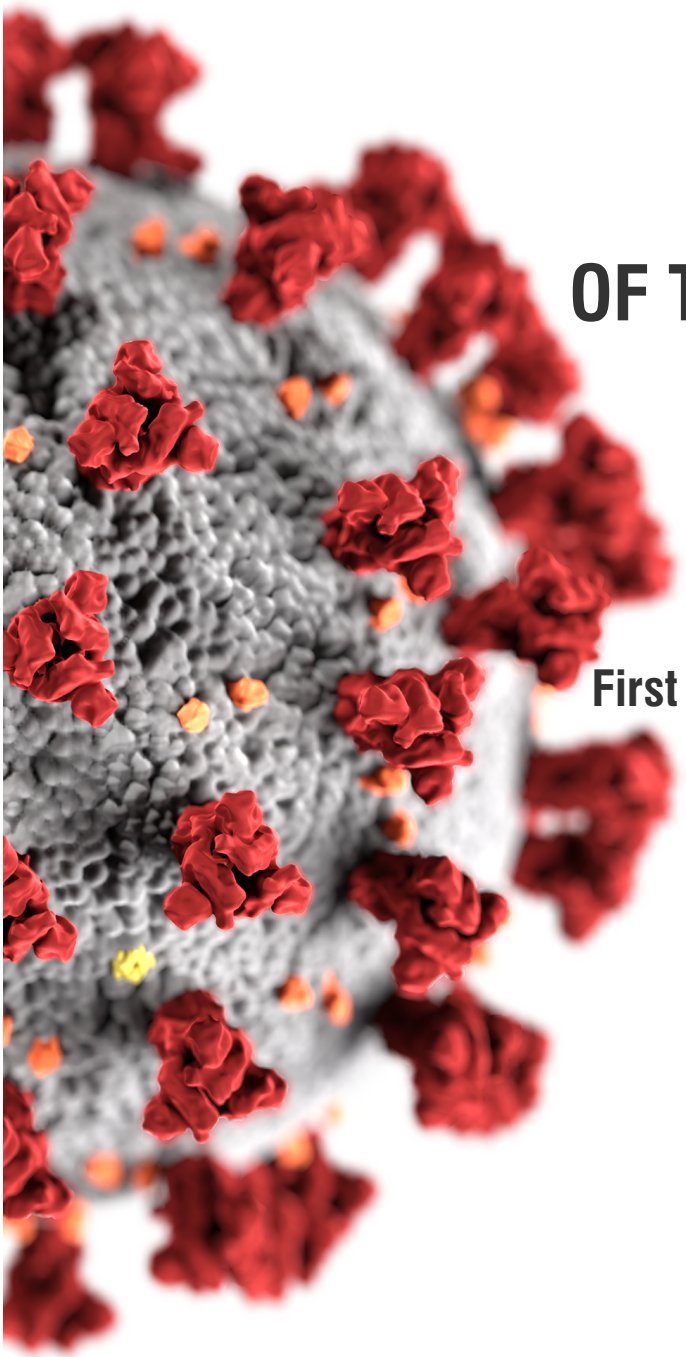

COVID-19
AND CHALLENGES OF THE BUSINESS WORLD

Proceedings Book
from
First International Scientific Conference

March 25th 2021
Belgrade

ALFA BK UNIVERSITY
Belgrade, 2021.

PROCEEDINGS BOOK

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This Book of proceedings is part of Project II U-001/20 Assessment of the Impact of Covid-19 on Social and Economic Development, Alfa BK University

ALFA BK UNIVERSITY

Belgrade, March, 2021.

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Publisher
Alfa BK University

For the publisher
Prof. Jozefina Beke Trivunac, Alfa BK University, Rector

Place and year
Belgrade, 2021

Tiraž
100

Print
Alfa BK University

ISBN 978-86-6461-046-9

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FOREWORD

The First International Scientific, "Covid-19 and Challenges of the Business World", is held in organization Alfa BK University, Faculty of Finance, Banking and Audit in cooperation with Institute for Economy and Finance, on 25th of March 2021. Given the current epidemiological situation, the conference was being held in virtual, through an online platform.

