting the level of digital literacy, including educational initiatives, technology accessibility, and socio-economic conditions. It is also relevant to research the impact of digital literacy on various aspects of societal life, including the labor market, quality of life, and civic engagement. The outcomes of such studies will help form a more effective policy in the field of information technology and education, promoting the development of the information society and the digital economy.

KEYWORDS*: Digital literacy, internet users, digital economy, Internet access*.

ACKNOWLEDGEMENT

This research has been funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan, grant number AP19680043 "Digital Inequality of Kazakhstan's Regions: Assessment and Ways to Overcome".



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INNOVATIVE APPROACHES TO SUSTAINABILITY COMMUNICATION FOR CLIMATE ACTION AND SUSTAINABLE DEVELOPMENT

ABSTRACT

The challenges of climate change and sustainability dominate the global debate, and effective communication has become a crucial tool for promoting awareness, engagement, and action. This paper explores innovative approaches to communicating sustainability, highlighting their role in promoting action on climate change and achieving the Sustainable Development Goals (SDGs).

Traditional communication strategies often fail to address complex sustainability issues or to meaningfully engage diverse audiences. However, innovative approaches use the latest technologies, storytelling, and participation to foster deeper connections with individuals and communities. This report discusses key strategies such as the use of digital platforms, interactive tools, and data visualization to effectively communicate the urgency of climate action. These strategies are based on economic calculations and scientific findings on the challenges posed by climate change and the progress towards the Sustainable Development Goals in different regions.

New trends in sustainability communication, such as gamification and immersive experiences, are discussed as ways to simplify complex climate data and trigger behavioral change. Examples of successful applications of these approaches are analyzed, ranging from virtual reality experiences that engage consumers with the impacts of climate change to grassroots campaigns that use social media to amplify local climate solutions.

The report concludes with a discussion of the challenges of misinformation and the need for collaboration between researchers, policymakers, and communicators to ensure that messages are credible, engaging, and effective.

KEYWORDS: *Communication, climate action, sustainable development.*

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DIGITAL SKILLS OF UNIVERSITY GRADUATES AND PROFESSIONAL SUCCESS: ASSESSMENT OF LINKS

ABSTRACT

Due to the steep development of digital technologies, digital skills become one of the crucial factors helpful to succeed in the profession. A sociological review was performed to define their role from the current employability perspective. The survey was conducted in September - October 2024 and involved 234 respondents covering all regions of Ukraine and university graduates living in EU countries. The sample size has a confidence probability of 95%, a response rate of 75%, and a confidence interval of 5.55%, which allows us to consider the results obtained reliably. The methodological basis of the digital skills evaluation is European Framework DigComp 2.1. According to the survey results, the essential skills in work activity that provide confidence in further professional growth are those linked with searching and collecting data (from the block of data literacy), sharing digital content and collaborating digitally. Respondents consider that more complicated digital skills contribute to the success of a professional career - the higher the self-assessment of professional success, the more developed the skills of ensuring the security of digital data and systems, as well as resolving problems related to the use of digital content.

Results obtained lead to the conclusion that any kind of digital skills can be developed in the process of work activity, including relatively easy skills, such as knowledge of digital etiquette (or so-called netiquette), as well as quite complex professional programming skills. This result confirms the dependence revealed in the vacancies survey: formal educational results are not the dominant factor of success in the current labour market. The most complex digital skills that require specific professional training can today be acquired and developed under certain conditions in the work process - mentoring, internship, etc. Growing penetration of digital technologies into various aspects of economic activity will only strengthen such trends with changing requirements for the workforce.

KEYWORDS: Digital skills, university graduates, labour market, professional success.

ACKNOWLEDGEMENT

Funded by the EU Next Generation EU through the Recovery and Resilience Plan for Slovakia under the project No. 09I03-03-V01-00013.



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ASSESSMENT OF THE RISK OF BANKRUPTCY FOR POLISH COMPANIES USING THE METHODOLOGY OF ENSEMBLE CLASSIFIERS

ABSTRACT

In recent years, in the post-pandemic period COVID19 and in the era of deepening crisis, the number of companies in the world at risk of bankruptcy has been growing in many economies around the world. In Poland, the previous government during the pandemic protected companies against the adverse effects of the collapse of sales markets during this period by introducing numerous shields. Currently, the current government has resigned from many shields and financial reliefs dedicated to entrepreneurs. This results in a noticeable significant increase in the number of bankruptcies of enterprises in Poland. The article will present an analysis of the risk assessment of bankruptcy of enterprises from all major sectors of the economy and due to the size of the company. The study will use the methods of ensemble classifiers in order to strengthen the results of the correct classifications of belonging to two classes of bankrupt and nonbankrupt enterprises. Artificial neural networks, a logit model, and classification trees will be used as component classifiers for ensemble classifiers. The training research sample included an equal sample of 200 bankrupt companies and 200 healthy companies. As predictors of bankruptcy, 10 selected financial ratios (financial liquidity, profitability, debt, operational efficiency, capital structure) selected from a group of 20 ratios describing the financial condition of the surveyed enterprises were used as predictors of bankruptcy. Verification of the correct classification results for the ensemble classifiers used showed that the precision of the classification has significantly increased compared to the results for individual classifiers by approximately 90% for the class of bankrupt enterprises and 92% for the class of enterprises not threatened with bankruptcy. The validated ensemble classifiers were used for a test sample of several hundred companies surveyed from different sectors and sizes. The study made it possible to determine the average probability of bankruptcy in the sector and for the size of the company. This made it possible to determine the ranking of sectors most at risk of bankruptcy in Poland and to examine how the size of the company affects the risk of bankruptcy – smaller companies are much more likely to go bankrupt than larger ones.

