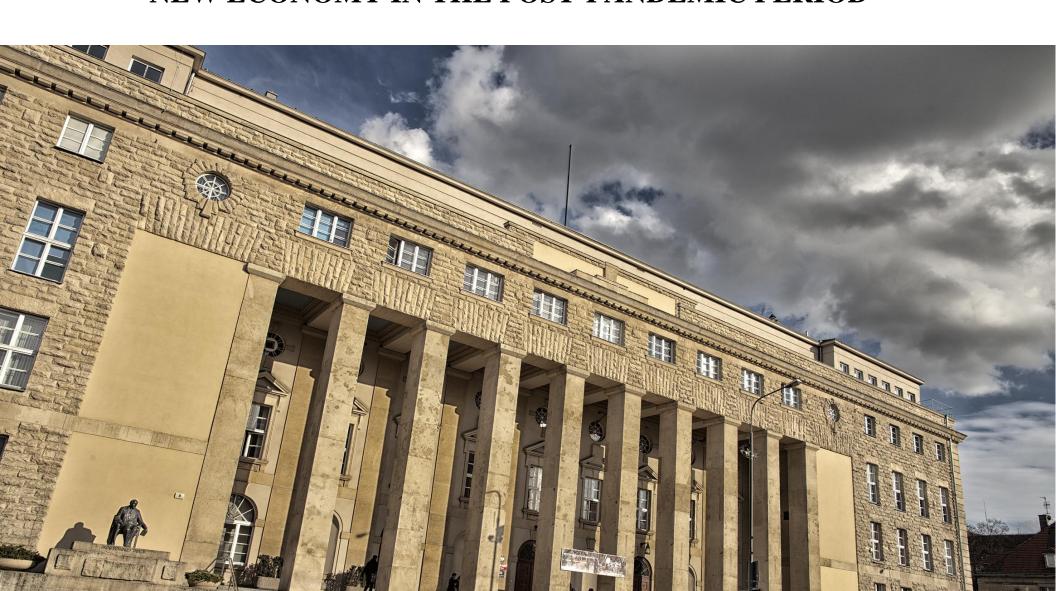# INTERNATIONAL CONFERENCE ON FINANCE AND ECONOMIC POLICY (5TH EDITION) POZNAŃ, NOVEMBER 21-22, 2021

NEW ECONOMY IN THE POST-PANDEMIC PERIOD

BOOK OF ABSTRACTS

Organizer: Poznań University of Economics and Business
Major Partner: European Association for Evolutionary Political Economy
University's Partner: Bucharest University of Economic Studies

EDITED BY ANNA WARCHLEWSKA

INTERNATIONAL CONFERENCE ON FINANCE AND ECONOMIC POLICY

WELCOME DO ICOFEP (5TH EDITION)

It is a great pleasure to welcome you to the International Conference on Finance and Economic Policy (ICOFEP) organized by the Poznań University of Economics and Business within the project of the Regional Initiative of Excellence financed by the Minister of Science and Higher Education in Poland.

The current situation related to the pandemic SARS-CoV-2 did not allow us to meet together again at our University. Hence I would like to thank all of you for your participation at the on-line conference in 2021.

In the current edition of the ICOFEP, the main aim is to share knowledge and expertise in the wide fields of New Economy in the post-pandemic period. That's why the fifth edition of the conference is divided into three major tracks: economics, finance and management.

We do hope that you enjoy your online attendance at the ICOFEP 2021!

HEAD OF THE ORGANIZING COMMITTEE
PROF. KAMILLA MARCHEWKA-BARTKOWIAK

KEYNOTE SPEAKERS

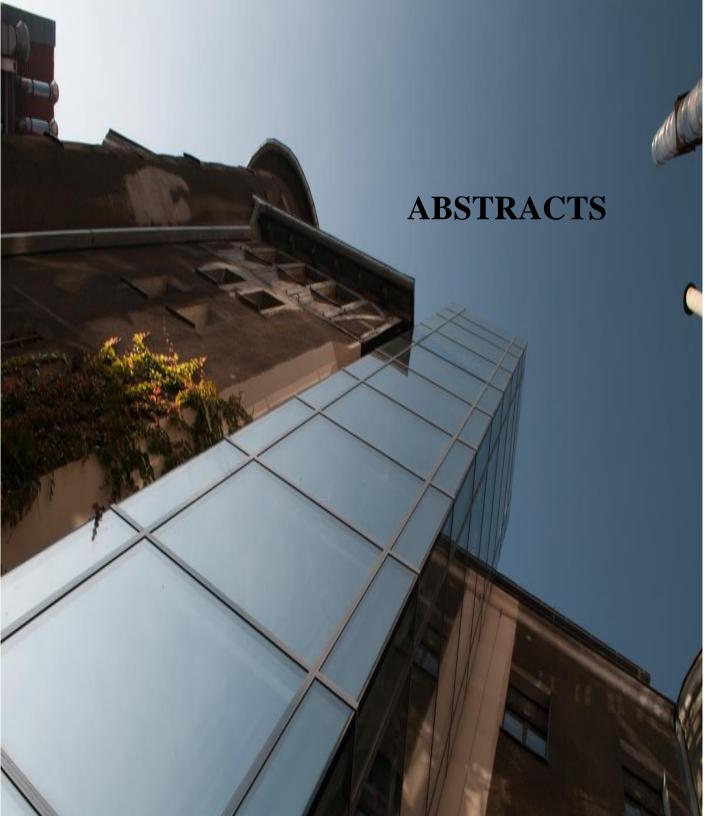**CHARLIE DANNREUTHER, UNIVERSITY OF LEEDS, UK**

With extensive, research teaching and project management experience in UK EU relations Charlie Dannreuther works at the interface between UK and EU politics with a special focus on SME policy in its various forms. To that end he has given evidence on SME policy to the UK's Cabinet Office and BIS and the EU's Economic and Social Committee and offered training to a wide range of international and national government organisations across Europe since 1999. These have included leading award-winning projects for the FCO in Turkey and Bosnia and an EU wide research programme on the financial crisis its causes and consequences. Since the referendum Charlie Dannreuther continues to focus on supporting students offer evidence to the House of Lords EU Select Committee. He is also running a series of workshops and events for academics and the general public on the implications of BREXIT to the UK and the EU. These activities are supported by international networks including as a General Secretary of the European Association of Evolutionary Political Economy.

DANIEL J. GALVIN, NORTHWESTERN UNIVERSITY, USA

Daniel J. Galvin (Ph.D., Yale University) is an Associate Professor of Political Science and a Faculty Fellow at the Institute for Policy Research at Northwestern University. He is also a nonresident Fellow at the Center for Innovation in Worker Organization at Rutgers University School of Management and Labor Relations. Galvin's research focuses on American politics and falls roughly into two general areas. One includes the presidency, political parties, and American political development. The other includes labor politics and public policy, workers' rights, and the enforcement of labor standards. Galvin's research has been supported by the Russell Sage Foundation, the Economic Policy Institute, the Washington Center for Equitable Growth, the New Jersey Department of Labor and Workforce Development, the National Science Foundation, the AT&T Research Fellowship, the Miller Center for Public Affairs, the LBJ Foundation, and the Dwight D. Eisenhower Foundation. Daniel Galvin is currently chair of the Politics, Institutions, and Public Policy program at the Institute of Policy Research and field chair of the American Politics subfield in the Department of Political Science. He is affiliated with the Comparative-Historical Social Science program and the Center for the Study of Diversity and Democracy at Northwestern.

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Bogdan NEGREA is Professor of Financial Engineering, Financial Derivatives and Market Microstructure at the Bucharest University of Economic Studies. He holds a Ph.D. in Economics from the University Paris I (Panthéon-Sorbonne) with the highest mention "Very Honorable, with Committee Praise", awarded by an international examining board composed of professors from French and Swiss universities. He has published in prestigious scientific journals, such as Quantitative Finance, Physica A: Statistical Mechanics and Its Applications, Finance Research Letters, Journal of Behavioral and Experimental Finance or Revue d'Economie Financière, and in working paper series of prestigious universities, such as University Paris I (Panthéon-Sorbonne) and London School of Economics. The many citations received in major scientific journals and books stands as a proof of his valuable research work in Finance. He is Editor-in-Chief of The Review of Finance and Banking.

ABSTRACTS

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SECTION 1: ECONOMICS

ARTESTIS PHILIP, FERREIRO JESUS, GOMEZ CARMEN
EMPLOYMENT PROTECTION AND ITS IMPACT ON THE DYNAMICS OF EMPLOYMENT AND UNEMPLOYMENT

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For mainstream economics rigidities in the labor market are the main determinants of high and persistent long-term unemployment rates; hence the need to reform the labour market institutions making them more flexible. Flexible labour markets would contribute to smooth normal business cycles fluctuations (reducing the impact of these fluctuations on labour markets) but to reduce the negative impacts on labour market of structural shocks.

Following this view, many mainstream economists have argued that employment protection legislation (EPL) have a negative impact on labour market results. For these authors, a high employment protection would exacerbate the impact on labour market (employment and unemployment) resulting from economic shocks. This implies that, say, for a similar decline in economic activity, those countries with higher employment protection would register stronger declines in employment and increases in unemployment rates.

Although recent studies question the validity of these arguments (concluding that measures increasing the flexibility of labour markets by changing employment protection legislation are not a significant determinant of the results of employment and unemployment), some mainstream authors argue that the relationship between employment protection legislation is not a linear one, and that an excessive employment protection would have an adverse impact on labour markets.

The objective of this paper is to check whether the employment protection legislation is a significant determinant of the dynamics of employment and unemployment rates in Europe. Namely, we will analyse the impact of EPL on the dynamics of total employment, employees and unemployment rates in sixteen European countries over the period 1985-2018. Following post Keynesian approaches, we use two alternatives variables related to the economic dynamics, namely, the rate of growth of the GDP and the rate of growth of Gross Fixed Capital Formation.

Key words: Employment protection legislation, employment, unemployment, labour market institutions
JEL codes: J08, J21, J41, J48, J50, J60

BAÇÃO PEDRO, DUARTE JOSHUA, SIMÕES MARTA

WELFARE PROGRAMS AND INEQUALITY IN OECD COUNTRIES: A GMM PANEL-VAR APPROACH

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We empirically investigate the relationship between welfare programs and inequality in OECD countries over the period 2000-2014 using a PVAR model to study the joint dynamics of social expenditure, inequality and GDP. The PVAR approach allows us to arrive at more robust results since all the variables included are treated as potentially endogenous, examining the effect of changes in social expenditures on income inequality and the effect of income inequality on social expenditures. Additionally, the panel structure of the dataset, by adding cross-sectional information, alleviates problems associated with short time coverage and allows for unobserved individual heterogeneity through fixed effects. The PVAR approach also makes it possible to analyse dynamic relationships between the variables and thus to examine whether the potential effects are only short-term or also longer lasting. We contribute to the literature by disentangling the effects of different components of social expenditure and linking two strands of empirical literature, on the inequality effects of social welfare programs and on the economic outcomes of the welfare state.

Our findings indicate that higher total social expenditure has disincentive effects and thus results in higher market income (before taxes and transfers) inequality but the effect on disposable income (after taxes and transfers) inequality is null, suggesting that the redistributive effects of social expenditure exactly compensate for any positive effects from disincentives. Additionally, the disincentive effects seem to originate in two components of social expenditure, health and old age pensions spending, although only the latter outweighs the respective redistributive function and increases inequality in the distribution of disposable income. Survivors' pensions and family related benefits have an inequality reducing effect for both market and disposable income, although almost negligible for family spending. Incapacity related benefits and education expenditure do not influence any type of inequality, suggesting they are used to achieve other objectives. Also, the inequality reducing effects seem to last longer that the positive impacts.

Key words: social expenditure, inequality, OECD, PVAR
JEL codes: C50, E62, H53, I38

CHODAKOWSKA ANETA, KAŃDUŁA SŁAWOMIRA, PRZYBYLSKA JOANNA

DIGITAL INCLUSION AS A FIFTH PILLAR OF SUSTAINABILITY? THE ROLE OF LOCAL GOVERNMENT POLICIES IN DIMINISHING INEQUALITIES IN THE POST-COVID-19 SOCIETIES

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In the 21st century, sustainable development (SD) of individual states is taking place within the framework of the 4th industrial revolution and the so-called Economy 4.0. This revolution is characterized by the adoption of numerous new technologies. The need to implement new technologies in local government arises just when they face various challenges, such as environmental degradation and climate change, population decline and an ageing society, and also currently – the COVID-19 pandemic. Some SD goals can be achieved using various Internet communication technologies, the use of which has increased sharply during the pandemic and lockdown. However, this highlighted the problem of social digital inequalities. Through policies aimed at decreasing the bias of digital transformation especially in the rural areas and among elderly people, local governments can contribute to reducing not only social inequalities in general, but also inequalities related to the digital development.

The paper contains a review of the literature related to SD, Economy 4.0, the circular economy as well as social innovations. Then we discuss the problem of the Internet access in EU countries which creates a base for the analysis of the scale of inequalities in the digital development of people based on the example of Poland. We also explain how the COVID-19 pandemic is likely to impact the process of how Polish society and local governments adapt to the digital economy. In addition, the importance of policies aimed at reducing social inequalities undertaken by local governments in the digital and post-COVID age are analysed.

Our main contribution to the literature reads as follows – digital inclusion should be added as the fifth essential pillar of SD. However, the implementation of its goals, such as ensuring the availability of equipment and helping people to develop digital skills, is – to a large extent – the responsibility of local governments, which are closest to local people and are able to identify gaps and inequalities in this area in the fastest and most reliable way. They are also equipped with the tools to initiate policies aimed at their elimination. Once SD is ensured at the local level, only then can it be achieved at the regional, national and, finally, global level.

Key words: circular economy, digital inclusion, Economy 4.0, sustainability, local government, sustainable local development
JEL codes: H1, O11

CZYŻOWSKA JOANNA, ŻMIJA DARIUSZ
SPECIAL ECONOMIC ZONES (ZEZ) IN THE CRISIS CAUSED BY THE COVID-19 PANDEMIC

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Restrictions imposed in consequence of the outbreak of the COVID-19 pandemic caused an immense economic shock. The coronavirus pandemic brought serious difficulties and problems with the functioning of enterprises. In order to reduce the number of cases, state authorities chose to partly freeze the economy by introducing considerable restrictions on the operations of enterprises, including temporary halt on the functioning of companies which operate in the conditions of a higher risk of SARS-Cov-2 virus spread. Reactions of businesses which needed to adapt to the changed conditions of their operations caused the decrease in variables which describe business operations month by month.

Thanks to the preferential conditions available in special economic zones, whose primary goal is to create conditions favourable to investments in specific regions, a lot of small and medium-sized enterprises are able to make their contribution into the struggle against the effects of the COVID-19 pandemic. Special economic zones were established in Poland in response to adverse effects of the economic transformation, especially in respect of an increase in unemployment rates and the deepening disproportion in the level of socio-economic development of regions. The zones which are aimed at accelerating the development of regions, for example, by attracting new investments, developing exports and providing new jobs, can also create effective innovative tools to counteract the coronavirus pandemic. The operation of special economic zones shows how to actively look for solutions to protect the Polish economy and support enterprises operating in individual zones during the COVID-19 pandemic.