The conference was participated by more than 30 authors from 10 countries with over 20 papers, from much scientific research organizations and some of them are Alfa BK University, Faculty of Finance, Banking and Audit, Belgrade, Serbia, Faculty of Sports Management, Alfa BK University, Serbia, Faculty of Law, Union University, Belgrade, Serbia, Department of International Economic Relations and Business, University of National and World Economy, Sofia and Burgas Free University, Burgas, Bulgaria, SKEMA Business School, Republic of France; University of National and World Economy, Sofia, Bulgaria, University of National and World Economy, Sofia, Bulgaria, Sector for analytics, telecommunication and information technologies, Ministry of the Interior, Republic of Serbia, University of Criminal Investigation and Police Studies in Belgrade, Serbia, School of Electrical and
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The conference was opened by PhD Jozefina Beke-Trivunac, Full-time Professor, President of the Scientific Committee, Ph.D. Marijana Joksimović, Full-time Professor, vice president, Alfa BK University, Dean of the Faculty of Finance, Banking and Audit, Belgrade, Ph.D. Larisa Jovanović, Full time Professor, emeritus, Alfa BK University, Faculty of Finances, Banking and
Audit, president of the Scientific and Professional Society for Environmental Protection Ecologica, Belgrade and PhD Antoaneta Vassileva, Full-time Professor, Professor of International Business and Marketing at the

International Economic Relations and Business Department at the University of National and World Economy, Sofia, Bulgaria.

In addition to plenary lectures by invitation, guest lecturers, papers were presented in several sections depending on the topic of the papers. The Proceedings Book presented at the conference is the result of research by participants on the impact of Covid-19 and Challenges of the Business World from different aspects.

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LONG-TERM VALUE CREATION VS. SHORT-TERM RETURNS (MOVING FROM THE BALANCE SHEET TO VALUE SHEET)

Author PhD Jozefina Beke Trivunac, Full time Professor, Alfa BK University, Faculty of Finance, Banking and Audit, Belgrade, Serbia

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Apstact: The traditional approach for profit-oriented companies considers long-term value creation that enables dividends to be paid to capital providers and ensures that the value of their wealth is protected and increased. Modern content of value creation includes adding value to all stakeholders, both in the short and long term. Standard content and format of sustainability report is not yet defined, but broadly accepted values, materiality approach, and standard metrics represent a good starting point for qualitative sustainability reports at the current stage.

Key words: Sustainability reporting, stakeholder orientation, aligning corporate values with SDG

Introduction

Although the major disaster, the positive side of the COVID-19 pandemic is the acceleration of the readiness to cope with the already recognized environmental change, social change, macroeconomic and political shifts, and technology. World Economic Forum (WEF), in collaboration with Baker McKenzie, published a white paper in January 2021, "The Future of the Corporation – Moving from the balance sheet to value sheet," stating that "leaders increasingly recognize that for a business to succeed over the long term, it must provide profitable solutions that positively affect all stakeholders" (World Economic Forum, 2021).

In addition to financial reports, more and more "companies increasingly use frameworks such as the <IR> Framework to explain how they use and transform a range of capitals to create value for a wide group of stakeholders" (ACCA, 2017). To identify which issues are essential to their stakeholder's companies use relevant standards, such as Global Reporting Initiative (GRI).

The traditional approach for profit-oriented companies considers long-term value creation that enables dividends to be paid to capital providers and ensures that the value of their wealth is protected and increased. How much of the profit should be paid out to shareholders will depend on the company's purpose, strategy, culture, and values. The board should consider how much the company will strive to fulfill broader goals, including social and environmental goals, than the simple classical company goal related to profit and capital. Moreover, the company's board should even decide how much to invest in broader goals, whether zero net impact on the environment is a good benchmark, or to benchmark it to positively impact society and the environment.

Rebecca Henderson, a university professor at Harvard University and the author of the book "Reimagining Capitalism In a World on Fire," says that "businesses can have strong incentives to care about the health of the planet and the health of our society…. Climate change will create all kinds of economic problems and has an enormous risk to the stability of the financial system". Besides this, "to the degree that people aren't getting the education and healthcare they need, they are systematically excluded from participation in the economic mainstream. We are losing people who can be fabulous entrepreneurs, employees, or great consumers. …To conclude, "business is going to grow much faster in healthy societies where people have access to healthcare and education, where there is more talent, better trade, and consumers to spend." (Ho, 2020)

In March 2019, the World Economic Forum published the white paper *The Modern Dilemma: Balancing Short and Long Term Business Pressures*, which states that the pandemic has changed the rhetoric from "in the world of economy and entrepreneurship returns" to "value creation." Klaus Schwab, the founder of the World Economic Forum and the author of the book "Stakeholder Capitalism: A Global Economy that Works for Progress, People and Planet," defines stakeholder capitalism as "a form of capitalism in which companies seek long-term value creation by taking into account the needs of all their stakeholders, and society at large."

He says that "this approach was common in the post-war decades in the West, when it became clear that one person or entity could only do well if the whole community and economy functioned … and there was a strong linkage between companies and their community." (Schwab, 2021).