KEYWORDS: *Risk of bankruptcy, Poland*

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DISTRIBUTED ENERGY IN SCIENCES

ABSTRACT

Distributed energy systems, as complex and flexible frameworks, represent a key component of contemporary energy transition strategies. Their implementation requires a multidimensional approach that considers local conditions and global technological and environmental trends. The objective of the research was to analyze the definitions and aspects associated with distributed energy, which constitutes a decentralized system for electricity generation. The study focuses particularly on the diverse criteria for defining this concept, with an emphasis on power capacity, location, technology, and environmental impact. The research employed an analysis of scientific literature, reports from research institutions, and legal regulations concerning distributed energy. A comparative analysis of various approaches to defining distributed generation on a global scale was conducted, considering criteria such as installation capacity, location, technology, and market and legal context. The analysis revealed a lack of a unified definition of distributed energy, stemming from regional and technological differences. Key aspects such as decentralized structure, local production and consumption, technological flexibility, and environmental benefits play a significant role in the development of the distributed energy sector.

KEYWORDS: distributed energy, decentralization of energy systems, renewable energy sources

SPECIAL PANELS

Environment, Energy, and Society for the Twenty-First Century in frame of the program "HORIZON-MSCA-2022-SE-01" under the GA 101129820 (on-line)

The research leading to these results has received funding from the project titled "Cluster for innovative energy" in the frame of the program "HORIZON-MSCA-2022-SE-01" under the Grant agreement number 101129820

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GEOPOLITICAL EVENTS AND STOCK PRICES

ABSTRACT

This research applies the event study approach to assess if the Russian-Ukrainian war had had effects on the selected stock markets. The stock indices from different countries are chosen for the analysis. The stock markets analysed include the developed, emerging, and frontier countries from America, Europe and Australia. This allows for a comprehensive analysis of the effects of the war. The event window includes days prior and after the event. The results show that all the markets are affected in a negative way during one or more sub-periods within the event window. The results suggest that diversification of portfolio needs to be carried out with regards to the knowledge of similar events and their effects on the stock markets. The markets near the event are often overreacting to the event.

KEYWORDS: *Event study; stock; financial market; geopolitical event*



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UKRAINIAN STUDENTS' MIGRATION: PECULIARITIES AND FACTORS

ABSTRACT

The loss of Ukrainian students was an essential demographic and economic problem during the last decade. The war in Ukraine deepened this problem significantly due to the increase of insecurity in Ukraine and growing support for refugees by other countries. Similarities and differences are found in comparing tendencies of students' migration from Ukraine in the global dimension. Notably, a common trend exists for low-income countries: a lack of adequate social and economic conditions for students to return, low levels of inbound mobility, and loss of human and intellectual resources.

However, Ukrainian students have different reasons for choosing a country of study that cannot be explained by only the level of life and overall level of economic development. Particularly, the assumptions about the high importance of factors essential for the formation of long-term ties with the host country for Ukrainian students have not been confirmed: the socio-cultural environment, respect for rights, security of residence, and other non-economic factors have no proven impact on the formation of migration flows. Instead, the effect of employment and social and economic resilience of an economy was relatively significant, with correlation coefficients of 0.426 and 0.371, respectively. Therefore, in contrast to global trends of choosing countries with high economic development, such motives were not confirmed in the case of Ukrainian students. Similarly, the importance of security factors, freedoms (personal and economic), prestigious universities, and large corporations – all those factors that are important in the long run – did not prove true. Ukrainian educational migrants value short-term benefits in the form of employment opportunities (even without considering high potential earnings) and socio-economic sustainability, which, among other indicators, includes respect for gender equality, labour rights, and social protection services. These results indicate that students focus on the current rather than long-term prospects. It was confirmed that the countries with numerous Ukrainian migrants, including the diaspora, reflect

more students. This finding leads to a conclusion on the high relevance of migration network theory.

KEYWORDS: *Higher education, migration, student mobility*.

ACKNOWLEDGEMENT

This study is funded by the Ministry of Education and Science of Ukraine under the project "Higher education in the conditions of war and post-war recovery: Determinants of development to overcome threats to the restoring of human capital" (State registration number 0124U000351).



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THE IMPACT OF FINTECH ON BANKING IN SOUTHEASTERN EUROPE

ABSTRACT

The objective of this paper is to analyze current trends in banking, with a particular focus on the multi-channel approach and its impact on customer experience, bank competitiveness, and the efficiency of financial institutions. Additionally, the paper examines the role of FinTech innovations in transforming the banking sector, as well as the challenges banks face in the digitalization process. This research employs methods of analysis and synthesis of relevant literature, secondary data sources from empirical studies, and case studies that illustrate successful examples of digital transformation in the banking sector. Furthermore, statistical data and reports from leading consulting and research institutions specializing in the digitalization of financial services are analyzed. Research indicates that customer satisfaction and engagement significantly influence the revenues of banks and insurance companies. However, implementing multi-channel solutions presents challenges such as technological support, organizational integration, and the growing demand for data and analytics. Banks must align their business models with customers' digital habits, leveraging big data analytics and artificial intelligence tools to better understand the market. Banks that successfully integrate a multi-channel strategy and FinTech solutions can expect to strengthen their competitive advantage, enhance customer loyalty, and improve operational efficiency.

Keywords: *Banking trends, digital transformation, multi-channel banking, FinTech, , customer experience, banking innovation.*

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IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT GOALS FOR UKRAINE: GOAL 7. AFFORDABLE AND CLEAN ENERGY

ABSTRACT

The pursuit of Goal 7 of the Sustainable Development Goals (SDGs), "Affordable and Clean Energy," is a critical priority for Ukraine amidst ongoing global challenges and domestic crises. This study explores the current state, challenges, and prospects of transitioning to renewable energy sources in Ukraine, highlighting the integration of green energy technologies into the national energy system. The research emphasizes the importance of renewable energy as a sustainable solution to Ukraine's energy dependence on fossil fuels and a pathway to achieving energy security and environmental sustainability. The novelty of this work lies in its comprehensive analysis of Ukraine's renewable energy potential within the context of global energy transitions and national strategic objectives. This study uniquely addresses the dual challenges of modernizing Ukraine's aging energy infrastructure while simultaneously mitigating environmental pollution and achieving compliance with international climate commitments. It leverages recent data and policy developments, providing insights into the dynamic interaction between energy policy, technological advancements, and socio-economic impacts.