The purpose of this paper is to analyse and assess the functioning of special economic zones in Poland, in particular with the consideration of capital invested in the zones and creation of new jobs. The authors attempt to answer the question to what extent the economic crisis caused by the COVID-19 pandemic has affected the functioning of special economic zones. The analysis covers the period from 2019 to 2021. The source materials used in the analysis have been retrieved from the resources of the Ministry of Economic Development, Labour and Technology, and the Local Data Bank. Other sources include also the literature on the above subjects.

Key words: special economic zones, economic crisis, socio-economic development
JEL codes: R10, R12

GOSPODINOVA ELENA
REMOTE EDUCATION – PROBLEM OR A CHANCE?

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The COVID-19 pandemic puts the whole world in an unprecedented stalemate. Initially came the panic that gripped us all, but then, everyone must try to return to the old life in a new way.Coronavirus affects all aspects of our lives - free movement, healthcare, trade and last but not least - education.
We all faced learning from home and working from home. The situation affected children with special educational needs worse than other children. This was said by the director of the regional center for inclusive education in Sofia, Bulgaria - Kaloyan Damyanov. The "new learning" was not suitable for everyone and surprised a large part of the population.

There is a problem, that we are not all born with equal opportunities. Online learning, social distance, lack of communication and physical activity have affected mostly primary school students, especially those with special educational needs. According to a study by UNICEF and Global Metrics Ltd. distance learning has not only slowed the development of these children, but has brought them back.

Students with special needs need constant contact with the teacher. With them, abstract thinking is difficult or impossible, which is why they need constant physical contact. The other big challenge was for the parents of these children. On the one hand, home quarantine affects their mental health, on the other hand parents do not know how to cope with their children's education, and on the third - the inability to combine work with raising and educating children with special needs at home. After the introduction of distance learning, the Ombudsman of the Republic of Bulgaria has received numerous complaints from parents. According to UNICEF research, since the beginning of the pandemic, one in five children with disabilities in Bulgaria has dropped out of school. The latest UNESCO report is even gloomier. According to him, it is claimed that if the educational process continues in the same way, children with disabilities run the risk of dropping out of the education system altogether, which would be detrimental to their development and their lives. All this will lead to its negative consequences for the whole society.

I will do research related to research and questionnaires on how distance learning has affected children with special educational needs in Bulgaria and what are the risks for them if online learning continues in the next school year.

Key words: coronavirus affects, education, distance, opportunity, chance, problem

GODLEWSKA MAŁGORZATA
INSTITUTIONS SUPPORTING LOCAL ENTREPRENEURIAL ECOSYSTEMS IN A TIME OF PANDEMIC

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Whereas a substantial literature has investigated national or regional entrepreneurial ecosystem, by contrast little effort has been directed at local entrepreneurial ecosystem. To tackle this gap in the empirically literature, this paper examines the hypothesis that local special institutions like institutions supporting entrepreneurship are key condition for local entrepreneurial ecosystem to exist. Despite the widely held belief that local special institutions matter when it comes to local entrepreneurial ecosystem, there were no studies that provided evidence of whether in time of pandemic institutions supporting entrepreneurship are able to facilitate interplay between key local actors of entrepreneurial ecosystem.

In order to achieve the objectives of the paper, empirical research on Polish LGs was conducted and data were statistically processed and interpreted. An electronic survey questionnaire was prepared based on the literature review and checked during the pilot study. Data were acquired using an electronic survey in Polish containing both quantitative and qualitative research questions, which was sent to n=2477 local government units (LG i.e. all rural, rural-urban and urban municipalities and cities with district rights, LAU level 2, formerly the NUTS level 5). The results of the regression analyses positively verify the hypothesis and underline the key importance of local institutions supporting entrepreneurship to stimulate and affect the local entrepreneurial ecosystem in a time of pandemic. The findings have implications for local and regional policy-makers and scholars who study the geography of entrepreneurship.

GÓRSKA ANNA, MAZURCZAK ANNA, STRĄCZKOWSKI ŁUKASZ
DEVELOPERS ADVANCEMENT LEVEL VERSUS CUSTOMER EXPECTATIONS IN TERMS OF IMPLEMENTING MODERN TECHNOLOGIES ON THE RESIDENTIAL MARKET

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PropTech - innovative technological products and new business models for the real estate market, are becoming an ever greater challenge and necessity for the Polish real estate market. Several industries operate within PropTech: property market, smart cities and buildings, sharing economy, housing industry (ConTech) and real estate financing (FinTech). This is a new trend on the Polish market, and its scope will certainly evolve over time. The PropTech revolution involves not only investors, but also developers, tenants, managers and real estate agents. Most of PropTech's activities lead to a more effective and transparent real estate market.

Taking up the topic as part of PropTech on the local real estate market is aimed at joining the discussion in this area and determining the possibilities of absorption of new technologies in Polish conditions. The area of development activity on the housing market was selected for the analysis. The importance of knowledge about modern technologies in the development industry is of interest in many local markets around the world. Failure to use available Proptech technologies can lead to decreased sales, a decline in competitive position, and ultimately the market exit.

The article contains the results of a study on the assessment of the absorption and use of modern technologies by developers on the Poznań housing market. This assessment was confronted with the expectations in this area of customers who plan to buy an apartment or have made such a purchase in recent years.

Key words: Proptech, real estate market, housing market, developers, innovations, digital transformation
JEL codes: R10, R11, R31, R39

GRUPA DARIUSZ
ACTIONS OF THE POLISH CENTRAL BANK DURING THE CORONAVIRUS CRISIS

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In this article will be presented the activities of the National Bank of Poland taken in the fight against the economic crisis caused by the coronavirus pandemic. The NBP actions related both to the traditional instruments of the central bank (lowering interest rates, reducing the reserve requirement), as well as activities going beyond standard operations. In 2020, the NBP for the first time carried out a quantitative easing operation, starting the purchase of debt securities issued by the polish government and by government-controlled entities.

The first part presents the "traditional" activities of the NBP that fall within the standard instruments of the central bank, together with the assessment of their effects on the scale of lending in the Polish banking system and on the size of the money supply in Poland.

The second part describes operations related to the implementation of securities purchases by NBP and thus support for anti-crisis programs of polish government. In this operation, undertaken for the first time in Poland, the NBP followed the previous actions of the FED and the ECB (Global Financial Crisis 2008, crisis of the Eurozone Crisis 2011). At the same time, NBP followed the actions taken in 2020 by the world's most important central banks (US Federal Reserve System, European Central Bank) in response to the coronavirus pandemic and the expected effects of the decline in economic activity related to it.

The final part will show the scale of activities undertaken by NBP compared to other European countries, together with a comparison of the scale of the economic crisis in individual countries. On this basis, an attempt will be made to assess the effectiveness of the NBP's activities compared to other economies, identify other factors influencing the scale of the crisis and the side effects of actions taken by the central bank (e.g., increased inflation and debt).

The analysis will be based on data published by the central bank, statistical bureaus, and relevant government agencies as well as literature sources.

Key words: coronavirus crisis, central banking, anti-crisis actions, polish economy
JEL codes: E52, E58, E61

GRZELAK-KOSTULSKA ELŻBIETA, BIEGANSKA JADWIGA, CIEŚLIK EWA

GLOBAL CHALLENGE VS. LOCAL RESPONSE. THE NEW DIRECTION OF TOURISM DEVELOPMENT IN CITTASLOW NETWORK IN TIMES OF THE COVID-19 PANDEMIC

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The extremely dynamically developing International Cittaslow Cities Network was established in 1999 as a response to the negative effects of globalization. The paradox of this network is the fact that, on the one hand, it grew on the basis of the Slow Food philosophy and aimed at promoting so-called "good living", and on the other hand, in the Cittaslow the attention is drawn to the global nature of the association itself, which currently includes 278 small towns in 30 countries located on 6 continents (as of June 2021). The context of the functioning of the International Cittaslow Cities Network, which are created as "Slow Life" and "Slow Philosophy" places, are subject to strict evaluation criteria at the time of accession to the association and ultimately have created a global phenomenon, seems to be particularly interesting in the new post-COVID-19 reality.

The aim of this study is to verify and deepen the knowledge about the specificity of tourism in the cities belonging to the Cittaslow network. This issue has gained particular importance in the current pandemic situation. According to some experts, the tourism is at a turning point. Therefore, three research questions raise: 1) can the cities of the Cittaslow network be a chance for further development of the tourism industry? 2) is there a growing interest in discovering smaller towns?; 3) are the Cittaslow network's residents interested in the influx of visitors?

The main source of data was a CAWI (Computer-Assisted Web Interview) survey conducted on a sample of 326 residents of Cittaslow cities around the world. The study showed that this type of destination is perceived particularly attractive to people interested in urban tourism and refraining from visiting large cities. This result can be explained by, first, the unique nature of small towns, and second, by lower population concentration and fewer visitors which has an impact on ensuring an appropriate level of security in the face of an epidemic threat. This, in turn, allows us to open a discussion on tourism in Cittaslow cities, whether it could be a local response to the pandemics, or is it a new path of globalization.

Key words: Cittaslow, tourism industry, globalization, urban development
JEL codes: L83, Z32

KALINOWSKA-SUFINOWICZ BAHA, KNAPIŃSKA MAGDALENA

YOUTH AND COVID-19 IN THE EUROPEAN LABOUR MARKET. FROM JUNK CONTRACTS TO UNEMPLOYMENT

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The main purpose of the paper is to consider the impact of Covid-19 pandemic on the situation of the youth in the chosen countries of the European Union in the years 2009-2020. In the paper we use the notion of the youth which means people at the age range of 15 through 24. The category in question encounters considerable difficulties during the school-to-work transition and is characterized by the highest level of unemployment as against the total population. Moreover, during the pandemic the youth has experienced significant and painful rise in unemployment. The study area includes four countries: Poland, Germany, Spain and France. These states rank as the big nations of the European Union. The timeframe starts with the global economic crisis of 2009 and ends with the most recent up-to-date statistical data pending the pandemic period (2021).

Methodology used in the paper includes: theoretical analysis to provide an explanation to the research problem in the literature, interpretation, classification, comparison, generalization, statistical methods and analysis to support the chosen theories, try to find common features and conclude. The study involves examining neoclassical, segmentation and discrimination theories of labour market in relation to the situation of the youth.

The results are to verify hypotheses which are as follows:
- The dual education system substantially diminishes the youth unemployment rate.
- During the pandemic the level of precarious employment among young people has considerably declined.
- In concordance to the dual labour market theory the youth falls into the secondary sector which enhances the possibilities both of unemployment and abandoning labour market.
-
Originality of the paper lies in the presentation of the recent trends, which has occurred in the period of pandemic among the youngest category of labour force in relation to the existing theoretical background. Furthermore, crucial novelty consists in formulating solutions for minimizing the discrimination and self-discrimination effects and maximizing the level of employability among young people in the EU.

Key words: youth, labour market, secondary sector, segmentation, discrimination
JEL codes: J21, J13, J14, E24

MARCHEWKA-BARTKOWIAK KAMILLA, LITWIŃSKI MICHAŁ, NOWAK KAROLINA
A NEW APPROACH TO INDIVIDUAL WORK PRICING – THROUGH PERSONAL TOKENS

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Basically, digital tokens enable individuals to make transactional payments (payment tokens), to invest and to raise funding for one's own business (security tokens). However, one of the less known applications of tokens is also valuation of one's own work and offered services. This role can be fulfilled by personal tokens, which belong to the group of utility tokens. The broad theoretical framework of the article is Social Exchange Theory (SET), one the most influential conceptual paradigms in organizational behaviour. This study drew on SET especially to explore the perceived value of time (costs of missed opportunities).

The aim of the article is to answer the question whether the valuation of individual services and offered work time with the application of personal tokens is carried out on the basis of market and network valuation, using data from the virtual and real world. The authors will also analyse the sub-market of work offered by issuers of personal tokens and the determinants of its valuation by the supply side.

The article is based on information about the owners of tokens issued on a intentionally created personal token platform (https://personaltokens.io/). As far as the determinants of valuation are considered, rarely explored datasets, which contains data on trading of personal tokens, are used. Information about market (in a traditional sense) work pricing is also analysed. The research is embedded in a regression framework using the microdata available on the mentioned platform (information concerns the issuers of personal tokens). Quantitative analysis is accompanied by robustness checks.

The main results of our research are: 1. showing the covariance of variables such as the profession represented by issuers, the time of tokenization, the type of services offered and the way in which the valuation of individual services and working time is created, 2. showing the empowerment of the position of personal tokens as a new way of defining and valuing work, 3. new axiological aspects of labour valuation – whether the value of work is determined by the labour market or more by its importance for online communities.

Key words: personal tokens, work pricing, valuation of work
JEL codes: G01, G10, G41

LIS PIOTR, SUSZYŃSKA KATARZYNA, RATAJ ZUZANNA

UTILITY CONSTRAINTS OF COLLABORATIVE HOUSING INNOVATIONS IN POLAND. THE CASE OF "NOWE ŻERNIKI" IN WROCŁAW

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Housing in Poland is undergoing the biggest housing boom under the free-market economy. Be-tween 2016 and 2020, almost one million dwellings were built, the equivalent of the entire housing stock of the capital city - Warsaw. Set against this background, housing innovations are still difficult to be implemented in Polish society.

The aim of our presentation is to elucidate key utility barriers for collaborative housing in Poland. The case study was used, i.e. the "Nowe Żerniki" housing estate in Wrocław. In-depth interviews were conducted with key informants such as: the leader of this residential projects, residents, researchers, NGOs and other actors participated in housing innova-tions. In addition, 50 utility maps were created by students as potential residents of collaborative housing. The results of the research indicate that: 1) housing innovations in Poland should be reg-ulated in detail by law, they cannot function on the general principles of the Civil Code, 2) the need for agreements, community building and teamwork is a problem for the majority of young people in Poland.

Key words: innovations, collaborative housing, housing policy, buyer utility maps, Poland
JEL codes: 031, 033, 035, 018, R31

MAJEWSKA JUSTYNA, TRUSKOLASKI SZYMON

MODELING DETERMINANTS OF DIGITALIZED-SERVICES ADOPTING IN THE CONTEXT OF PANDEMIC. THE EXAMPLE OF E-SPORT

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A growing importance of digitalized services in the so-called new economy and COVID-19 situation of reducing outdoor activities can be observed recently. Even before the pandemic, there was an increasingly frequent trend of seeking entertainment in the virtual world, which was only strengthened in the time of the coronavirus. There is a growing need to participate in events whose content is not sports competitions but computer games challenge – e-sport.

The literature in this area so far focuses on determining the number of e-sport fans with elements of a simple statistical description (mainly concerning demographic characteristics such as age, gender, place of residence). Meanwhile, the development of the industry is influenced by a combination of many different, intertwined demographic, personality, and psychosocial characteristics of customers, as well as the characteristics of their environment. Thus, the aim of the study is to reveal internal and external determinants of behavioral patterns upon selecting digitalized services by customers during pandemic time, which, in the absence of available large data sets, can be achieved by using econometric simulations – multi-agent modeling.

In the paper an agent-based model with heterogeneous agents (characteristics of customers themselves and their environment) was developed, which allowed to identify a three-stage development scenario: i) initial interest, ii) standardization, and iii) full professionalization. The probabilities regarding the transition process were estimated using the Method of Simulated Moments. The estimation of the agent-based model parameters and sensitivity analysis reveals crucial factors that have driven rising trend in e-sport spectating and, in a wider perspective, development of digitalized services. Among psychosocial characteristics of customers they are: the level of familiarization with the rules of games as well as sport disciplines, active and passive participation history and individual perception of challenging activities. Environmental factors include general reception of games, number, and level of recognition of community builders and the level of technological development of streaming as well as community building platforms. In a wider context, the findings in the paper support the idea of a life cycle of services regarding methods of their application from "traditional" to digitalized.