In 2023, the share of renewable energy sources (RES) in Ukraine's electricity production structure, including large hydropower plants, reached 22%, while in Europe, this figure was 42%[1], a significant increase driven by policy incentives such as the "green tariff" mechanism and investments in solar and wind energy. Despite these advancements, the sector faces substantial obstacles, including high upfront costs, limited energy storage capacity, and insufficient grid integration. The study underscores the critical role of policy frameworks, including Ukraine's Energy

[1] Alternative energy. URL: https://ukraineinvest.gov.ua/en/industries/energy/renewable-energy/

Strategy 2035 and commitments under the Paris Agreement, in fostering the growth of clean energy initiatives. The analysis also reveals the impact of external factors, such as geopolitical instability and the ongoing conflict, on Ukraine's energy sector. Systematic attacks on energy infrastructure have intensified the need for resilient and decentralized energy systems. The research highlights the strategic importance of diversifying energy sources and enhancing energy efficiency to address these vulnerabilities.

A detailed examination of renewable energy projects identifies wind and solar power as the most dynamically growing sectors, supported by targeted state policies and international investments. The study evaluates the socio-economic benefits of renewable energy, including job creation, reduced greenhouse gas emissions, and enhanced rural development through decentralized energy production. Furthermore, it emphasizes the potential of integrating bioenergy and small hydropower projects to complement existing renewable energy systems. The study also provides a critical assessment of the legislative and institutional frameworks governing the renewable energy sector. While Ukraine has made progress in adopting international standards, significant gaps remain in regulatory enforcement, financial incentives, and public awareness campaigns. To address these challenges, the research proposes a roadmap for accelerating the energy transition. Key recommendations include increasing public-private partnerships, promoting research and innovation in renewable energy technologies, and enhancing regional cooperation for cross-border energy trade.

From a methodological perspective, this study combines empirical analysis with policy review, offering a multidimensional approach to understanding the energy landscape in Ukraine. Statistical modeling and scenario analysis provide forecasts for the share of renewables in the energy mix under varying policy and investment conditions. These projections highlight the potential for renewables to account for over 30% of the national energy balance by 2035, contingent upon sustained policy support and investment. The results demonstrate that Ukraine's energy transition is both a necessity and an opportunity. Accelerating the adoption of renewable energy not only aligns with global trends but also positions Ukraine as a regional leader in sustainable energy development. The study concludes that achieving Goal 7 requires a systemic transformation of the energy sector, integrating technological innovation, robust policy frameworks, and active stakeholder engagement.

This research contributes to the broader discourse on sustainable energy by providing a case study of Ukraine's renewable energy transition amidst complex socio-economic and geopolitical challenges. The findings have implications for policymakers, industry stakeholders, and international partners aiming to support Ukraine's journey toward energy independence and environmental resilience. By advancing a green energy agenda, Ukraine can reduce its reliance on imported fuels, mitigate environmental risks, and contribute to global efforts to combat climate change.

KEYWORDS: Sustainable Development Goals (SDG), Renewable Energy, Energy Efficiency

ACKNOWLEDGEMENT

The work is fulfilled under the project "HORIZON-MSCA-2022-SE-01" under the GA 101129820.



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THE ROLE OF THE BLUE ECONOMY IN THE DEVELOPMENT OF ECONOMIES IN TRANSITION: REGIONAL AND NATIONAL PERSPECTIVES

ABSTRACT

Economies in transition, marked by evolving institutional structures and economic frameworks, often encounter systemic barriers to achieving resilient and sustainable development. Traditional resource-intensive models have consistently fallen short of addressing the dual priorities of economic growth and environmental conservation. This paper advocates for a transformative approach to development at both local and national levels, positioning the Blue Economy as a pioneering strategy, particularly but not exclusively for coastal regions.

The Blue Economy emphasizes the sustainable utilization of ocean resources to drive innovation and economic opportunity while safeguarding marine ecosystems. Unlike conventional approaches that focus on short-term growth through resource exploitation, the Blue Economy seeks to decouple long-term socioeconomic development from environmental degradation, thereby enhancing human well-being. This transformative framework offers coastal regions in transition economies a unique pathway to bypass traditional industrialization models, avoiding their ecological and social shortcomings.

This study explores how the Blue Economy can redefine development trajectories for coastal regions, extending its impact beyond the purely economic dimension to include social, environmental, and governance perspectives. It also examines the potential of this paradigm to inspire systemic change in transition economies at both regional and national levels.

Our findings highlight the pivotal role of the Blue Economy in shaping sustainable development strategies for economies in transition. By integrating its principles into regional and national policies, these economies can create resilient,

equitable, and environmentally sustainable pathways for growth, underscoring the Blue Economy's transformative potential for broader socioeconomic advancement.

This paper presents several key points of scientific novelty. It offers a transformative perspective by shifting the focus from traditional, resource-intensive development models to the Blue Economy, highlighting its capacity to decouple economic growth from environmental degradation and promote sustainability. Uniquely applying the concept to economies in transition, the paper explores how these nations can leverage Blue Economy strategies to bypass traditional industrialization challenges. By adopting a multidimensional approach, the research broadens the understanding of the Blue Economy beyond economic benefits, addressing its social, environmental, and governance dimensions. Furthermore, the study bridges regional and national development, examining the integration of Blue Economy principles into unified frameworks for sustainable growth. Finally, it provides actionable insights for policymakers, offering innovative strategies tailored to the unique challenges of transitional economies, positioning the Blue Economy as a forward-thinking paradigm for systemic change.

KEY WORDS: Economic development, regional development, blue economy



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MUTUAL INFLUENCE BETWEEN CULTURE, INSTITUTIONS, AND ECONOMY

ABSTRACT

The subject of the work is to confirm the complexity of the relationship between the economy, culture, and institu-tions, concerning civilisational changes in the historical development process. The paper aims to point out the importance of culture for the sustainability of institutions and the economic system. It is based on three basic hypotheses: first, that the so-called "neoliberal culture" succeeded the post-socialist one in the period of the so-called institutional vacuum; secondly, that both were transitional, without consistency and a realistically sustain-able long-term perspective, and third; that both were established hastily as a result of the same influencing fac-tors, among which false promises, authoritarianism, elitism dominated, party totalitarianism and ideological dogmatism. The paper uses the descriptive method and the usual methods of economic science. In the conclusion, the verification of the set hypotheses was stated

KEYWORDS: Culture, institution, economy.

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IT-INDUSTRY DEVELOPMENT IN UKRAINE: CURRENT PECULIARITIES IN WARTIME

ABSTRACT

IT-industry has a high competitiveness and growing potential due to steep increase in demand for It-products and services. Ukrainian IT-industry had one of the leading positions before full-scale invasion, however, even in wartime it remains successful and demonstrate sufficient potential for recovery. Particularly, the export volume remains more than 6 billion US dollars. The main countries-importers are economically developed countries, including USA, Great Britain and EU countries. IT companies still have competitive employment offers and significantly higher salaries comparing to other types of economic activities.

However, despite the possibilities for trade with other countries and state support of IT in Ukraine, there are some limiting factors. They relate to the insufficient level of digital literacy of the population. It is confirmed by the study by the Ministry of Digital Transformation, only youth have well-developed digital skills (with a basic and above-average level). In other age groups, skills above the basic level do not even reach 50%, with a noticeable decline in older age groups. Besides, significant challenge for the IT-industry development is the war and the related problems of staffing, security risks for companies and employees, decrease of income of population which, in turn, is a sufficient obstacle for demand development on the domestic market. Despite this, IT-industry is extremely important for the economy recovery due to the high value added generated in this economic sector. Therefore, the justification of further opportunities for IT activity growth is important and connected with cybersecurity, R&D, personnel training, customer-oriented services and products, development of IT-education and digital skills of the population.

KEYWORDS*: Digital skills, IT-industry, economic recovery*.



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TRANSITION TO RENEWABLE ENERGY AS A PRECONDITION OF RESILIENCE TO ENERGY SHOCKS

ABSTRACT

The necessity of transition towards renewables has become indisputable. The urgency caused by global warming of the climate is apparent; alas, the process is not as smooth as expected. Energy-abundant countries continue to exploit and export natural resources since worldwide demand has yet to be curbed. Dependency on energy produced out of fossil fuels causes not only the deterioration of our planet. This dependency threatens countries which do not have natural resources, and the disruption of supply shocks exposes them when supply is cut. Therefore, it is crucial to prepare energy systems for independent functioning in case of urgency. Renewable energy production, be it solar, wind, or any other type, is essential. Alas, finding ways to store this energy and transmit it to final users is not less important. Power grids, as practice shows, can be damaged sufficiently easily. Therefore, production without a carefully thought-through storage and transmission system to end users might not prevent vulnerability to energy shocks. The gap, which needs more efficient solutions, is finding ways to store energy, which might be available from different sources: cheap energy from grids, solar energy, and energy produced by external generations. There are still no solutions for how to tune different systems into smoothly operating ones. The compatibility and universality of systems still need to be present, and the problem of integrating electric vehicles into such systems still needs to be resolved. The absence of competition in the energy sector, the interests of monopolists, and their self-regulation do not allow end users to exploit cheap energy.

The raised issues must be solved at community, city, country, and international levels by using good practices, looking for technological solutions, and creating wise, discussed economic policies. The issues raised are highly urgent and require interdisciplinary efforts of scientists, practitioners, politicians and other stakeholders, including communities and society in a broad sense.

KEYWORDS: *Solar energy, barriers, energy shocks, resilience*

ACKNOWLEDGEMENT

The research leading to these results has received funding from the project titled "Cluster for innovative energy" in the frame of the program "HORIZON-MSCA-2022-SE-01" under the Grant agreement number 101129820



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TRANSITION TO GREENER ELECTRICITY AND RESOURCE USE IMPACT ON ENVIRONMENTAL QUALITY: POLICY BASED STUDY FROM EUROPEAN COUNTRIES

ABSTRACT

In the contemporary time, global economies must comply with Sustainable Development Goals to achieve environmental and energy efficiency. Within the scope of environmental reforms, we extend academic discussion by analyzing the role of electricity transition on the carbon emissions for 1995–2021. Using extensive empirical analysis, we conclude that population growth and economic growth significantly leads to environmental degradation. However, natural resource rents, electricity transition and human development ensure environ- mental sustainability. Our findings allow us to recommend energy transition through electricity from renewable energy resources must be encourage to overcome environmental challenges.

The contributions of the present research are listed as follows. First, the study contributes to the empirical literature on the evaluation of the determinants of CO2 emissions in OECD economies. Previously a lot of scientist scrutinized these variables with different combinations in different economies. However, energy transition, natural resources, GDP, population growth, and HDI are selected for the present study simultaneously for the first time for gauging sustainable development. Therefore, the study employs Energy transition, Population growth, Natural Resources, GDP, and the Human development index as the explanatory factors that are evaluated on CO2 emissions. We extend economic discussion through: first, we evaluate environmental policies from the perspective of energy transition within the

scope of environmental policies in advanced industrial OECD economies. Effective integration of energy transition will also allow emerging economies to follow these policies to deal with environmental challenges. This will also allow policymakers to bridge differences in environmental regulations. Secondly, we extend discussion by investigating the transition of renewable energy and human development on environmental quality for designing sustainable development policies. Our findings will help policymakers to design environmental regulations to overcome climate change vulnerabilities. Thirdly, this study employs Cup FM (continuously-updated and fully-modified) test, and Cup BC (continuously updated and bias-corrected) test for assessing the long-run relationship between energy transition and human development impact on environmental quality for reliable estimates of sustainable environment in OECD.