KLUZEK MARTA

STATE AID FOR SMEs DURING THE PANDEMIC IN POLAND

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The global SARS-CoV-2 virus epidemic is affecting everyone, directly or indirectly. In order to mitigate the negative economic outcome of the restrictions introduced in order to limit the spread of the virus, most countries have introduced a number of solutions enabling enterprises to survive and maintain employment.

The aim of the paper is a review of selected support instruments for enterprises from the SME group and to determine the degree of their use in Poland. The research was carried out to verify the hypothesis that these instruments played a significant role in the survival of enterprises, however, their lump sum nature meant that the aid was not adequate to the needs at a micro-economic level. In total, 6 instruments were subjected to evaluation, i.e. the standstill benefit, exemption from ZUS (Zakład Ubezpieczeń Społecznych) [equivalent of Social Security Office in Poland] fees, low-interest loans from the Labour Fund for micro-enterprises, partial financing of a business, and salary costs, as well as a financial subsidy – used by over 150 SMEs up to the end of 2020. Enterprises operating mainly in Poznań or the Poznań district were analysed. The research group included entities diversified in terms of their form of conducting business activity, the number of people employed and operating in various industries, although those registered in CEIDG not employing staff predominated. The division of the entire population into groups was dictated by the availability of individual aid instruments for enterprises with specific characteristics that were analysed.

The lockdown introduced in Poland in spring was something completely new, arousing a feeling of uncertainty or even anxiety. State aid was necessary to maintain satisfactory financial conditions of enterprises and jobs. It was not easy to prepare this aid so that entrepreneurs could use it as soon as possible, and at the same time, making it adequate to the real effects that companies experienced as a result of the first wave of the pandemic, all the more so that some of them began to feel these negative effects with a certain delay.

It is one of the first studies that shows the real effects of support based on the financial data of enterprises from the SME group from the micro perspective. Access to this type of data is very limited, hence the possibility of conducting research on the financial data of such enterprises seems unique, even if it is a small sample.

Key words: coronavirus, pandemic, public aid, support instruments
JEL codes: G01, H12, H25, H80

LESCANO RONALD MIRANDA, SAGALÉS ORIOL ROCA, GALLO LEONEL MUINELO

HUMAN DEVELOPMENT AND DECENTRALIZATION: THE IMPORTANCE OF PUBLIC HEALTH EXPENDITURE

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The capacity of governments to improve economic and human development is a major societal concern, being the public expenditure on health and education probably one of the main instruments and the basic supports of modern welfare states and certainly the essential policies to improve the quality of life of their citizens. But the impact of these public policies on the economic and human development of a society is not just a matter of the amount of public spending. Like public policies more generally, organizational aspects will also have an influence, and one important dimension of organization is the extent to which public expenditures are decentralized.

In this paper we employ cross-country evidence to analyse how central and subnational expenditure in the areas of health and education can affect to a broader measure of economic and human development, the Human Development Index (HDI), and we also examine the impact on each of the HDI components. The HDI is a multidimensional, composite index of human and economic development, that allows to include outcomes related to health, education, and income (UNDP 2020). Based on a sample of 57 developed and developing countries over the period 2000-2018, and applying data panel analysis, we find robust evidence that both central and subnational expenditure in the area of health have a positive impact on the HDI, and in each of their dimensions (life expectancy, education, and income), while in the case of the education expenditure, this positive and statistically significant effect on human development can only be confirmed on the educational dimension of HDI. These findings are robust to different lagged structure of the government expenditure variables, alternatives estimations techniques, and the presence of a range of potential confounding variables including measures of the autonomy of subnational governments. Our study outlines that governments can stimulate human development, improving the well-being of the citizens, allocating more resources to healthcare through the different administrative levels.

Key words: Human development, public expenditure, decentralization
JEL codes: O15, H5, H51, H52, I15, I25

MATUSZAK PIOTR

THE ROMER MODEL WITH STATE-OWNED ENTERPRISES – IMPLICATIONS FOR THE INNOVATIVE ROLE OF THE STATE

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This study theoretically analyses the growth impact of state-owned enterprises (SOEs) by adding SOEs to Romer's (1990) growth model. This is the first study extending the basic expanding-variety growth framework by introducing SOEs in final goods production and R&D and thus addresses a substantial research gap on the mechanism of the SOE impact on growth.

Our model considers three characteristics often emphasized in the literature on SOEs. First, SOEs underperform as compared to privately owned enterprises (POEs). Second, this inefficiency leads to subsidization of SOEs. Third, SOEs might play an important role in innovation and therefore, the presence of SOEs might be socially desirable because of their external effects.

Given the SOE inefficiencies and taxes imposed on privately owned intermediate goods producers to subsidize SOEs, we show that the growth rate is decreasing in the SOE inefficiency and SOE share in final goods and R&D sectors. This result is driven by the fact that taxes to finance SOE subsidies reduce future profits from designing new intermediate goods and therefore, shift labor from R&D to final goods production. We also show that under certain conditions the (socially-planned) SOE R&D sector might be beneficial for growth as compared to the private R&D sector in competitive equilibrium.

The proposed model helps us understand the results of the recent study on the SOE-growth nexus. Namely, Szarzec et al. (2021) shows that the growth effect of SOEs improves significantly with the country's institutional quality and with good institutions, the positive externalities of SOEs may outweigh their possible inefficiencies. As a large body of literature emphasizes the importance of the institutional environment for the efficiency of SOEs, by interpreting the SOE inefficiency parameter in the proposed model as related to the level of institutions, one can use the Romer model with SOEs to explain the mechanism driving the empirical results by Szarzec et al. (2021). The proposed model and discussion on the innovative role of the state might be especially relevant in the post-pandemic era.

Key words: economic growth, endogenous technological change, state-owned enterprises, Romer model
JEL codes: O4, L32

MATUSZAK PIOTR, TOTLEBEN BARTOSZ, PIĄTEK DAWID, SZARZEC KATARZYNA

POLITICAL ALIGNMENT AND THE ALLOCATION OF THE COVID-19 RESPONSE FUNDS - EVIDENCE FROM MUNICIPALITIES IN POLAND

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We analyze the allocation of the COVID-19 response funds from the perspective of the political alignment hypothesis. This study contributes to the literature on political alignment and intergovernmental transfers by analyzing the allocation of the funds from the central government to local governments (municipalities) during the COVID-19 pandemic, which – to the best of our knowledge – has not been yet done in the economic literature.

Based on data from the allocation of the second round of the Governmental Fund for Local Investments (part of the COVID-19 Response Fund) in Poland and the analysis with the logit model, we show that the allocation of the second round of the Governmental Fund for Local Investments (part of the COVID-19 Response Fund) in Poland was strongly biased in favor of the municipalities governed by mayors aligned with the party ruling in the central government. Our results show that – while controlling for a broad set of municipalities' characteristics – mayors aligned with the central government were more than three times more likely to receive the funds than mayors aligned with the opposition, and nearly twice more likely than mayors unaligned with any party present in parliament.

The results of the analysis support the political alignment hypothesis and highlight the danger of partiality in the allocation of the COVID-19 response funds. This issue is particularly relevant given the perspective of the substantial post-pandemic recovery funds from the European Union, and our analysis emphasizes the need to establish transparent and fair rules related to the allocation of the funds in response to the pandemic economic slowdown.

Key words: Political alignment, COVID-19 response funds, Public spending
JEL codes: D72, H54

MIKOŁAJCZAK PAWEŁ, SCHMIDT JOANNA, SKIKIEWICZ ROBERT

THE COVID-19 PANDEMIC CONSEQUENCES TO THE ACTIVITY OF NGOs

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The aim of the research is to determine the consequences of the COVID-19 pandemic for activities carried out by non-governmental organizations (NGOs). Moreover, there will be conducted an assessment of the differences in the perceived effects of the pandemic by non-governmental organizations due to three criteria - their location, activity areas, and planned strategy changes.

The analyzes are based on the results of a survey that was carried out among representatives of non-governmental organizations in the period April-May 2020. The descriptive analysis will be conducted on the basis of survey data. Additionally, a chi-square test of independence will be carried out to verify the differences in the perceived effects of the COVID-19 pandemic in the groups of non-governmental organizations established based on the criteria of location, area of activity and the planned changes in strategy.

The results obtained enable us to point out the consequences of the COVID-19 pandemic in a very short time horizon - the next 4 and 8 weeks – for non-governmental organizations in the area of the possibility of fully financing the salary costs, as well as the ability to provide services to clients/beneficiaries. The paper will establish the frequency of concerns regarding the negative consequences of the COVID-19 pandemic (such as loss of income, the need to dismiss employees). In addition, it will outline the most pressing challenges faced by NGOs to the effect of the COVID-19 pandemic and assess the outlook after the pandemic.

The paper fills the gap in the knowledge of the effects of the COVID-19 pandemic for non-governmental organizations. The paper analyzes the indicated threads in the context of the stakeholder theory, demonstrating how COVID-19 influenced the relations of non-governmental organizations with (1) public institutions, (2) customers and beneficiaries, and (3) internal stakeholders, i.e. employees and volunteers. This analysis allows to check whether NGOs react effectively in the face of the COVID-19 pandemic, or whether the existing conflicts require external intervention (e.g. government institutions).

Key words: non-governmental organizations, COVID-19
JEL codes: L31

MUKHERJEE SONIA

COVID-19 PANDEMIC, INDIAN MICRO, SMALL AN MEDIUM ENTERPRISES AND GLOBAL VALUE CHAINS-RETHINKING A NEW PATH

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Humanity, at present, is facing a huge existential crisis due to the COVID-19 pandemic caused by the highly infectious nature of the Coronavirus disease. As the world is trying to fight out the pandemic, it is too early to comment on the total impact assessment of the sustainability of the policies implemented across the globe. All the countries of the world are already affected by this pandemic in a manner that their socio-economic life has been derailed from its normal course of movement.

The paper makes some empirical investigations using a logit regression model to find out whether the total number of cases of infection and its fatality per million population units have any relationship with some variables like density of population, share of urban population, tests per million population units, status of human development with inequality adjustment, health infrastructure and services as indicated by the share of health expenditure in GDP, and finally the share of forest cover in GDP based on data compiled from a cross-section of 214 countries for 2020. Some empirical investigation to explore the determining factors, *viz.*, total confirmed cases per thousand of population units, total deaths per thousand population units, population density, share of urban population, total health expenditure as % of GSDP (we use the 2016-17 figures) of the prevalence and fatality for the COVID-19 disease in India was also carried out in a pre and post-lockdown setting to compare the effectiveness of the factors in the two phases and thereby helping us to comment on the effectiveness of the lockdown in slowing the spread.

The paper, in the first place, has pointed out the fundamental source of the problem of pandemic COVID-19 and other extreme natural events as India is experiencing is the disruption of ecological balance between human appropriation of resources of the biosphere and bio-capacity of our ecosystem. This has expressed itself in the forms of biodiversity loss and climate change – which are again interactive as has been pointed out. These events pose a challenge to us and we are confronted with a tough choice today between life and livelihood, and between economic growth and halting the erosion of environmental capital stock. The feasibility of such change would depend on our sense of values and ethics concerning growth, well-being and sustenance of other species. These would imply our long run policies to ensure adjustment of our system to maintain the resilience capacity as is described by the people (population with demographic characteristics and reproductive and other health conditions) on the one hand, and the scale, composition, technology and the architectural design of human organisation of economic activities on the other.

Key words: pandemic, biosphere, population, welfare state, health infrastructure, health expenditure, fatality rate

ROGALA ANNA, NESTOROWICZ RENATA, JERZYK EWA

NUTRITION MOBILE APPLICATIONS AS FACILITATORS OF SUSTAINABLE EATING HABITS AMONG POLISH CONSUMERS –

A CHANCE FOR A REAL CHANGE OR A LOST CAUSE?

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Persuading people to change their eating habits towards more sustainably oriented ones requires appropriate tools and interventions tailored to consumers. To this end, mobile applications are being used increasingly often.

This research aimed to identify the Polish consumers' attitudes towards using mobile applications as assistance in a change in the area of sustainable eating behaviours. The study was conducted using the Computer Assisted Web Interview on a sample of 600 Polish respondents. The questionnaire was based on the following scales: stage of change (SOC), decisional balance (DB), acceptance and use of technology (UTAUT). More than a half of the respondents is interested in using nutrition mobile applications to change their eating habits into more sustainable ones. The majority of the regular nutrition mobile applications' users had already implemented or were in the process of making those changes. Contrary, those who used such applications rarely or not at all were relatively more likely to declare not to be ready to change their eating habits into more sustainable. We examined the relationship between the level of acceptance of mobile applications for sustainable food behaviours and SOC for green eating (GE) as well. The lowest level of behavioural intention to use mobile applications was observed in the group of respondents not considering changes in eating behaviours, and relatively the highest in the groups that have already decided to make changes but either have not yet implemented them or are in the process of implementing changes and encountering some difficulties. The dissemination of applications that incorporate the ability to tailor content and functionality to the user's SOC for GE, as well as factors that support the decision to change and influence behavioural intention, can positively impact eating behaviour change towards more sustainable food consumption.

The findings of the study can be used to promote and shape sustainable consumption behaviours, particularly for planning behavioural interventions targeted at consumers interacting with nutrition mobile applications.

Key words: sustainable food consumption, food behaviours, nutrition mobile applications
JEL codes: E21, M31, Q5

ROMANOWSKI ROBERT, LEMAŃCZYK JOANNA, STASICKA JULIANNA

FACTORS' EXPLORATION OF THE INNOVATIVE DELIVERY FORMATS' DEVELOPMENT IN THE E-GROCERY

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Pandemic has changed our lives. The lock-down period made it impossible for consumers to use commercial facilities on the previous terms. the access to food products, including perishable ones, was limited, which was conditioned by the need to limit contact in order to minimize virus transmission. As a result, consumers try to maintain control over the changing environment (Kozłowska, Abramowska et al., 2020). Very few empirical studies were carried out to investigate the consumer online shopping behavior of grocery products. In a theory, explaining online food shopping behaviors, five important characteristics could be listed (Alaimo et al., 2020):
1. influence of the relatives or friends to shopping choices, also known as social norms,
2. degree of difficulty in reference to information's acquisition and use of technology to complete transactions,
3. compatibility of online grocery shopping with personal values and life style,
4. advantages perceived by consumers in offers presented by online shops in comparison to traditional purchase channels and
5. perceived risks connected to the online purchasing process like problems with payment or quality.

Growing consumer concerns about loss of health (in the context of COVID-19 pandemic), many grocery stores have chosen to launch home deliveries in-house or for example via the Glovo mobile app. More and more Polish people use online shopping and use various payment and delivery methods (Grygierek, 2020, p. 13). It is worth mentioning that the biggest grocery chains, such as Biedronka, Lidl or Żabka, offered such a service before pandemic, but its real boom occurred during the time of lock-down. The pandemic has become an impulse to search for new solutions in terms of the availability of various goods. The aim of the study is to identify factors that stimulate and limit the development of innovative delivery formats in the e-grocery sector. The FGI method was used to achieve the goal with the use of selected projection techniques. The results of the research are important not only for scientific purposes, but also for practitioners to develop new business models. The paper also presents the research limitations and directions of future research.