KEYWORDS*: Energy transition; carbon emission; natural resources.*

ACKNOWLEDGEMENT

The research leading to these results has received funding from the project titled "Cluster for innovative energy" in the frame of the program "HORIZON-MSCA-2022-SE-01" under the Grant agreement number 101129820



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LAND RENT PRICES AND THEIR DRIVES IN THE EU

ABSTRACT

The value of land depends on its production potential. Also, the country-specific context has an important role in shaping the supply and demand for land resources. The multiple factors that affect land price are taken into account in the framework of the index decomposition analysis. The developed model is applied for a sample of the European Union Member States. The country-level data are used to quantify the drivers of the agricultural land rent price across different countries and time periods. Farm Accountancy Network Data is used for gathering the country-level data. The agricultural output and subsidies are taken into account when assessing the changes in the land rent prices. The results are important in shaping agricultural policy and steering investments in the EU.

KEYWORDS: *index decomposition; agricultural land; rent; European Union*



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CRITICAL ROLE OF ENERGY EFFICIENCY AS MEDIATING FACTOR BETWEEN DIGITAL ECONOMY AND CARBON NEUTRALITY: A SYSTEMATIC LITERATURE REVIEW

ABSTRACT

Energy efficiency acts as crucial mediating factor between the digital economy and carbon neutrality as improved energy efficiency through digitalization leads to a decrease in CO2 emissions. This reduction is not only beneficial for the environment but also contributes to cost savings for businesses. The interconnectedness of energy efficiency improvements and lower carbon footprints is emphasized as a critical advantage of adopting digital solutions. This paper aims to investigate the main mechanisms of digital technologies impact on energy efficiency leading to carbon emissions reduction and the controversial effects. The research is based on systematic literature analysis. The findings revealed that the main channels of digital technologies impact on energy efficiency are technological effect, structural effect, resource allocation effect and human effect. Digital technologies promote technological innovation, which leads to more efficient production processes. The digital economy also promotes a shift in economic structure from energy-intensive industries to less energy-consuming sectors, thereby reducing overall energy demand. Enhanced efficiency in energy production and distribution is achieved through better allocation of resources, leading to less energy consumption for the same output. Finally, the accumulation of human capital through digital technologies contributes to better decision-making and operational efficiencies in energy use. All these mechanisms of impact are crucial for the reduction of carbon emissions. Despite these positive impacts on energy efficiency, scientific literature suggests that digitalization can lead to increased energy consumption and carbon emissions. This is due to the energy demands associated with the production, usage, and disposal of digital technologies themselves, as well as the growth in production and consumption activities driven by the digital economy. As energy services become cheaper, the demand for these services rises, which can potentially offset some of the efficiency gains. Moreover, while digital technologies can be effective in promoting energy efficiency, they have limitations

in directly reducing carbon emissions during the manufacturing process. This indicates that while energy efficiency can improve, the overall environmental impact may still require additional strategies. Therefore, prioritizing research and development efforts to advance low-carbon technologies in the industrial sector is crucial. These findings have important policy guiding significance to stimulate the potential of digital technologies and facilitate the low-carbon transformation of the economy.

KEYWORDS: *Energy efficiency, Digital technologies, Digital Economy, Carbon neutrality, Mediating factor*



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ESG DISCLOSURE AND FINANCIAL PERFORMANCE IN THE ENERGY SECTOR

ABSTRACT
The energy transition constitutes a globally relevant topic of the 21st century, necessitating firms to implement substantial alterations in their operational strategies to promote the adoption of sustainable practices and fulfil global climate objectives. In this context, Sustainability Reporting serves as essential tool to measure and communicate corporate commitments, aligning with the expectations of stakeholders and responsible investors. This study aims to analyze the key variables and models used to evaluate the influence of ESG disclosure on companies' financial performance. Through a critical review of empirical studies, the research explores methodologies employed to assess the relationship between sustainability parameters, such as greenhouse gas emissions, adoption of renewable energy and sustainable governance, and financial performance indicators, including profitability, stock value and cost of capital. The objective is to provide a robust theoretical foundation to understand how ESG disclosure can act as a strategic driver for competitiveness and long-term value creation. This study seeks to contribute to the debate on how Sustainability Reporting can integrate sustainability and economic growth, with a particular focus on the energy sector.
KEYWORDS*: sustainability reporting, financial performance, ESG*

SPECIAL PANELS:
Environment, Energy, and Society for the Twenty-First Century in frame of the program "HORIZON-MSCA-2022-SE-01" under the GA 101129820 (on-line)
The research leading to these results has received funding from the project titled "Cluster for innovative energy" in the frame of the program "HORIZON-MSCA-2022-SE-01"under the Grant agreement number 101129820

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ENERGY INTENSITY AND GHG EMISSION IN THE EU AGRICULTURE

ABSTRACT

The sustainability of agricultural production has appeared as a topic of interest for stakeholders at various levels. The farmers need to embark on sustainable agriculture in order to ensure that the ecosystems services are maintained. The government are setting targets for sustainability which serve as a abasis for distribution of public support. The increasing scope of the emission trading schemes implies that agricultural sector also needs to be analysed from the viewpoint of the energy consumption and the resulting GHG emission. The use of energy relates to the use of the factor inputs. Therefore, the production technology needs to be modelled. For this purpose, the frontier approaches can be applied. In the non-parametric setting, one defines the production technology on a basis of economic axioms and linear combinations of the observed production plans. The case of the European Union is considered in the analysis. The data envelopment analysis model is adopted to measure the energy intensity in the multi-factor model. The research allows one to identify the performance gaps leading to increased GHG emission.