Key words: technological change, consumer behaviour, e-grocery, new delivery formats
JEL codes: O33, D12, L66

SHELEST-SZUMILAS OLENA, WOŹNIAK MARCIN

THE DETERMINANTS OF (NOT)HIRING MIGRANTS IN POLAND: THE PANDEMIC PERSPECTIVE

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Labour markets in many countries have suffered from the effects of the COVID-19 pandemic. Several hundred thousand workers have lost their jobs because of economic slowdown and lower demand for labour. The negative consequences of the crisis were particularly severe for migrant workers. Mobility restrictions, limited access to the health care system and longer procedures for obtaining a residence and work permit make it difficult for migrants to remain in the labour market during the COVID-19 pandemic. As a consequence, the unemployment rate of migrant workers has raised in many EU countries.

Our study explores how demand for migrant workers in Poland was affected by COVID-19 pandemic shock. On the basis of the survey, we present quantitative data on the firms that hire migrant workers and changes in employment of foreigners due to the spread of the SARS-Cov-2 virus as well as employers' plans regarding hiring migrants in the near future. To identify the factors that may increase or decrease the probability of hiring migrant workers by Polish enterprises in the following 12 months following the survey, we developed three ordinal logistic regression models. The results clearly indicate that the situation of foreign workers became much more uncertain during the pandemic. The factors of particular risk of not finding employment due to lower demand for foreign labour are mainly connected with firms' characteristics (e.g. firm size, economic sector) and working conditions (e.g. type of job contract). These factors define the vulnerable points of adjustment of migrants' labour demand to the (post-)pandemic reality. Therefore, the study is an important contribution to the existing literature as it addresses the problem of the COVID-19 effect on the demand for migrant labour that has attracted little attention so far.

Keywords: migrant workers, labour market, COVID-19, pandemic, ordinal logistic regression
JEL: J60, J230

ŚLIWIŃSKA MAGDALENA

FAIR TRADE AS ONE WAY TOWARDS A 'NEW POST-PANDEMIC NORMAL'?

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The COVID-19 pandemic and the resulting crisis have brought into sharper focus the growing global economic, social, and environmental challenges of recent decades. There are also increasing calls for a 'new post-pandemic normal' to take greater account of social aspects and to build a 'resilient society'. That is why the aim of this paper is to answer the question, how such socio-business initiatives as Fair Trade meet these challenges and whether, and if so, what role they can play in the systemic transformation towards a sustainable market economy and the reconstruction of a post-pandemic reality.

Using the method of a critical analysis of the literature, the author comes to the conclusion that this often underestimated initiative can be explained to a large extent both by those economic concepts that emphasize the social aspects of market functioning, as well as by neoclassical economics. For example, from the point of view of institutionalism, Fair Trade can be perceived as a new type of institution functioning in the international economic and social space, influencing both government policy and the development of entrepreneurial structures, and from the perspective of K. Polanyi - as an element of defined by him Double Movement. It is also a manifestation of broadly understood social economy, including the so-called third sector, and from the perspective of neoclassical economics - a modern and marketized form of charity enforcing activation and development of beneficiaries. Looking at Fair Trade "through the glasses" of various economic concepts allows not only to explain the reason for its emergence and dynamic development, and to understand its role in contemporary socio-economic life, but also leads to the conclusion that it is not an accidental episode, but can constitute an important development trend in the global economy playing an important role in counteracting global problems, including the effects of the pandemic crisis. This may imply a significant increase in the role of society as the third, next to the market and the state, institution shaping economic reality, which may constitute an extension of the list of issues requiring revision in economic sciences as a result of the COVID-19 pandemic formulated by Banaszyk et al. (2021). Along with the explaining of the nature of the Fair Trade phenomenon it may constitute the most important novelty of this paper.

Key words: Fair Trade, sustainable trade, sustainable development, economic theory, pandemic COVID-19
JEL codes: A10, A11, A12, A 13, B20, B50, D62, D63, D64, F60

WĘCEL KRZYSZTOF, STRÓŻYNA MILENA, SZMYDT MARCIN, ABRAMOWICZ WITOLD

IMPACT OF COVID-19 ON MARITIME TRAFFIC

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In the paper we intend to analyse changes in the global supply chains caused by COVID by studying the movement of vessels. Tracking of vessels is possible thanks to the Automatic Identification Systems (AIS). It was designed for collision avoidance on water but now AIS data can be collected by satellites and serves new analytical scenarios. The International Maritime Organization requires AIS to be used by international voyaging ships with 300 or more GT and all passenger ships regardless of size. Every six minutes a vessel needs to broadcast information about its unique identification, type of cargo, destination port, and estimated time of arrival among others. More frequently it reports its position, speed, and course.

Our methodology is founded on the analysis of big data. Based on the AIS data that we have collected for several years we compare three periods: before, during, and after COVID. First, we identify significant sea routes with high economic impact. The routes are usually defined by several areas, where the analysis can take place, e.g. Strait of Hormuz, Bab-el-Mandeb, Malacca. Second, we identify vessels that were traversing these routes. Third, we describe the quality issues of AIS data and decide which periods exactly will be used for analysis (based on data completeness). In the fourth step, we apply a novel approach to spatial aggregation of data, namely Hexagonal Hierarchical Spatial Index (H3). It was developed by Uber for optimizing ride pricing, and to our best knowledge, it has not been yet applied to AIS data analysis. We present several scenarios for the advantage of analyses based on H3. For example, we represent a trajectory of vessels as a list of H3 indexes, an improvement from the non-homogeneous representation of points. It is then possible to complete the trajectories based on similar patterns of other vessels. We can also identify decision points at sea – the crossroads. Finally, we estimate the width of the sea corridor and traffic separation lanes.

Collecting all mentioned improvements allows us to answer the research question on how much the sea traffic was impacted by the COVID pandemic. Depending on the vessel type, different conclusions can be drawn, e.g. changes in energy carrier (Near East), passenger traffic (Caribbean), fishing fleet monitoring and control (North Sea).
The novelty of the paper lies in the analysis of big data (AIS) and the application of H3 for a better understanding of spatial phenomena at sea.

Key words: AIS, logistics, COVID, H3 spatial index, data quality, route reconstruction
JEL codes: C61, C63, C82, F17, I15, R41

YOUNESS MOHAMAD

THE IMPACTS OF THE POLITICAL UNCERTAINTY ON THE CURRENCY EXCHANGE RATE

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This paper examines the impacts of political uncertainty on the currency exchange rate, taking the fluctuation of the LBP exchange rate against USD dollar in the black market as a practical case. It shed light on the most important political events and decisions that happened in Lebanon and the region during the period (2019-2021) and linked it directly to currency exchange rate, to show the impacts of the political instability on the LBP exchange rate.

We depend on the daily observations of LBP exchange rate in the central bank and black market to perform empirical tests and regression model and we gathered the political events and news from the National News Agency (NNA).

The results show that the political uncertainty and instability has a direct impact on the currency exchange rate.

Key words: Political Uncertainty; Exchange Rate; Lebanese Pound; USD dollar
JEL codes: D81, E5, F31

ZIOMEK AGNIESZKA, BARCZYK RYSZRAD, URBANOWICZ ZUZANNA, SPYCHAŁA JOANNA

FOR WHAT TO GET ATTENTION TO BOOST WORK ADDED VALUE? REMOTE WORK AND LABOR PRODUCTIVITY – STUDY IN POLAND, HUNGARY AND THE CZECH REPUBLIC

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In the era of digitization, the role of remote work is growing, the basis of which is, among others, flexibility in terms of time, place and forms of contact. The digitization of work has brought new opportunities and threats to the economic function of labor. This function, pointing to the fundamental role of employment, which is providing added value for the employer and remuneration for the employee, acquired a new meaning with the digitization of the labor market. Therefore, in the digitization era, it seems justified to assess the impact of remote communication on labor productivity (in terms of organizational, cost and work quality factors).

The subject of the study is analysis of remote work productivity factors (based on work performed under permanent and short-term employment, including various work models and its irregular patterns). The main objective of the research is to assess ranking of the productivity factors, to verify their direction and the strength of the potential impact on productivity. The methodology used in the study is based on the analysis of the literature and conclusions conducted from the survey in Poland, the Czech Republic and Hungary (sample in total: 400-450 units). The obtained results is analyzed in terms of answers to the following questions: Which of the organizational, quality and cost factors cause changes to productivity? What is their characteristic? Which factors have relatively the greatest impact on productivity and why? Is the type of remote work (permanent contract, short-term employment) be relevant for the level of productivity? In statistical analysis will be used probit regression which measures the relationship between the strength of a stimulus and the percentage of cases showing a specific response to the stimulus.

The research results may be valuable for the management and organization of employees and enterprises. They can also be a component of wider scientific research. Authors consider the obtained results valuable for scientists involved in research on the organization and management of labor resources for better generation of added value gained from their remote work.

Key words: remote work, productivity, work digitization, labor mobility, organization
JEL codes: D24, E24, J01, J24, J62, J81, O32, O47

SECTION 2: FINANCE

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THE IMPACT OF THE COVID-19 PANDEMIC ON THE FINANCIALIZATION PROCESS IN THE EUROPE

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The phenomenon of financialization, which results in an increase the role of the financial sector in generating domestic income, concerns most economies of the world. Nevertheless, the structure of the financial sector from the perspective of a given country remained unique, influencing in different ways the functioning of government institutions, the sector of non-financial enterprises and households. An interesting area for research in this context is the area of Europe, where most countries are economically linked within the EU and the EMU. The rules of the single market and the common monetary policy, in theory, should favor the existence of significant similarities between national financial systems. However, the results of the studies conducted so far contradict this (Woźniak & Andrzejczak, 2020).

The analysis of the balance of payments of European countries (Śliwiński & Andrzejczak, 2019) suggests that it is possible to identify different paths of the financialization process: for Central and Eastern Europe, for the Eurozone countries, broken down into "center" and "peripheral" countries. The different course of the financialization process in individual countries raises the question of the existence of "stages" of this process (Fasianos, Guevara & Pierros, 2016) and the role of structure of the national financial system and its links with the "stages" of the financialization process.

This problem is of particular importance in the context of the crisis caused by the Covid-19 pandemic and the surge in borrowing needs of governments to mitigate the effects of the crisis, in which the financial system plays a key role. The main objective of the study is to identify the stages of the financialization process in Europe and its effects and changes in this area caused by the Covid-19 pandemic. The partial goal is to define the relationship between the successive stages of financialization and the structure of the national financial system. The study is based on an analysis of secondary data obtained from Eurostat, statistical offices, central banks IMF, BIS, WB.

Key words: financialization, financial system, European Union, Covid-19 pandemic
JEL codes: E44, F36, F65, G15

ANDRZEJCZAK MONIKA

THE COVID-19 PANDEMIC AND THE NEW PATTERNS OF THE GLOBAL IMBALANCE?

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Global imbalances are usually viewed through the prism of current account imbalances and net international investment position. This imbalance has been growing in recent decades, leading to a deepening of the disproportions between countries in the terms of national income and the standard of living of the inhabitants. Conflicts between deficit and surplus countries are intensifying, there are pressures to introduce restrictions in the area of financial account transactions.

This phenomenon is of particular importance in the context of the Covid-19 pandemic, which, according to the World Bank (2021), undermined the strategies adopted by countries aimed at economic growth. The pandemic phase is not over yet, but we already have data from the first year of its duration. Preliminary results of research on changes in the balance of payments in EU countries in the initial stage of the pandemic (Andrzejczak, 2021), indicate the possibility of changes in the current directions of cross-border flows. Possible changes in this respect are of key importance in shaping the "new imbalance", which may result in the accumulation of new or mitigation of existing areas of conflicts between countries and disproportions in the levels of GDP *per capita* on a global scale. The situation is complicated by the fact that according to the WTO (2019) more than two-thirds of world trade takes place through global value chains, where production usually crosses several borders before final assembly - we are not dealing with bilateral exchange.

The aim of the article is to investigate the impact of the Covid-19 pandemic on the phenomenon of global imbalance understood as an imbalance of the current account balance and the net international investment position. The partial goal is to compare the scale of imbalances occurring during the pandemic with the period of the global financial crisis (2008-09), often compared with the current crisis (WB, 2021). Research framework: 1. Review of the literature on global imbalance; 2. The occurrence of imbalances understood as current account surpluses and deficits and the net international investment position in the periods of the global financial crisis and the Covid-19 pandemic; 3. Indication of differences / similarities in the course of phenomena; 4. Conclusions. Research methodology: statistical analysis of secondary data from the WB, IMF, BIS databases.

Key words: global imbalance, Covid-19 pandemic, current account, international investment position
JEL codes: F16, F21, F43, F63

BĘDOWSKA-SÓJKA BARBARA, KLIBER AGATA, RUTKOWSKA ALEKSANDRA

IS BITCOIN STILL A KING? ANALYSIS OF THE LEAD-LAG RELATIONSHIPS BETWEEN VOLATILITY AND LIQUIDITY OF CRYPTOCURRENCIES DURING THE PANDEMIC

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In the article, we analyse the lead-lag relationships between Bitcoin and other most liquid cryptocurrencies before and during the pandemic. We analyse transfer entropy between volatility and liquidity of the cryptocurrencies to determine the leadership of one of them. As a robustness check, we employ dynamic time warping algorithm (DTW).

Key words: cryptocurrencies, bitcoin, volatility, liquidity, transfer entropy, dynamic time warping
JEL codes: G10, G23

CAKICI NUSRET, ZAREMBA ADAM

CHRONOLOGICAL RETURN ORDERING AND THE CROSS-SECTION OF INTERNATIONAL STOCK RETURNS

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Investors often focus their attention on recent information only, underestimating the relevance of information from the distant past. In consequence, the ordering of historical returns robustly predicts future stock performance in the cross-section. Using data from 49 countries, we comprehensively examine this anomaly within international markets. A value-weighted spread portfolio of global stocks that is formed on chrono-logical return ordering earns 0.91% per month.

The effect is distinctly robust and prevails among the biggest and most liquid companies. The mispricing is particularly strong in countries that are characterized by high individualism and shareholder protection. Furthermore, the return predictability is concentrated following down markets and periods of excessive volatility.

Key words: chronological return ordering, recency bias, the cross-section of stock returns, asset pricing, return predictability, international markets.
JEL codes: G11, G12, G14, G15

IWAŃCZUK-KALISKA ANNA, KACZMAREK MIROSŁAWA, KOTLIŃSKI GRZEGORZ

NON-CASH RETAIL PAYMENTS IN THE COUNTRY AND SELECTED BANKS DURING THE COVID-19 PANDEMIC – THE CASE OF POLAND

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The main aim of the research is to make a comprehensive diagnosis of the changes that took place on the market of cashless payments in Poland during the COVID-19 pandemic. The detailed objectives include: (1) Diagnosis of changes in the use of selected types (forms) of non-cash payments during the COVID-19 pandemic compared to the pre-pandemic period in Poland; (2) Calculation and analysis of the value of non-cash payment indicators; (3) Segmentation of banks based on selected non-cash payment indicators.