KEYWORDS: *Data envelopment analysis; European Union; agricultural sector; energy intensity*

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THE INFLUENCE OF POLITICS ON THE VALORIZATION OF THE PORT OF BAR

ABSTRACT

The subject of this paper is the assessment of the importance of political decisions on the valorization of the logistics route via the Port of Bar and the development of the Port of Bar itself. In 1905, Prince Nikola Petrovic laid the foundation stone for the construction of the future Port of Bar, and a year later, Port of Bar was established as a company. However, one of the key moments that traced its positioning as an important regional port was the Federal Government's decision from 1954 to establish the "Port of Bar" under construction, as well as the decision to build the Belgrade-Bar railway. Although the then Federal Government approved the construction of the railway and in 1955 construction began on the sections between Bar and Titograd (today's Podgorica) and Belgrade and Valjevo, the republican leaderships of Slovenia, Croatia and Bosnia and Herzegovina stopped the project. The interest of the aforementioned republics was not to build a railway to Montenegro, but to finance the construction of a modern railway from Belgrade to ports in Croatia and Slovenia from the federal budget. This resulted in the interruption of the works. After Serbia and Montenegro assumed all obligations in the construction of the railway at the "Užice Conference" in 1965, the construction of the railway continued and was completed in 1976. The construction of the Port of Bar was soon completed and its full valorization reached during the 80s of the last century. This paper aims to present the importance of political cooperation between Montenegro and Serbia in the construction of modern infrastructure that will turn the Serbian economy towards the Port of Bar, which will lead to a greater interest of shipping lines for the logistics route via Montenegro. All this will further contribute to the greater valorization of capital Montenegrin infrastructure facilities and the Port of Bar itself. As a result, there will be a significant contribution of the logistics industry to the economic development of Montenegro, i.e. the increase in GDP and the diversification of the economy, which is the strategic goal of the Montenegrin economy. Serbia represents the largest source of cargo for maritime transport in the Western Balkans. It owns more cargo in intermodal transport than the remaining five countries of the Western Balkans combined. Comparing to Croatia, Serbia has twice as much cargo that puts at the disposal of liner shipping companies. The main hypothesis of this paper states that political decisions in the infrastructural connection of Montenegro and Serbia will contribute to the significant valorization of the potential of the Port of Bar. The first auxiliary

hypothesis states that a good infrastructural connection between Bar and Belgrade is in complete contradiction to the interests of countries that aim to redirect the Serbian economy to their ports. First of all, this means Croatia, through which 75% of the Serbian economy goes in intermodal transport. The second auxiliary hypothesis will prove that the bad political relations between Montenegro and Serbia in the 21st century are the main reason why, instead of Montenegro, today Croatia and Romania collect significant financial resources from the transit of Serbian goods. Standard scientific methods will be used in the work. The obtained results aim to present the political parties in Montenegro with the real economic consequences of their engagement and attitude related to the infrastructural connection of Montenegro and Serbia, where only the Port of Bar can have comparative advantages in relation to other ports due to its position.

KEYWORDS: *Montenegro, Serbia, the Port of Bar, infrastructure, economic development*



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THE ECONOMICS OF SHARING: UNDERSTANDING THE IMPACT OF THE SHARING ECONOMY ON TRADITIONAL MARKET STRUCTURES

ABSTRACT

The rise of the sharing economy has fundamentally reshaped traditional market structures, challenging established business models and redefining consumer behavior across the European Union (EU). The sharing economy, driven by digital platforms, facilitates peer-to-peer exchanges of goods and services, bypassing traditional intermediaries and creating new forms of value and access. Key sectors such as transportation, hospitality, and retail have been particularly impacted, with businesses offering consumers more flexible and cost-effective alternatives to conventional services. While the sharing economy brings significant benefits, including lower costs, improved access to underutilized resources, and greater market efficiency, it also raises important concerns. Issues such as market concentration, labor conditions, and regulatory challenges must be addressed to ensure fair competition and equitable outcomes in this rapidly evolving economic landscape.

The economic forces driving the sharing economy have a profound impact on traditional market structures, particularly through the reduction of transaction costs, the enhancement of consumer surplus, and the stimulation of competition. Digital platforms enable peer-to-peer exchanges of goods and services, disrupting sectors like transportation, hospitality, and retail, leading to the decline of traditional businesses that struggle to adapt to new competitive landscape. Dominant digital platforms like have gained significant market power, raising concerns about monopolistic behavior, pricing control, and the erosion of labor rights. Regulatory responses across the EU have varied, with different member states tackling issues such as taxation, worker protection, and market oversight in distinct ways. The adequacy of current regulatory frameworks remains a key question, as there is a need to balance fair competition with the innovation and economic growth driven by sharing platforms. The socio-economic impact on local economies is also significant, particularly for small businesses that now face competition from global sharing platforms. The rapid rise of these platforms has the potential to exacerbate wealth inequality, as economic power becomes increasingly concentrated in the hands of a few multinational companies.

The sharing economy has the potential to drive economic growth and create new opportunities for both consumers and entrepreneurs. However, it requires a balanced approach to regulation, one that fosters innovation while safeguarding fair market practices. Policymakers in the EU must navigate the challenge of promoting the advantages of the sharing economy, while also addressing its potential downsides, such as market concentration and labor exploitation. It is important to investigate the long-term effects of the sharing economy on economic inequality, social welfare, and sustainable development, ensuring that the benefits of shared consumption are distributed equitably across all segments of society.

KEYWORDS: *Sharing economy, digital platforms, peer-to-peer services, traditionnal market*



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FROM TALK TO ACTION. NFRD VERSUS CSRD – A PILOT STUDY FROM EUROPE

ABSTRACT

Reporting aims to eliminate information asymmetry between organizations and stakeholders. Until 2017, reporting non-financial information in EU countries was established voluntarily and was not regulated by law. The turning point is considered to be Directive 2014/95/EU on the disclosure of non-financial and diversity information (in force since 1 January 2017) and its transposition, called the NFRD (Non-Financial Reporting Directive). The entry into force of the NFRD regulations was undoubtedly a step towards adapting current corporate reporting to the information needs of stakeholders, and thus increasing the transparency of information. EU member states had time to implement and implement the provisions of the indicated EU Directive and its transposition into national regulations until 6 December 2016. And so it happened. Another turning point was the entry into force of the regulations of the CSRD (Corporate Sustainability Reporting Directive), where new guidelines for reporting sustainable development were to be implemented by EU member states by 4 July 2024.

In light of the presented facts, a research hypothesis was put forward - is it possible to compare the quality of a non-financial report according to the NFRD and a sustainable development report according to the CSRD in terms of the quality of disclosures? In order to verify the research hypothesis, 805 non-financial reports prepared by public companies in Europe for the reporting years 2017-2023 were analyzed and the trend among public companies in terms of reporting NFRD versus CSRD was indicated.

Implications & Recommendations: The pilot study conducted has practical implications. The results of the presented study contribute to changes in the direction of reporting practices, which require further promotion in member states of the European Union (EU). Contribution and added value: This article contributes to the literature on sustainability reporting as it provides a new perspective on NFR versus ESG reporting practices by public interest entities located in EU countries.

KEYWORDS: *NFRD, CSRD, non-financial reporting, sustainability reporting, ESG, European entities*

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BARRIERS TO INVESTMENT IN RENEWABLE ENERGY SOURCES IN THE GROUP OF ENTREPRENEURS WHO DO NOT USE RES

ABSTRACT

The article discusses the main barriers to the use of renewable energy sources among entrepreneurs who do not use RES. It presents the results of a survey of 717 Polish small and medium-sized enterprises operating in the tourism sector. The subject of the study was the determinants of investment in renewable energy sources (RES). The aim of the article was to identify the main barriers that cause the lack of use of RES and the lack of intention to use these sources in the future. The analysis was carried out at a significance level of $\alpha=0.05$).

Two barriers to investment in RES were rated above 7 points and thus had the greatest influence on entrepreneurs' reluctance to invest in RES. These were: investment costs that were too high in relation to the expected ones - the highest rated with an average of 7.25 points, and the long payback period of investments in RES - with an average of 7.12 points. The next two barriers with a score above 6 points are: complicated administrative and legal procedures at the authorisation stage - 6.24 points, and lack of adequate support systems for RES investments - 6.23 points. Only in fifth place was the lack of sufficient own funds to finance the investment (5.94 points), and in sixth place was the increasing cost of doing business (5.79 points). This suggests that it is not financial barriers that most deter entrepreneurs from investing in renewable energy, but rather the length of the payback period and the belief that investment costs will be higher than expected. The research investigated whether there were differences in the perception of barriers

among tourism entrepreneurs depending on the type of business they operated - whether it was catering or accommodation, whether they owned or rented, and whether the size of the business determined the occurrence of specific barriers to investment in RES. Non-parametric tests of significance, Mann-Whitney U test and Kruskal-Wallis ANOVA were used for the study.

KEYWORDS: *Renewable energy sources (RES); small and medium-sized enterprises; barriers*

ACKNOWLEDGEMENT

The authors (K. CHUDY-LASKOWSKA, T. PIECUCH, N. EL AMRANI EL IDRISSI) express their gratitude to the project titled "Cluster for innovative energy" in the frame of the program "HORIZON-MSCA-2022-SE-01" under the Grant agreement number 101129820



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CHALLENGES IN USING CAF CERTIFICATION TO IMPROVE THE PUBLIC SECTOR INSTITUTIONS' CAPACITY

ABSTRACT

The paper explores the main challenges, possible effects and experts' perceptions of implementing the certification through the Common Assessment Framework (CAF) in Bulgarian public sector institutions. The study aims to characterise the good practices that some Western European public institutions apply in organising their activities under the CAF certificate to improve service quality and satisfy different stakeholders' needs. It also aims to evaluate the possible effects and challenges of applying these practices to the Bulgarian public sector.

The paper is conceptual, and the desk research method was used to clarify the study's principal elements and collect secondary data on aspects of the researched issue. Then, based on in-depth interviews conducted with Bulgarian regional and municipal administration experts, attitudes towards adopting CAF as a possible technique to improve administrative processes, professional duties, leadership and management and providing services to citizens were outlined. The most important benefits of the CAF, according to the respondents, are the self-assessment process perceived as a basis for the systematic involvement of people in continuous improvement activities and the evidence-based improvement helping public sector organisations to gather and effectively use information and reducing some adverse effects of the traditional bureaucratic models.

KEYWORDS: *CAF, public administration organisations, self-assessment process, evidence-based improvement.*

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SUSTAINABILITY ASSESSMENT OF THE AGRICULTURE SECTOR OF BALTIC STATES

ABSTRACT

The agriculture sector has important impacts on the environment, social issues, and the economy of the Baltic States. The sustainability of the agriculture sector is necessary to ensure economic progress alongside environmental and social protection. This study assesses the sustainability of agriculture in Estonia, Latvia, and Lithuania through a multi-dimensional approach that covers regional environmental, economic, and social indicators. Special focus is placed on rural development and land use, greenhouse gas emissions, and resource efficiency indicators. A comparative analysis was conducted in order to detect the strengths, weaknesses, and differences in the sustainability of the agriculture sector in the Baltic States as well as to identify the impact of policy instruments, innovation, and civic engagement on the adoption of sustainable agriculture in the Baltic region. The most troubling factors, such as soil degradation, climate change issues, and heavy reliance on chemical farming, as well as the most promising issues, such as shifting towards organic farming and embracing circular economy practices, are highlighted in this paper. In the end, the paper puts forward some policy suggestions and action proposals to increase the sustainability of agriculture in the Baltic States, stressing the importance of a comprehensive and participatory method of enhancing agriculture resilience in the Baltic region.