To achieve the objective of the research the secondary data available in the financial portals in the form of time series (quarterly data) will be used. The analysis of the changes in the non-cash payments market during the COVID-19 pandemic will be carried out on the basis of several variables, including for example: number of users of online banking, number of mobile banking users, number of debit cards, number of Google Pay payments, number of Apple Pay payments. Dynamic indexes will be designated for the indicated variables. In the next step, these variables will be used to create non-cash payment indicators and then these indicators will be used to segment banks by the k-means method.

Analysis of time series in the form of quarterly data will allow to determine the dynamics of changes in the market for non-cash payments before and during the COVID-19 pandemic and to draw conclusions on this basis with regard to the scale of changes that have taken place in the development of non-cash payments taking into account the different types(s) of these payments. Bank segmentation, on the other hand, will identify similarities and differences between banks in non-cash payments due to specific payment types (forms).

The novelty of the paper lies in identifying non-cash payment indicators and conducting a comprehensive, multidimensional analysis of changes in the market for non-cash payments in Poland before and during the pandemic.

KAVVADIA HELEN

RESTRICTIVE OR EXPANSIVE. EIB'S CHALLENGE TO EQUIPOISE CLIMATE FINANCE WITH POST-PANDEMIC BOOST

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Unique among EU economic governance entities and multilateral banks to dispose a dual nature, as an EU body, and a bank, the European Investment Bank's activity has been ever shifting to adapt to both policy and market developments and reflect the geo-economic landscape. In 2019, in association with the European Union's Green Deal, the bank announced its metamorphosis to a 'Climate Bank', ending its fossil fuel lending after 2021. Upon the outbreak of the COVID-19 health and economy crisis, the bank has been solicitated by the EU decision-makers to support both urgent needs for tackling and countering the spreading of the disease, as well as the post-pandemic economic recovery. Devastated economic actors in need of assistance, fall, nevertheless, within a wide range of sectors, including some less green.

The paper investigates the EIB in interaction with its main stakeholders, in pursuing these two seemingly contradictory objectives of exclusively restricting its activity in green funding, as well as expanding its action for achieving a broad impact in the real economy. The paper analyses a stakeholder governance framework and analyses what are the stances of the EIB's major stakeholders and how they will influence the bank's future activity n view of the climate/restrictive versus countercyclical/expansive dilemma. The paper argues that by prioritizing the post-COVID restart, the EIB will justify its deviation from the strict green commitment, which has been decided on political rather than business grounds, as shown by the bank's past business metrics.

Key words: Regional Development Banks, European Investment Bank, Climate Finance, EU Governance and Sustainability, Post-COVID-pandemic recovery
JEL codes: L39, D29

KROPIŃSKI PAWEŁ, ANHOLCER MARCIN

HOW GOOGLE TRENDS CAN IMPROVE MARKET PREDICTIONS – THE CASE OF THE WARSAW STOCK EXCHANGE

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Optimizing the investment strategies in financial markets is one of the most difficult problems faced by science primarily because of the complexity and entanglement of influencing factors. Gathering information, entertainment, shopping and many other social activities are done by the use of digital devices now intensified because of the worldwide lockdowns and social distancing protocols. We may no longer ignore the growing significance of the digital footprint that we leave and the vast amount of data that it contains. Knowledge of our digital footprint is already successfully used as social media has become a vital marketing channel for business, organizations and institutions alike (Appel et al., 2020) while successful attempts have been made to use social media sentiment in searching for better stock returns (Duz Tan & Tas, 2020).

The project aims to quantify trading behavior using Google Trends for Polish Stock Market. There are several goals that we are trying to achieve. The first one is to identify validity of trading strategy based on research paper by Preis, Moat and Stanley (2013) and the second is to modify choice of words as per uncertainty index for polish market (Hołda, 2019). The hypothesis is that the modified trading strategy based on word selection as per Baker et al. (2016) will improve trading strategy proposed by Preis et al in their original paper from 2013.

Based on the work of Herbert Simon (1955) we assume that the decision making process begins with gathering information. More or less successful attempts have been made in the use of information gathering through Google Trend to predict the direction of the price formation for financial markets. Google Trend proved to be invaluable in predicting price dynamics for BitCoin (Kristoufek, 2013). There are studies in which data from search engines have been successfully used as a research on the financial market and with the use of econometric data. Publications such as Preis et al. (2013) or Huang et al. (2019) support the thesis that Google searches can significantly improve the profitability of proposed investment strategies compared to the buy-and-hold strategy.

Key words: financial markets, investment optimization, web resources analysis
JEL codes: G11, G17

LIZIŃSKA JOANNA, KUBIAK JAROSŁAW, CZAPNIEWSKI LESZEK

VALUE MIGRATION IN THE NEW ECONOMY

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The main determinants of the new economy, which are knowledge, computerization and globalization, significantly affect the process of creating and measuring the value of a company. Currently, there is a gap in research on migration processes involving companies operating in the economy based on new technologies. The new logic of running a business also affects the income-risk relationship in many ways. The new economy determines the need to take into account changes in risk factors in the process of creating corporate value.

The main objective of this research is to assess the migration of value to sectors based on new technologies and to determine the diversity of risk factors in the process of creating value by digital economy companies.

The research applies the approach of Slywotzki (1996) concerning the migration of values. In particular, the concept of a synthetic index of value migration is used (Siudak 2000, 2013). The algorithm based on the method of linear ordering enables classification into particular development phases, that reflect their potential of value creation. Research also deals with the problem of risk factors influencing the rate of return. We discuss the capital asset pricing models proposed in the literature to catch the transformation of risk changes that are observed in the new economy (Sharpe 1964; Lintner 1969; Fama, French 1993, 2015; Carhart 1997). This empirical research contributes to the area of finance. In particular, the research results help to discuss the changes that are happening in the digital economy in the area of value and risk of market entities. In our research, we measure the phenomenon of value migration for technology companies and the so-called traditional enterprises. Risk factors specific to the new economy have been also defined and discussed. The differentiation of risk factors in models of capital asset pricing in the conditions of the new economy is analysed.

Both the academic world, the regulatory sphere as well as investors and other participants of the capital market face the challenge of dynamic changes of risk factors related to shifts taking place within the value migration. Hence, the results of the research are important from the point of view of the functioning of the economy.

Key words: value migration, risk factors, new economy
JEL codes: F65, G12, G32, O16, O57

ŁĘT BLANKA, SOBAŃSKI KONRAD, WŁOSIK KATARZYNA, ŚWIDER WOJCIECH

WHAT DRIVES POPULARITY OF STABLECOINS? MEASURING THE FREQUENCY DYNAMICS OF CONNECTEDNESS BETWEEN VOLATILE AND STABLE CRYPTOCURRENCIES

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The aim of this paper is to measure the spillover effect between traditional cryptocurrencies and stablecoins. The term 'stablecoin' is referred to a cryptocurrency that is pegged to the value of an underlying asset, e.g. the US dollar or the euro, precious metals, or is based on a combination of algorithms. One of the reasons for an immense increase in stablecoins' popularity in recent years is the relatively small volatility of their prices as compared to the enormous dynamics of traditional cryptocurrencies. The co-occurrence of a large stablecoin supply and price fluctuations of traditional cryptocurrencies indicates that stablecoins are used as a safe haven by investors. Baur and Hoang (2021) underline that the safe haven properties of stablecoins against bitcoin should strengthen with decreasing return frequencies, since investors may react to extreme changes with a delay or only after large hourly or daily losses have occurred. Hence, the connectedness between volatile and stable cryptocurrency may be different for a broad spectrum of time horizons considered.

This paper employs a relatively novel approach developed by Baruník and Křehlík (2018) to analyse the frequency dynamics of connectedness between volatile and stable cryptocurrencies. Using spectral representation of variance decomposition, the paper measures how strong is the spillover and causal effect for different frequencies and whether the cryptocurrency market processes information rapidly or slowly. The results of the analysis help to deepen understanding of the cryptocurrency market which is still evolving and maturing. They might be also useful for investors as interdependencies between stable and volatile cryptocurrencies, uncovered and presented in the paper, might be useful in portfolio management.

Key words: cryptocurrency, stablecoin, frequency dynamics
JEL codes: F31, G10, G11, G15

MARCHEWKA-BARTKOWIAK KAMILLA, WIŚNIEWSKI MARCIN

CLIMATE-ALIGNED TOKENS AS INSTRUMENTS OF CLIMATE CHANGE FINANCING AND INVESTMENT – THE CASE OF ENERGY TOKENS

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The intensive evolutionary processes, based on the so called Economy (including Finance) 4.0, led to the development of numerous application functions of digital tokens. The growing role of Tokenomics in the world of finance stirred interest in them within financial institutions, regulators and supervisors. Tokens as financial innovations, called cryptoassets, emerged alongside the blockchain technology (or the more broadly applied concept of 'distributed ledger technology' – DLT). At present, numerous analyses are being carried out into the ever emerging new types of digital tokens and the process of tokenization as the procedure for their creation (or issuance) in the context of the application scope, safety and the regulatory function.

In recent years, tokenization has also found application in the field of organizing and financing climate change policy. The aim of the article is to identify the factors of climate, green and energy tokens application, indicate the mechanism of their implementation based on blockchain technology and formulate a proposal for further development of this branch of the token economy.

A review of the indicated types of tokens listed on the market will be made in order to identify the technical solutions used and the subject of tokenization. Moreover, the authors will evaluate the investment attractiveness of tokens from the point of view of the effectiveness measures applied to ordinary financial instruments. Thanks to this, it will be possible to compere tokens with traditional financial instruments, e.g. stocks due to identify the presence of the green premium.

Key words: tokens, tokenization, climate, sustainable development, investment efficiency
JEL codes: G11, G12, O13, Q54

MARSZAŁEK PAWEŁ

DREAMS OF GOLD. IS RETURN TO COMMODITY MONEY POSSIBLE?

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Problems with the functioning of contemporary monetary systems based on fiat money (especially their alleged instability, often mentioned in the literature), make it possible to consider new, potential solutions to ensure stability in the monetary sphere. The offered solutions often take the form of a kind of revolution, while in other cases they are rather associated with the evolution of individual elements of monetary systems. In the first context, the most frequently proposed change is the transition to a cashless economy and basing of the monetary system on some form of digital money – issued either by central banks or by private issuers. This solution, however, raises a lot of controversy, especially regarding the "moneyness" of digital currencies and a significant, institutional and mental changes that such a change would cause.

As opposed to the complete dematerialisation of money, there are ideas related to a kind of return to the past, namely the restoration – even if only partially – of commodity money. In this context, most often is considered the re-linking of money with gold, as the traditional and for many still the most perfect form of money.

The aim of the study is to characterize selected contemporary ideas and concepts of return to commodity money and to assess to what extent such a step would be possible and justified. This issue, unlike the cryptocurrency and digital money issues, is relatively rarely discussed in scientific discussions. Nevertheless, despite the many barriers to such a solution described in the article, it is worth considering whether the sentiment towards the metal can translate into a new shape of monetary systems.

Key words: money, monetary system, commodity money, gold, denationalization of money
JEL codes: E42, E51, F33

MICU RALUCA

EMPIRICAL EVIDENCE ON THE RELATION BETWEEN CORPORATE GOVERNANCE AND THE PERFORMANCE OF CREDIT INSTITUTIONS FROM CENTRAL AND EASTERN EUROPE

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Good corporate governance is considered an important element for financial institutions, as it is supposed to help them achieve their financial and social objectives, while also being an effective tool for regulators and supervisors. The paper analyzes the relationship between corporate governance and the performance of credit institutions in Central and Eastern Europe, using a panel data set on 29 credit institutions from 9 countries (Romania, Austria, Hungary, Bulgaria, Czech Republic, Poland, Croatia, Slovakia and Slovenia), for the period 2010-2019.

The study focused on the link between the governance elements related to the management structure and the internal control mechanisms of credit institutions and their performance measured by the return on assets and capital. At the same time, we included in the analysis control variables specific to credit institutions, starting from the idea that regulatory factors are important moderators of the governance mechanism of banks.

The results obtained showed a positive relationship between the size of the audit committee, respectively the number of non-executive committees and the performance of credit institutions, thus showing that the existence of adequate internal control mechanisms contributes to a better performance of financial institutions. The results also support previous theories about the negative relation between board size and performance, highlighting the need for governance structures that allow for good communication and coordination for decision-making and increasing the performance of financial institutions. The "Least Squares Method" was applied, the results obtained being validated by the "Generalized Method of Moments", but also when time effects were considered. The research findings are important for both shareholders and supervisors, as the way banks perform affects economic progress and has important implications for society. The study complement the academic literature with information on the Eastern and Central European banking sector and the importance of the corporate governance for the financial markets, the studies performed excluding from analysis this market. In addition, the research reflects on credit institutions from countries that have switched from a communist to a democratic regime in approximately the same period.

Key words: corporate governance, performance, credit institutions
JEL codes: G3, G01, G34, G30, G38

NISZCZOTA PAWEŁ, KASZÁS DÁNIEL

ALGORITHM-MEDIATED INVESTMENT MISTAKES

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The increasing amount of information on public companies makes it more difficult for an investment management team composed solely of humans to process all of it diligently. Thus, it becomes increasingly necessary to delegate part of the research process to algorithms. We know – from extant research – that people exhibit an aversion towards algorithms after seeing that they make errors. It is less clear, however, how they will perceive erring humans that are guided by algorithms.

In this study, we are specifically interested in how people will perceive mistakes made by quantitative, well-intentioned investment funds. An example of such a mistake would be to short-sell a company that the investment fund believes is engaged in fraud, based on research harvested by algorithms. Such a 'robo-discovery' will be beneficial to society if the algorithms are right. However, if the algorithms (and the humans that decide to 'pull the trigger') are wrong, the company may undeservedly suffer from bad publicity, which can result in several adversities (loss of sales, an increased cost of capital while being under allegation etc.).

We will use an experiment, in which participants will be randomly allocated either to a scenario where all research is conducted by a human management team, or via a hybrid team, where algorithms make recommendations and humans act on them. Participants will rate how much responsibility the investment fund will have for the adverse outcomes, somewhat mirroring scenarios where a human driver supervises a semi-autonomous vehicle (and takes a great deal of responsibility for an accident). This research will help us better understand the tradeoffs between technological progress and prospective societal harm.

This is ongoing research – the findings will be presented at the conference.

Key words: investment funds, short-selling, algorithm aversion, robo-advice, decision making
JEL codes: G11, G24, G41

PEREZ KATARZYNA, VAN HORNE RICHARD, SZYMCZYK ŁUKASZ
PREDICTING DISTRESS IN US HIGH YIELD MUTUAL FUNDS DURING COVID-19 PANDEMIC

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Potential liquidity risk in the underlying portfolios of US high yield mutual funds can be successfully identified with the use of lagged effects and serial correlation models (Van Horne, 2016). The results of such a liquidity risk analysis could be used by the analyst to identify ahead of time funds that may be of heightened risk of potential liquidity problems. The analyst could then navigate away from the higher risk funds identified by these models, towards funds with similar investment characteristics but lower liquidity risk (Pástor et al., 2020). In March 2020, when the US financial markets were in the grip of the Covid-19 crisis, the Fed instituted various policies and programs to alleviate stress in financial markets. One such program involved Fed purchase of securities and ETFs in certain market segments, including high yield bonds. This buying action inspired investors to join the Fed (or front-run the Fed) in the high yield bond market, resulting in tightening of spreads in that market to historically tight levels, persisting even to today (June 28, 2021).