KEYWORDS: *Sustainability; agriculture, assessment, Baltic States*.



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SUSTAINABLE RURAL DEVELOPMENT: INDICATORS AND MEASURES

ABSTRACT

Rural development is important for ensuring the vitality of rural areas and for agriculture, which remains the most important activity of the rural population. Agriculture is important for food security and food security. The agricultural sector is subsidized precisely for the above-mentioned purposes. Such public support policy interventions must be properly managed in order to ensure the effectiveness of support.

The Sustainable Development Goals provide for the assessment of economic, social and environmental contexts when making policy decisions. Therefore, the assessment of agricultural and rural development support measures must also be based on the application of the above-mentioned principles, which requires multi-criteria methods.

Agriculture and rural areas are rapidly transforming all over the world. The main directions of such transformations can be distinguished: i) depopulation of rural areas and migration to cities, ii) automation and robotization, iii) new business models; iv) climate change. Changes in agricultural support policy can determine the responses to the above-mentioned problems.

It is therefore important to identify the main challenges of agricultural systems and rural development in the EU and to propose solutions to them through proper management of public support. This requires a systematic assessment of the sustainability of agriculture and rural development and an assessment of existing and potential support measures.

KEYWORDS: *Sustainability, rural development, agriculture, multi-criteria analysis.*

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CLIMATE CHANGE AND AGRICULTURAL PRODUCTION: A SYSTEMIC ANALYSIS

ABSTRACT

Climate change has induced alterations in the sense of both trends and volatility of precipitation and temperature. As a result, agricultural production and prices are affected. This requires modelling the uncertainty in the analysis of agricultural productivity and profitability. On the other hand, solutions to improve agricultural technologies are needed to offset the negative effects of climate change. This research relies on the systemic literature review to identify the major areas of agri-food production that are affected by climate change as well as research directions that became topical in this context. Both technological and economic solutions are discussed. The mitigation of climate change requires concerted actions from researchers and practitioners that need to be adapted to specific contexts (regions, products, and policies). The use of economic and meteorological data is needed to create models that are able to predict the production and price information amid the volatilities associated with the climate change.

KEYWORDS: *Climate change, agri-food sector, agricultural output, agricultural price.*



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MAPPING ENERGY POVERTY INDICATORS ACROSS EUROPEAN NUTS2 REGIONS

ABSTRACT

Energy Poverty is a significant challenge for the European Union and addressing it is of crucial importance to reduce inequalities and support people in need, particularly low-income households. Tackling Energy Poverty requires a multidisciplinary approach and studying the phenomenon from a territorial perspective can provide valuable insights into inequalities and offer key suggestions for policy makers. After examining the definitions of Energy Poverty that have emerged over time, a dataset at the European NUTS2 regional level is developed. The dataset includes indicators from various dimensions derived from the Eurostat database and is intended to support future quantitative analyses. An initial mapping of the main Energy Poverty variables highlights inter-territorial inequalities; however, the limited availability of data on the phenomenon at the NUTS2 level points out the need for further efforts to conduct more comprehensive quantitative analyses at the territorial scale.

Keywords: *Energy Poverty, NUTS2 regions, inequalities.*

SPECIAL PANELS:

Environment, Energy, and Society for the Twenty-First Century in frame of the program "HORIZON-MSCA-2022-SE-01" under the GA 101129820 (on-line).

The research leading to these results has received funding from the project titled "Cluster for innovative energy" in the frame of the program "HORIZON-MSCA-2022-SE-01" under the Grant agreement number 101129820.



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ANALYSIS OF FOOD WASTE IN LITHUANIA: A COMPREHENSIVE APPROACH

ABSTRACT

Food loss and waste (FLW) represent a significant global issue with profound environmental, economic, and social consequences. Recognising the urgency of this issue, the United Nations set Sustainable Development Goal 12.3, aiming to halve food waste at the retail and consumer level by 2030 and reduce food loss in production and supply chains. To achieve this goal, a thorough assessment of FLW across the entire food supply chain, from production to consumption, is essential and requires comprehensive data collection and analysis at every stage.

To assess FLW at various stages of the food supply chain in Lithuania, a comprehensive framework was developed. This framework provides explicit, stage-specific definitions of FLW and details precise methodologies for measuring FLW in primary production, the food industry, retail trade, and households. Additionally, it includes an in-depth investigation into the root causes of FLW.

The application of the developed framework provides the first estimates of food loss and waste in Lithuania across primary production, the food industry, and households. It also delivers more accurate estimates of food waste in retail trade compared to previously available data. Key results indicate significant variability in food losses during primary production, ranging from less than 1% for milk to 20% for beets, with factors such as environmental conditions and strict consumer or buyer standards being primary drivers of crop losses, while livestock losses are predominantly attributed to animal diseases. The food industry is estimated to lose approximately 10.9 thousand tonnes of edible food annually, largely due to inefficiencies in processing and the failure of products to meet commercial standards. Retail trade accounts for 36.4 thousand tonnes of food waste per year, arising from expired shelf life, spoilage, visual flaws, damage that makes food unsellable, and over-stocking. In households, food waste averages 74.5 kilograms of edible food per person annually, with common causes including spoilage, excessive preparation or serving sizes, food expiration, and rejection due to taste or other preferences.

KEYWORDS: *Food waste, supply chain, Lithuania.*