In this research, based on data on US mutual funds from Morningstar Direct database, we apply the lagged effects model as well a serial correlation model with an AR(1) process (Bai et al., 2021), to measure two proxies for liquidity risk for each US high yield mutual fund in our fund universe, in order to identify funds at particular risk for portfolio illiquidity since the beginning of Covid-19 pandemic. We also examine the relationship between fund liquidity risk measures and fund return, controlling for interest rate risk and credit risk. Theoretically funds with heightened liquidity risk have higher historical returns (adjusted for interest rate risk and credit risk) because borne risk requires return as compensation. But because of the unusual market conditions during Covid-19 pandemic we expect to find that investors look inside funds (to see what bonds the funds own) and then avoid funds with holdings known to be less liquid, and exhibit this behavior especially in times of market stress. To the best of our knowledge this is the one of the first attempts to analyze liquidity risk in mutual funds during ongoing pandemic in the literature. We hope our results will be informative for the potential mutual fund investors and mutual funds themselves, not only the US ones.

Key words: G12, G23
JEL codes: high yield mutual funds, liquidity risk, portfolio liquidity, Covid-19 pandemic

PEREZ KATARZYNA, BARTKOWIAK MARCIN, KACZMAREK TOMASZ

HUNTING MUTUAL FUNDS ALPHA WITH NEURAL NETWORKS

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Performance predictability is one of the key elements of decision making process of every investor. By utilizing machine learning techniques this process is nowadays much more precise, especially on equity markets (Leippold et al., 2020; Gu et al., 2020; Tobek & Hronec, 2020) or bond markets (Bali et al., 2020; Bianchi et al., 2021) where neural networks overperform both linear regressions and traditional ML tools. On mutual fund markets traditional linear models are still dominant and used to find mutual fund performance persistence rather than its predictability (Grinblatt and Titman, 1992; Hendricks et al, 1993; Brown and Goetzmann, 1995; Carhart, 1997; Elton et. al 1996; Cremers and Petajisto, 2009; Glode, 2011; Kosowski, 2011; Kacperczyk et al., 2014 or Dumitrescu and Gil-Bazo, 2018). However DeMiguel et. al (2021) present that even basic ML tools can be successful in predicting active fund alpha. In this study we extend this approach, challenge commonly utilized linear models and study the quality of mutual fund return forecasts made with the use of neural networks. Such forecasts are of huge added value to an investor who must pick winning funds in order to gain with his investment portfolio.

Our results are based on the expanded set of historical operating characteristics of mutual funds registered in European countries provided by Morningstar Direct in 2000-2020. We test multilayer feed forward neural nets that are the most successful in equity empirical asset pricing (Gu et al., 2020b; Leippold et al., 2020; Tobek & Hronec, 2020). We expect to find that neural networks outperform the traditional ML tools and linear regression analysis in the forecast of mutual fund performance by roughly 40-50%. This is especially true for value funds, but also not rare in case of less volatile funds (especially the hybrid ones). Our study is in line with the previous research on that topic (DeMiguel et al., 2021; Indro et all 1999; Wang and Huang, 2010; Han et al., 2018) but it extends it with different mutual fund types from different European markets as well as different machine learning methods tested. To the best of our knowledge this is the first study that looks at the European mutual fund performance prediction in such a complex way.

Key words: G12, G14, G23, C45
JEL codes: mutual fund performance, performance predictability, neural networks

SCHMIDT-JESSA KATARZYNA

THE IMPACT OF COVID-19 ON THE DIGITAL-ONLY BANKS – WINNERS OR LOSERS?

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The main objective of the paper is to determine the impact of COVID-19 pandemic on the operations of digital-only banks. In order to achieve the main objective, two methods have been used, the first method is a strategic analysis of the new banking model of digital-only banks and the second method is a financial analysis of the digital-only banks divided into two sub-periods, that is, before the emergence of COVID-19 pandemic (2018-2019) and during the coronavirus pandemic (2020). The research sample included seven digital-only banks from different economies such as UK, South Korea, Germany, China, Norway.

The thesis postulated at the beginning of the pandemic, that digital-only banks have a competitive advantage in times of pandemic, has not been completely confirmed in practice. The strategic analysis of digital-only banks has shown that they have many weaknesses, as well as they face numerous threats, which are due to the age of fintech banks and competition from traditional banks creating mobile banks. Preliminary analyses conducted for digital-only banks indicate that most of them generated losses and these losses were already at the operating level. The main sources of costs were staff and administration costs. The return on assets and return on equity ratios showed a slight improvement in 2020, and in most cases the interest income generated was higher than the interest expenses. However, the presented results are only preliminary and they will be expanded as banks complete their data.

To the best of the authors' knowledge, the presented paper is the first to attempt to assess the impact of the coronavirus pandemic on digital-only banks. Given the nature of the crisis, as well as the specifics of the business model created by digital-only banks, the need to analyze the indicated phenomenon seems essential, and the results obtained will allow a better understanding of the changes occurring in the banking sector around the world.

Numerous limitations were encountered during the study, mainly related to the short time series and the small research sample. The coronavirus pandemic is still ongoing; therefore, the full implications and impact of the pandemic can only be assessed in a few years. In addition, digital-only banks are relatively young institutions that are in the early stages of development, which affects the financial results they receive.

Key words: digital-only banks, mobile banks, fintech, COVID-19, pandemic
JEL codes: G21, O10, O33

ÜLGEN FARUK, KLAPKIV LYUBOV,

AN EVOLUTIONARY PERSPECTIVE ON THE ENDOGENOUS INSTABILITY OF CAPITALIST DYNAMICS

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This article examines the financial dynamics of the 21st century market economies with regard to the systemically relevant conditions for macro-stability. In light of the 2007-2008 crisis, it liberally draws upon Schumpeter's and Minsky's analyses of the weaknesses of loose financial regulation and places the focus on financial innovations as sources of systemic concerns. It develops two core hypotheses: a capitalist economy is a monetary and non-ergodic evolutionary system that develops through continuous entrepreneurial innovations along with financial innovations, and such a system cannot be studied as a steady-state equilibrium but rather as a dynamic and unstable economy whose working mechanics endogenously generate recurrent financial crises and require specific system-wide regulation.

From an institutionalist and evolutionary perspective, the dynamics of capitalism are contingent on monetary and financial features and related innovations. The micro-dynamics of innovations may result both in creative and destructive outcomes due to crisis-prone financial markets and dissonant individual behaviour. There are some crucial differences between entrepreneurial innovations à la Schumpeter as the force of positive economic development, and financial innovations à la Minsky as the source of instabilities. The article puts forward weaknesses and inconsistencies of unregulated markets and suggests a few principles for relevant financial regulation in an endogenously unstable monetary economy. Financial stability is a public good to be provided by a visible public hand, macroprudential regulation and supervision. The study of the conditions of systemic financial stability proves to be a matter of a specific social dilemma that concerns the organisation and management of financial markets according to a given regulatory framework. The ultimate issue is to allow market innovation dynamics and systemic financial stability and viability to be compatible with each other through a relevant regulation and supervision environment. The latter should be framed to tame the tendency of financial markets to generate systemic crises instead of supporting productive innovative activities.

This article is related to a larger research project about the financial instability of a market economy and the relevant regulatory answers to systemic financial crises. This project, that mainly draws from evolutionary and institutionalist economics, considers different facets of the financial instability issue, in relation with the financial conglomerates, the insurance market evolution and systemic concerns that it might generate, the general assessment of the after-2007-08 crisis regulatory reforms in advanced and emerging market economies, and the characteristics of financial innovations and their systemic effects on economic evolution.

WASZKIEWICZ ANETA

CROWDFUNDING VS. COVID 19. IMPACT OF THE CORONAVIRUS PANDEMIC ON THE DEVELOPMENT OF CROWDFUNDING IN POLAND

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Crowdfunding appeared in response to the 2008 crisis, and the current time of the COVID19 pandemic once again forces the verification of the existing approach to financing the SME sector. Government aid to enterprises is insufficient, and, as shown by preliminary studies in the USA (Saleh et al.,2020) and on the European market (Farhoud et al., 2020), crowdfunding is a quick and positive response to the problems of the SME sector during pandemic crisis.

Crowdfunding is indicated as a source of capital for the SME sector, filling the financing gap from the credit sector and government spending, but also as a tool to support innovation and entrepreneurship in the post-pandemic space (Deschryyere et al., 2020). Therefore, taking into account the liquidity needs of this SME sector (OECD, 2020) and regulatory changes on the CF market (Dz. U. UE, 2020), it is necessary to analyze the development of crowdfunding as a response to the COVID19 crisis and indicate barriers and ways to overcome them. This study aims to characterize the early raising of funds related to COVID-19 on Polish crowdfunding platforms, both in the equity and reward crowdfunding models.

The research includes a literature review and a preliminary bibliometric analysis showed a significant research gap regarding the impact of COVID19 on the crowdfunding market. Statistical analyzes for active crowdfunding platforms in Poland (equity and reword models) and interviews with experts are intended to indicate the opportunities and barriers to the development of crowdfunding as a result of Covid 19 from the company's point of view. The study is part of the ongoing debate on how to support companies in the liquidity crisis caused by COVID19, but also contributes to in-depth analyzes of changes in business models as part of the implementation of digital solutions.

Key words: crowdfunding, reward, equity, Covid-19, enterprises
JEL codes: D26, G2, G23, L26, O30

SECTION 3: MANAGEMENT

ANKIEL MAGDALENA, MICHALAK SZYMON, OLEJNICZAK TOMASZ

COVID-19 PANDEMIC AND THE USE OF MOBILE APPS TO PURCHASE / SALE SECOND - HAND CLOTHES

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With the emergence of digital era the concept of sharing economy has received much attention from scholars. This phenomenon has been changing the consumption system for more than a decade. Through mobile peer-to-peer (P2P) applications individuals are able to purchase, sale or exchange underutilized resources. The outbreak of Covid-19 pandemic has led to shifts in consumer behaviour and reshaped the sharing economy.

The main purpose of the article is to identify the impact of the Covid-19 pandemic on the use of mobile applications enabling the use of the sharing economy on the example of the purchase / sale of second – hand clothes by consumer segments in Poland. The article identifies the motives and barriers related to the pandemic, which stimulated and destimulated the use of mobile applications from the point of view buyers of second – hand clothes.

The article is based on a survey conducted among 300 respondents from medium and large cities in Poland. The research tool was an internet questionnaire. The authors' main achievement is to determine whether and to what extent the Covid-19 pandemic influenced the use or termination of mobile applications dedicated to sharing economy services.

Key words: sharing economy, second – hand clothes, mobile applications, consumer behaviour, Covid-19
JEL codes: M30, O30

BONSÓN ENRIQUE, PEREA DAVID, CRUZ VICTORIA

THE EFFECTS OF COVID-19 ON EMPLOYMENT: EVIDENCE IN THE DISCOURSE OF WESTERN EUROPEAN COMPANIES

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The COVID-19 pandemic is having a drastic impact on all aspects of society around the world. Companies have been suddenly affected by a health crisis that has led to fundamental changes in the jobs and in the way of working. In addition to an economic impact, which is still difficult to determine with so little time-space that it provides a greater perspective.

The objective of this research is to study the discourse related to the effects of COVID on the jobs and employees of the main companies in Western Europe. The sample used for the analysis is the annual/sustainability reports corresponding to the year 2020 of 336 companies belonging to the stock exchanges of the 13 countries of Western Europe. All of them were a total of 409 documents. All PDF documents were downloaded from the companies' websites. Later, through software open-source R, the sentences that match a pattern were automatically extracted from the text. This pattern is a dictionary made up of a combination of two ngrams (bigrams). The dictionary is made up of keywords (COVID, coronavirus and pandemic) and associated words (employ). At least one of the words in each group must appear in the sentence regardless of their order for the sentence to be selected.In this way, sentences related to the effects of the coronavirus pandemic on jobs are automatically obtained. From this analysis, the following findings have been obtained.

In addition to using an employment dictionary, a financial dictionary has been applied. Its associated words are revenue, profit and losses. 2301 financial sentences related to COVID have been obtained, while the sentences on employment related to COVID have been 3230. Besides, 86.31% of the analyzed companies disclose the effects of COVID in aspects of employment, while 60, 71% of companies disclose financial issues.Focusing on the disclosure of labor issues, linear regression is performed to study the determining factors that a company discloses more or less about COVID in relation to employment. The data obtained reflects that there is a significant relationship between the variables contagion rate and company size (measured by the revenue logarithm), while there is no relationship with the sectors. Regarding the content of the sentences about COVID related to employment, a frequency analysis of bigrams has been used.

The results obtained say that the most frequent words are those related to the safety of employees, both health and labor, and to remote working. In short, we can conclude that attention for workers prevails over financial concern and that this concern for employees is greater in large companies and in companies located in countries where the contagion rate is higher, without difference between industrial sectors. They care about the safety of the employees and the maintenance of their jobs and discuss the new way of working, remotely from home.

Key words: automated text extraction, content analysis, COVID, employ, financials, text mining.
JEL codes: O33, O35

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BUILDING RESILIENT SUPPLY CHAINS USING 4.0 TECHNOLOGY

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The aim of this research was to diagnose which dimensions of activities make up the building of resilient chains as well as, assess the current state of research according to the models and methods used, and in terms of embedding them in research areas. During the analysis, the relationship of individual 4.0 technologies with resistant chains was also indicated. Among other things, the research involved maps showing areas where the studies were popular that were made with the jVectorMap library, which uses only native browser technologies such as JavaScript, CSS, HTML, SVG, or VML. An open semantic database (Wikidata), containing information about more than 93 million different items, was also used.

The study found, among other things, that the greatest potential for creating resistant chains lies in IoT, but the combination of this technology with others gives a greater synergy effect. IoT facilitates visibility, flexibility, collaboration, and control, i.e., it enables the development of attributes characteristic of resilient chains. Additionally, further investigation showed that the type of chain determines the validity of using particular technologies.

The core articles were primarily embedded in disciplines such as Computer Science, Engineering. It can be said that the knowledge gained from basic articles, which are often technological, is an inspiration for the creation of works of environmental and social nature.

Key words: resilient supply chain, logistics, technology 4.0, industry 4.0
JEL codes: 014, D81, L91

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RESEARCH PERSPECTIVES ON THE TRANSFORMATION OF BUSINESS MODELS IN THE ENERGY SECTOR: INDUSTRY 4.0, DIGITAL TRANSFORMATION AND CORPORATE SOCIAL RESPONSIBILITY CONCEPTS

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The global energy sector is undergoing substantial transformations resulting from the impact of legal, technological and managerial conditions. Since the legal and technological conditions are macro in nature, which means that they are the same for all enterprises in the sector, the competitive position and the ability to long-term development of enterprises in the energy sector will be determined in particular by management conditions related to the transformation of business models.The aim of this paper is to synthesize the research directions of the transformation of business models in the energy sector in Poland presented in the literature in relation to the concept of Industry 4.0, digital transformation and Corporate Social Responsibility. The manuscript is theoretical and constitutes the basis for the proposition theoretical framework of research perspectives for analyzing transformation processes of business models of energy sector enterprises.

The paper discusses the characteristics of the concept of Industry 4.0, digital transformation and CSR as conditions for the process of transforming business models in the energy sector. Based on a critical analysis of the literature (i.a. publications in Scopus, Web of Science, JSTOR, Wiley, Emerald), a theoretical framework of research perspectives for analyzing transformation processes of business model of energy sector enterprises was proposed. The energy sector is perceived as a mature and stable sector, and at the same time resistant to technological changes and business environment turbulences. Increasingly, the need to adjust to the assumptions of the Industry 4.0 concept and digitalization is highlighted. Moreover, the analysis of the literature on the subject allows to conclude that the digital transformation affects the level of profitability, productivity and security of energy companies. On the other hand, the operational risk related to energy production, the size of enterprises in the sector, and the level of environmental impact justify the implementation of CSR assumptions.

The contribution of this paper is to deliver theoretical framework of research perspectives for analyzing transformation processes of business model of energy sector enterprises. The research we propose is also an attempt to link business models with the social responsibility of energy sector enterprises, while in the literature these relationships are studied relatively rarely in relation to energy sector enterprises.

Key words: business model transformation, energy sector, Industry 4.0, digitalization, CSR
JEL codes: M14, M21, L99

DYMITROWSKI ADAM, MIELCAREK PAWEŁ

BUSINESS MODEL INNOVATION BASED ON NEW TECHNOLOGIES – RESEARCH RESULTS

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The market environment that companies operate in today is characterized by considerable dynamics. One of the reasons for this is the use of new methods of building a competitive advantage by companies. A method that is gaining more and more recognition, both in the world of business and science, is business model innovation (BMI). This fact applies in particular to BMI based on new technologies, which are a manifestation of disruptive innovation and could completely change the current market architecture.

The aim of conducted research was to determine the impact of BMI based on new technologies on changing market behavior of companies. The change of market behavior of companies was understood as:
a) Changing the existing development strategies,
b) Changing the system of relationships built with various types of entities,
c) Changing the way resources are used,
d) Change in market position.

In order to achieve the specified aim both qualitative and quantitative empirical study was carried out. Conducted study revealed that BMI based on new technologies has a significant impact on companies behavior. The significance refers to the vast scope of influence, reflected in many different aspects of companies activity. Conducted research touches on uncharted area of studies and provides novel knowledge about the role of BMI in nowadays companies activity. Presented results offer an added value to at least three theories, namely: innovation theory, resource based view (RBV) and competitive theory.

Key words: business model innovation, new technologies, company's behavior
JEL codes: D22, O32, O33

FLOREK MAGDALENA, LEWICKI MARCIN

INFLUENCE OF NON-IMMERSIVE FORMS OF VIRTUAL REALITY (niVR) ON ATTITUDES TOWARDS THE DESTINATIONS IN ISOLATION – IN SEARCH OF THEORETICAL FRAMEWORK

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Virtual Reality (VR) has been a research subject since the 90's. Publications from that period were focused mostly on the possibilities of applying this technology in various industries. While the tourism industry was not an exception, it's only recently that a clear increase in publications can be observed in this field as well. One of the objective reasons for this interest is technological progress, which enabled implementation of VR previously being only theoretical construct. Another reason is an unexpected pandemic situation that in a way forced the tourism industry to search for alternative ways to communicate about destination brands, to create distance tourists' experiences or even to offer substitutes for traveling. The uncertainty of the pandemic situation and the change in tourist behaviour as a result of COVID-19 may result in destinations attempting to find new tools for interacting with tourists and influencing their decisions that are not temporary, but can play a permanent role in the way they operate.

Although there is a widespread use of VR in tourism, most publications focus on fully immersive VR solutions. Therefore, there is still a clear cognitive gap in the case of non-immersive forms (niVR). Previous research on non-immersive VR concerned mainly people who were already using VR technology (i.e. there was no research within groups for whom it would be completely new) and their scope was very narrow (i.e. small group sizes, the subject of research limited only to issues related to the promotion of the destination brand and emphasizing the advantages of VR compared to traditional forms of communication etc.). The COVID-19 pandemic appears as a subject of the current research, but primarily as a side topic - the background for ongoing discussions. Meanwhile, these new circumstances might have a significant effect on how people evaluate the niVR tools and how they might influence their attitudes towards destinations.

The main aim of this paper is therefore to build a theoretical framework for non-immersive forms of virtual reality (niVR) in relation to attitudes towards the destinations in isolation. Systematic Literature Review has been used as a method. As a result, a research model based on modified TAM (Technology Acceptance Model) has been proposed, which will be the foundation for planned further research on the subject.

Key words: Virtual Reality, non-immersive VR, destination branding, COVID-19, consumer behaviour
JEL codes: D19, O30, O33, O39, Z32, Z39

GACZEK PIOTR, KOT MATEUSZ

ATTRIBUTION OF INTELLIGENT AGENTS: *MANAGERS' ASYMMETRIC RESPONSES TO SUCCESSFUL ALGORITHMS*

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Intelligent Agents (IA), based on artificial intelligence, are starting to become interlocutors in business interactions across organizations. Their use can lead to many benefits, mainly financial, however, they can also disturb the usual way of doing business. Humans need to adapt to the fact that the other side of their interactions might be artificial, yet still represent an organization with which they do business. This way IA becomes a boundary spanner, an agent acting on behalf of an organization.

In business relationships, trust can occur on two levels – organizational and individual. These are not separate constructs, as both individual and organizational trust influence each other. Satisfying personal needs can be as important for the success of a business relationship, as meeting the organizational goals. Therefore, the use of IA in a business interaction can have an impact on the overall business relationship, as the features of individual interactions with the boundary spanner will affect the interactions and relationship with the organization.

In this paper, we investigate the attribution of success and failure of Intelligent Agents (compared with humans) that are introduced to business relations between two parties. We approach this research problem from a behavioral perspective. Two experiments on managers were conducted to test whether success (failure) of IA is attributed differently compared to humans and how this attribution influences anticipated satisfaction with IA. Using moderation analysis, Experiment 1 showed that business outcome was attributed to internal factors for human agent and to external factors for IA agent (in success condition). We found no difference in failure conditions, suggesting that only the attribution of success is different for IA vs. humans. In Experiment 2, mediation analysis revealed that external attribution of IA's success diminishes anticipated satisfaction with IA and limits willingness to work with such systems.

Key words: IA, AI, artificial intelligence, decision-making, business relationship, attribution
JEL codes: C92, D22, M10

GNUSOWSKI MAREK, ŁAWRYNOWICZ MACIEJ, DURCZAK KRZYSZTOF

RESISTANCE TOWARDS DIGITAL TRANSFORMATION IN LEGAL SERVICES

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Progressing digitalization has changed the foundations of how professional work is practiced and delivered all over the world. Using the law firms in Poland, the aim of the study is to broaden the understanding of how lawyers and law firm managers strategically cope with a technological transformation and how they rationalize resisting or adopting digital solutions.

Mix-method approach was employed to connect deductive and inductive inferential modes in a hermeneutical fashion. Survey data collected among law firms (n=258) were used to analyze the extent of technological pressure on these companies. Ethnographic interviews (n=28) were deployed to understand the character of the resistance and complement the blind spots of deductive reasoning.

Eight different barriers related to the technology design, law firm strategy, and cultural factors were identified to extend the discussion on technological disruption in legal services. The differences among law firms were further analyzed considering their size (large vs small), market specialization (B2B vs B2C), and tenure (newcomers vs long-established).

By contrasting intentions with actions taken to implement digital solutions, this study emphasizes the conservative and risk-aversive attitudes of lawyers as a relevant factor to technological changes.

As this paper provides a broader understanding of technological disruption in legal professions, it may inform different stakeholders. Lawyers, law firm managers, customers of legal services, and legal tech companies may learn about challenges that are likely to be encountered, and some useful recommendations.
This paper complements the prevailing research stream about opportunities of digital innovation in professional services. Adoption of technological change in legal services is an emerging subject that is scarcely informed by empirical research, especially in the context of the resistance towards it. Polish legal services market face unique challenges resulting from recent market liberalization, and has limited applicability of implementation of LegalTech solutions developed in native English, thus providing fruitful field for such an analysis.

Key words: digital transformation, pressure, resistance, lawyers, law firms, legal services, professional services
JEL codes: L14, L21, L22

LEWONIEWSKI WLODZIMIERZ

IDENTIFICATION OF IMPORTANT SOURCES OF INFORMATION ON COVID-19 PANDEMIC IN MULTILINGUAL WIKIPEDIA THROUGH DIFFERENT MONTHS

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Wikipedia is the largest encyclopedia ever created and one of the popular open sources of multilingual information on the Web. This free encyclopedia has over 56 million articles written in over 300 languages. During the first few months of the COVID-19 pandemic, thousands of new Wikipedia articles on this topic were created and updated frequently by thousands of users. These articles are especially popular on Wikipedia from the beginning of 2020 to the present day. The high demand for information regarding the COVID-19 pandemic resulted in a record number of views of these articles - hundreds of millions in a few months. These articles publish the most important statistics from different countries on COVID-19 cases, as well as the most important information about events related to the pandemic in different regions on the world. In order to provide high-quality data, the Wikipedia user community endeavors to ensure that reliable sources are sufficiently represented in the content of articles. So each represented fact in this collaborative encyclopedia can be checked by reader. On the other hand, each language version may define its own criteria of source credibility, therefore information about similar events in Wikipedia may have a different description and references depending on the language. Moreover, these criteria may change over time and therefore the reliability of some sources also changes. Since Wikipedia provides a history of changes to each article, it is possible to see each version of the page at a certain time and track which sources were reliable in those days.

The purpose of this study is to investigate important and reliable sources of information on the COVID-19 pandemic in various Wikipedia languages. For this purpose, articles were identified, thematically related to the subject of research using the Wikipedia category system and the semantic connections of the articles of this encyclopedia with Wikidata and DBpedia. Semantic databases also automatically identified the different wording of the titles of Wikipedia articles related to COVID-19. In order to extract data about sources in Wikipedia articles in different months, proprietary algorithms in the Python programming language were developed, which took into account the complex structure of some articles and used different open data sources to assess the importance of the Wikipedia sources by various models.

Key words: Wikipedia, sources, COVID-19, data quality, reliability, Wikidata, DBpedia
JEL codes: C55, D8, L15, L86

MAŁYS ŁUKASZ

THE IMPACT ON FIRMS' FINANCIAL PERFORMANCE OF THE UTILIZATION

OF ICT IN SUSTAINABLE SUPPLY CHAIN PRACTICES

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The idea of sustainable development is gaining more and more popularity. Sustainable development initiatives may be undertaken by firms independently, as part of their internal activities. However, it is increasingly often indicated that their effective implementation often requires the cooperation, especially within the supply chain. It is suggested that broadly understood communication and information technologies (ICT) can play a large role in reducing costs and increasing the benefits of the implementation of the sustainable development initiatives for business entities. ICT can play a particularly important role in facilitating cooperation on sustainable development between firms in the supply chain. Some studies suggest that improvement of financial performance is one of the key motivators (or desired benefit) for firms to engage in sustainable development.

The aim of the paper is to verify whether the utilization of ICT as a supporting facet in the implementation of sustainable supply chain initiatives has a positive impact on firms' financial performance. The quantitative research was conducted in September 2020 with the use of CATI (Computer-Assisted Telephone Interview) technique and a standardised survey questionnaire. A total of 500 randomly selected companies located in Poland participated in this study. Two indicators of financial performance were used in the study – reduction of costs and increase in revenues resulting from the implementation of sustainable supply chain initiatives. Research results indicate that there are differences in the declared achievement of this two performance indicators between companies which utilize and do not utilize ICT as a supporting facet of sustainable supply chain initiatives.

Key words: sustainable development, sustainable supply chain, ICT
JEL codes: Q01, Q20, Q50, M11, M14

MATYSEK-JĘDRYCH ANNA, MROCZEK-DĄBROWSKA KATARZYNA, KANIA ALEKSANDRA

ADAPTIVE BEHAVIOR TOWARD COVID-19 CRISIS – LOOKING FOR PATTERNS AMONG POLISH COMPANIES

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The analytical study of the Covid-19 crisis should start with the original source, i.e., coronavirus. Many studies have found that population health, as measured by life expectancy, infant and child mortality and maternal mortality, is positively related to economic welfare and growth (Pritchett & Summers, 1996; Bloom & Sachs, 1998; Bhargava et al., 2001; Cuddington et al., 1994; Cuddington & Hancock, 1994; Robalino et al., 2002a; Robalino et al., 2002b; WHO Commission on Macroeconomics and Health, 2001; Haacker, 2004, Arnold et al., 2006; Barro et al., 2020; Correia et al., 2020). There are many channels through which an infectious disease outbreak influences the economy.

The main objective of this paper is to identify and gain an in-depth understanding of the analytics of firms' adaptive behavior in the face of the COVID-19 crisis. As part of the research conducted, the following research hypotheses were formulated: H1: Company's access to financial resources increases company's market penetration, diversification activities and financial risk mitigation; H2: Company's access to human capital increases company's agility ;H3: Company's digitalization level increases company's agility, market penetration, diversification activities and financial risk mitigation, H4: Company's network embeddedness increases company's market penetration, diversification activities and financial risk mitigation, H5: SMEs have higher level of agility and financial market mitigation but lower level of market penetration, and diversification activities than big companies, H6: Private-owned companies have higher level of agility, market penetration, diversification activities than state-owned companies, H7: Companies in non-corporate groups have higher level of agility than companies belonging to corporate groups.

Key words: COVID-19 crisis, pandemic, company's behavior, adaptive behavior
JEL Code: D22, H12

METELSKI ADAM

THE DIGITAL TRANSFORMATION OF FOOTBALL CLUBS BASED ON THE EXAMPLE OF SOCIAL MEDIA

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Digital transformation opens up unprecedented opportunities for the development of the sports industry. The digitization of sport and fan experience can strengthen engagement, build brand value and drive revenue growth. One of the examples of digital transformation is the use of social media by football clubs. Their goal is to arouse interest, attract and maintain relationships with as many fans as possible.

Nowadays, the number of social media followers is a key indicator of a club's popularity, fan base size and commercial appeal, all of which is directly related to the finances of a club. Interestingly social media also act as a set of effective tools to stay in touch with the occasional fan who may have "liked" the club on Facebook or Instagram, but is not quite willing to go to a game, install the club's applications on his or her phone or register on the club's website. This kind of fan is also, or at least could be, an important resource for the club. It is also worth adding that there is a new group of football fans – modern fans, who have been functioning in the digital world since birth, and therefore have their own specific behavior patterns, habits and expectations. They seek access to messages at the time they deem appropriate from the devices they are using at that moment. Therefore, this group of fans require personalized messages sent through various channels – especially social media. Looking also from the perspective of the current situation related to COVID-19, social media are becoming more and more important in the world of sport. In a situation where stadiums are closed or could be only partially filled and there is no possibility of typical contact between clubs and fans, social media has become even more important.

The article presents which football clubs are the most popular on social media today, and on the example of FC Barcelona, Juventus F.C., Paris Saint-Germain F.C. and Ajax Amsterdam shows how the number of followers has changed in last four years. In the analyzed clubs, the highest increase in followers was recorded among Instagram users.

Key words: digital transformation, social media, football clubs, football fans
JEL codes: M30

PALIIENKO TETIANA

CURRENT TRENDS THE INDIVIDUALIZATION OF INNOVATIONS IN THE COVID-19 CIRCUMSTANCES

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Individualization of innovations acquires economic significance in distinguishing and designating manufacturers and their products, on both national and international markets. Means of individualization - objects of intellectual property that serve to distinguish and acquire uniqueness goods, services, enterprises and organizations among many other similar objects on the market. Traditionally, individualization means include trade names, trademarks and geographical indications. However, the issue of rapid development of the intellectual property market in the COVID-19 circumstances requires the creation new types of individualization of innovations, which are an effective tool to enhance the company's reputation, generate additional profits and help attract the attention of buyers.

The presentation of this paper is based on literature studies and the writers' extensive experience, statistical information and data. To examine the questions that were posed, we used the methods of comparison, analytical and statistics as well as graphical and tabular methods (to visualize theoretical and statistical data analysis). The paper will substantiate the current trends of the new types of individualization of innovations caused by the epidemic. These are firstly the domain names and private labels. For example, since the beginning of COVID, the number of private labels has doubled, due to two main factors: firstly, food and nonfood shortages, and secondly, lower purchasing power of consumers. There was also a massive registration by unscrupulous individuals of domain names associated with COVID-19 for the sale of unauthorized medical devices and equipment. Next it will be considered practical recommendations to apply a new type of the individualization to promote innovation products. It is also shown which categories of goods under private labels are the most popular among consumers and analyzed the current state of domain name registration and provided real-life examples of use.

The main conclusion is the modern individualization of innovations as objects of intellectual property do not only improve the identification of economic entities in the market, but also contribute to the receipt of additional income by them in the process of commercialization. The development of e-commerce and the intensification of competition leads to the emergence of new forms the individualization of innovations in the COVID-19 circumstances.

Key words: individualization of innovations, intellectual property rights, domain names, private labels, commercialization of "goodwill".
JEL codes: O34, L81

RÓJ JUSTYNA

EQUITY IN THE ACCESS TO eHEALTH IN POLAND

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The aim of this research is the verification of equity in distribution of IC technologies and skills within different population groups and their impact on the access to healthcare.

Literature review showed that, eHealth has the potential to resolve health disparities as it is considered as an essential component for rearranging organizations' healthcare systems. Among others, it can increased access to health information, improved efficiency of healthcare system or access to scarce specialist skills for patients in rural areas and then it can improve health equity. Thus, the nature of ICT makes it an important tool in resolving health inequalities. However, successful implementation of eHealth depends on many factors such as the accessibility of all required technologies to all people, the existence of technical infrastructure as well as people having or acquiring the necessary IC skills. If different groups of people in a society cannot equally use and benefit from eHealth facilities thus healthcare inequities will not reduce and may also become worse. Thus, in purpose to examine the equity in the distribution of IC technologies and skills in Poland, the two-stage nested Theil decomposition method proposed by Takahiro Akita was employed and also regression function. Since this research considered three division scales as the macro-regional, regional and voivodeships levels in Poland, the Theil index could decompose the national overall inequality into between-macro-regions, between-regions and within-regions differences. Data were derived from the Statistics Poland database.

The results showed the existence of inequity and the drivers of inequity. The novelty of this research results from the application of two-stage nested Theil in the context of eHealth, identification of drivers and thus it identified the barrier in the access to e-Health. It provided the argument and direction for government policy for improving the access to healthcare.

Key words: equity, eHealth, ICT, Theil index
JEL codes: I14

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INDUSTRY 4.0 AND STRATEGIC AGILITY: A SYSTEMATIC LITERATURE REVIEW

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The aim of the article is to identify and assess the state of knowledge in the field of using and supporting Industry 4.0 technologies for the development of strategic agility of enterprises. In particular, it is being of keen interest to support individual Industry 4.0 technologies selected by the authors for the attributes that contribute to strategic agility, which include: strategic sensitivity, strategic entrepreneurship, flexibility and strategic leadership.

The article uses the method of a systematic literature review (SLR), striving in a rigorous and credible manner to organize knowledge of the use of Industry 4.0 technology to strengthen strategic agility. The research procedure of the systematic review was presented in a five-stage approach, distinguishing successively: formulation of the research questions and determination of the research objective, selection of the literature collection, initial selection and evaluation of the collection, data analysis and synthesis, and reporting on the results.

The applied research method enabled the synthesis and consolidation of the existing scientific achievements in the field of supporting Industry 4.0 technologies in the development of strategic agility of enterprises and the indication of the most desirable directions for the further research. Simultaneously, the obtained research results enabled the definition of a reasonable context for the future qualitative research.

The literature clearly indicates a deficit of papers in the field of linking the subject of Industry 4.0 with the subject of agility of enterprises, as well as the lack of information on the state of research in this area, both in theoretical and empirical terms. There is a noticeable shortage of studies identifying which of the Industry 4.0 technologies support the development of strategic agility, to what extent and in what aspect.

Key words: Industry 4.0, new technologies, strategic agility, systematic literature review
JEL codes: L21, L22, L23, L25, L26, M11, M15

SKOWRON-MIELNIK BEATA, GOŁEMBSKI MARCIN, WOJTKOWIAK GRZEGORZ

RESEARCH CHALLENGES CONCERING EMPLOYEES IN THE SITUATION OF ENFORCED REMOTE WORK

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The article describes the current topic related to the work of employees during the pandemic, in particular employees forced to work on a permanent or hybrid remote basis. The paper adopts the thesis about a significant difference between the conditions influencing the way employees work: during remote work and during forced (unplanned) remote work. The aim of the article is to identify the research challenges faced by scientists and practitioners looking for effective solutions in the field of shaping the behavior of employees in this situation of forced remote work.

In addition to an attempt to characterize and order the conditions influencing the behavior of employees during forced remote work, the article identifies areas of practical challenges faced by managers managing employees. The result of the study is a proposal of research areas and an indication of methodological limitations in the research work.

The theoretical basis of the article are the issues of remote work and the challenges of human resource management during a pandemic. In the research part of the work, pilot studies were used (including the results of surveys and the results of thematic workshops with a group of managers).

The more important conclusions from the research include the differences between the responses from the questionnaires (in which the challenges in the area of communication and task implementation were pointed out) and the results of the workshops of the same group (during which the importance of organizational solutions was emphasized). Interesting conclusions also concerned the strengths and weaknesses of remote work, where, for example, time flexibility was indicated as an important threat.

Key words: human resources management, employee behavior, remote work, teleworking, management during pandemic
JEL codes: M12, M54

STĘPIEŃ BEATA, ŚWIATOWIEC-SZCZEPAŃSKA JUSTYNA

BETWEEN PASSIVE SURVIVAL AND PROACTIVE AVOIDANCE – COVID ADJUSTMENT STRATEGIES OF SME B2C SERVICE SECTOR

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The COVID 19 pandemic affected nearly everyone in the globe, although its impact on businesses varied. While companies operating in the IT industry, some pharmaceutical companies, and those producing equipment and support materials to fight the pandemic seem to be the winners of this period (eg. Mauro, 202; Abay, Tafere & Woldemichael,. 2020; Sokol & Pataccini, 2020; Žižek, 2020), firms providing services in the B2C sector experienced lockdown restrictions and were forced to operate in completely new and much more difficult conditions for them.

The research problem analyzed in this paper is the impact of adaptation actions (internal and external, e.g. institutional assistance) on the long term outcome of survival strategies of SME companies in the consumer services sector.

The Comparative and Configurational Qualitative Analysis (QCA) method was used to analyse 20 case studies to provide some important theoretical and analytical insights to explore the antecedents, nature and outcomes of adjustment strategies during external shocks. On the basis of empirical study we provide a conceptual extended framework of B2C service SME adjustment strategies in COVID period classified between two extremes of passive survival and proactive avoidance.

Key words: consumer service sector, small and medium enterprises, COVID pandemic adjustment strategies, passive survival, proactive avoidance

SZYMKOWIAK ANDRZEJ

IMPACT OF AR EXPERIENCES AND MENTAL IMAGERY ON EVALUATION AND PRODUCT-LIKING

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Mental intangibility has long been a pertinent issue for online retailers in converting consumers who prefer shopping at brick-and-mortar stores. In our study, we aim to understand how AR-unique factors, derived from the situated cognition theory, combined with the quality of mental imagery, trigger unique psychological mechanisms such as ease of evaluation and product-liking.

To carry out this research, we designed and developed a website using WebAR, a novel technology that allows users to experience AR product presentations on the web. Data analysis revealed interesting findings on how AR-unique features aided ease of evaluation, and not product-liking, whilst quality of mental imagery had the greatest impact on product-liking. In our work, important implications for retailers are contained, amongst one of which is how the use of WebAR can allow the provision of AR product presentations at a fraction of the cost of an app.

Key words: Augmented Reality, Mental Imagery, WebAR, Situated Cognition, Active Inference, Processing fluency

ŚLIWIŃSKI RAFAŁ

ARTIFICIAL INTELLIGENCE SUPPORTING SALES PROCESS AND COMMERCE

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Artificial Intelligence (AI) is revolutionizing many business areas. In particular, it sheds new light on the field of both e-commerce and traditional trade, as well as the sales process in enterprises, introducing revolutionary changes in these areas. The purpose of this article is to answer the question of how a company can increase its competitiveness through AI in the sales process as well as in e-commerce and traditional commerce.

The literature on the subject treats the links between the sales area and AI quite selectively. Usually one selected aspect is described, but there is lack of solutions' broader overview that will create a more accurate picture showing the potential, a wide spectrum of using modern AI-related tools along with practical examples of their use to increase competitiveness in the broadly understood sales area. For the above reasons, the purpose of this article is to present modern methods of sales support by AI in the sales process of various organizations and in electronic and traditional commerce. The benefits that companies will be able to derive from this technology will be presented, and answers to the question how artificial intelligence is able to strengthen or create a competitive advantage in the sales process or in trade.

The structure of the article will be organized in the following way. First, the advantages of using modern AI tools and the resulting new ways of working in the sales department of potentially every company that have such a department will be discussed. Improvements in the sales process may lead to a significant improvement in sales results, which is the foundation of the existence of any organization. Then, SI solutions supporting sales in e-commerce will be presented, which has undergone a significant transformation over the last decade, and its sales results can exceed the results of physical stores many times over. At the end, SI solutions supporting the sale and sales management of physical stores will be discussed.

WOJCIECHOWSKA PATRYCJA, WISZUMIRSKA KAROLINA

CONSUMER ATTITUDES TOWARDS DIGITAL PACKAGING AS A NOVEL COMMUNICATION TOOL ON B2C MARKET

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Digital packaging is an interactive product enhanced with virtual content which is provided by QR codes, augmented reality or invisible watermark coding. It enables the producer to customize features, content, and style to the brand equity as well as it opens new ways of communication with consumers. It may provide professional information which is not available in a traditional two-dimensional label. Digital packaging may also play an essential role in collecting data and understanding consumer behavior during purchase decision making.

The aim of the study was to determine factors affecting consumer's attitudes towards digital packaging regarding waste disposal. It was assumed that packaging empowered with interactive content may guide and help consumers with an unattractive, wearisome and potentially difficult activities for example household waste sorting process. Extended digital labels may therefore contribute to the increased efficiency of curbside recycling collection.

Consumer attitudes towards digital packaging were examined using computer-assisted web interview (CAWI) on a representative sample of adult Poles ($N = 1026$). The majority of respondents (85%) positively assessed interactive packaging as a tool to facilitate waste disposal. Moreover, the results showed that neither age, nor education as well as residence have influence on the attitude towards digital enhanced packaging. Interestingly, 92% of respondents stated that they have no difficulties regarding the household waste sorting process, nevertheless they are still interested in such a kind of innovation. However, the results revealed a high percentage of incorrect answers regarding segregation rules. Therefore, innovative digital packaging may be used not only as an entertainment tool but also serve as a content provider.

Key words: interactive packaging, digital packaging, communication, innovation, consumer, waste management
JEL codes: D19, O39, Q55

WÓJCICKI KRZYSZTOF, GÓRNA JUSTYNA, PALIWODA BEATA, BIEGAŃSKA MARTA

INTERNET OF THINGS IN INDUSTRY: AREAS, OPPORTUNITIES, RISKS AND CHALLENGES

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The fourth industrial revolution which is characterized by the increasing digitization and interconnection of products, value chains and business models has arrived in the industrial sector. The essence of the Industry 4.0 vision is the ubiquitous connection of people, things and machines. By connecting devices and sensors to the Internet, we are entering an era of data analytics, connectivity, and automation that creates innovations and progress previously out of reach. The Internet of Things (IoT) is the key technology which offers business an opportunity to increase automation and improve data processing and analytics, IoT is thus an attractive tool applicable to any organization, regardless of its size or type, or industry it operates.

The term IoThas become pervasive with the vision of a massively instrumented world of intelligent inputs and outputs (e.g. analog, digital, video, audio) communicating through Internet data communications concepts and technologies. There is a broad range of emerging IoT applications in various areas of modern economy including, but not limited to health care, traffic control, vehicle safety, energy, agriculture and manufacturing.

As a subset of IoT, Industrial IoT (IIoT) covers the domains of machine-to-machine (M2M) and industrial communication technologies with automation applications. IIoT paves the way to better understanding of the manufacturing process, thereby enabling efficient and sustainable production.

Connecting unconventional objects to the Internet on the one hand shall improve the sustainability and safety of industries and the society, and enable efficient interaction between the physical world and its digital counterpart, but on the other hand it may also create completely new threats, such data security issues, weaknesses in authorization and authentification systems, insecure web interfaces, vulnerabilities and software bugs.

The paper explains the concepts of IoT, Industrial IoT and Industry 4.0. It also highlights the opportunities, risks and challenges associated with their implementation and usage, and presents areas of application.

Key words: Internet of Things, Industry 4.0, IoT, IIoT
JEL codes: L00, O3

WŁODARSKA KATARZYNA, PAWLAK-LEMAŃSKA KATARZYNA

THE IMPORTANCE OF INFORMATION ON FOOD PRODUCTS FOR CONSUMERS. NUTRI-SCORE LABEL

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The information provided on labels is intended to serve consumers by providing them with information about composition and nutritional quality of food products. Even though consumers declare their interest in information on labels, their knowledge of the composition and nutritional value of the products, and understanding of this information is often insufficient. European and international health institutions societies are now placing great emphasis on developing clear and intensive information to consumers about the properties of food products and their impact on health, using legislative instruments and recommendation.

The aim of this study is to conduct a multi-stage consumer evaluation including: (1) assessment of the consumer's perception of the information contained on the packaging of different types of fruit juices (level of perception, level of emotion); (2) identification of visual factors influencing perception information on the nutritional value (in different variants of the graphic design of the packaging); (3) impact assessment of nutritional information on consumer purchasing decisions. For examination of visual perception of information and design of packaging were specially designed, artificial brands packages of different types of juices (beverages category). The leading element of visual information tested on the designed packaging will be the pictogram of the nutritional quality - Nutri-Score. It is a visual marking system of products also labeled 5-Color Nutrition Label (5-CNL), which is intended to indicate to consumers higher nutritional quality products. The system is generally recommended for use by EU Commission and is accepted among major players on food market (retail chains and food concerns on French speaking market), while it is controversial among other market participants - smaller food producers, especially regional ones.

To measure perception and visual interest, the information on the package will be research with the use of eye-tracking techniques, while for measurement emotions evoked by product information the company's FaceReader software (Noldus, Wageningen) will be used.

Key words: Nutri-Score, consumer information, food products, juices, eye-tracking, Face Reader
JEL codes: I12, P46, M31

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