Defining the values

Traditionally, value creation means adding value for capital providers, both in short and in the long term. Modern content of value creation includes adding value to all stakeholders, both in the short and long term. Stakeholders, by themselves, have different interests and different powers. In addition to investors, traditional stakeholders include existing and potential investors, lenders, and other creditors. Other parties, such as regulators and members of the public other than investors, lenders, and other creditors, may also be interested in the companies' financial information (IASB, 2018). All parties are interested in the company's financial results and its ability and willingness to appropriate part of gained profits to the party.

The external environment is the context in which businesses operate today. To address the negative impact of the external environment challenges, companies must go beyond the standard boundaries of corporate activity that stretches further than traditional approaches to be sustainable. In so doing, they shall fit for the new context. According to Pakistan round table participants, economic, social, and environmental problems are coming together. 'If you have security problems or transport issues, or there is too much waste or a lack of water, you can't function as an industrial unit. That is an issue for business, and it is for the private sector to work closely with the government to do this.' (ACCA, 2017a, p. 14). Modern value creation means adding value to society as a whole and to the natural environment.

As a global list of crucial material topics for our planet, the UN Sustainable Development Goals (SDGs) have become a standard reference for sustainability reporting policy. Across the 17 SDGs and the 169 targets of which they are composed are a range of interconnected economic, social and environmental issues. Sustainable development goals formulated by the UN frame: (1) No poverty, (2) Zero hunger, (3) Good health and well-being, (4) Quality education, (5) Gender equality, (6) Clean water and sanitation, (7) Affordable and clean energy, (8) Decent work and economic growth, (9) Industry innovation and infrastructure, (10) Reduced inequalities, (11) Sustainable cities and communities, (12) Responsible consumption and production, (13) Climate campaign, (14) Life below water, (15) Life on the land, (16) Peace, justice and strong institutions, (17) Partnerships for the goals.

Taken together, they provide governmental, business, and civil society with a universal roadmap to fully engage with emerging risks and discover new opportunities for creating value (ACCA, 2017a, p. 3).
To explain how they use and transform a range of capitals to create value for a broad group of stakeholders, companies are increasingly using frameworks such as the <IR> Framework (ACCA, 2017). Professor Carol A. Adams gives the example of aligning the SDGs with the value creation process is presented by the Integrated <IR> Reporting model of capital, where the outcome of each form of capital is aligned with the UN SDGs, as follows:

- Financial capital has impact on SDGs 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17.
- Manufactured capital has impact on SDGs 2, 4, 6, 7, 9, 11, 12, 13, 14, 17.
- Intellectual capital has impact on SDGs 3, 6, 7, 10, 12, 13, 14, 16, 17.
- Human capital has impact on SDGs 3, 4, 5, 6, 7, 8, 10, 12, 13, 14, 16, 17.
- Natural capital has impact on SDGs 2, 6, 7, 11, 12, 13, 14, 16, 17.
- Social and relationship capital has impact on SDGs , 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17. (Adams, 2020a)

Reporting about the values

The Association of Certified Charted Accountants' (ACCA) definition of sustainability reporting states that sustainability reporting is the "Information that communicates how the flow of material, resources and services between corporations, capital markets, society, the economy, and the environment affect the ability of corporate, economic, social and environmental systems to continue and flourish" (ACCA, 2016).
To support the business in achieving the SDGs, by connecting business strategies with the SDGs, developing business solutions, and enhancing corporate sustainability, The Association of Chartered Accountants (ACCA), Chartered Accountants ANZ, The Institute of Chartered Accountants of Scotland (ICAS), The International Federation of Accountants (IFAC), the International Integrated Reporting Council (IIRC) and the World Benchmarking Alliance (WBA) jointly promote the Sustainable Development Goal Disclosure (SDGD) Recommendation paper published in January 2020 (Adams, 2020a). These recommendations were developed for all types of organizations, both for these, which report on their alignment with SDG and their stakeholders.

Three fundamental concepts of SDG disclosures are long-term value creation for the organization and society, sustainable development context and relevance, and materiality. Recommended principles of SDG disclosure are based on the three already recognized reporting frameworks, International <IR> Framework, Global Reporting Initiative (GRI) Standards, and TCFD Recommendations.

SDGD Recommendations are grouped into four categories: governance, strategy, management approach, and performance and targets.

- The governance category relates to the disclosure of the board's integration of sustainable development issues into the overall governance process, its responsibility for the SDG Disclosures, and its competencies concerning sustainable development issues.
- The strategy category encompasses describing how consideration of sustainable developing issues has influenced strategy and its impact on the achievement of SDGs.
- The management approach category relates to the disclosure of SDG issues in the organization's processes, especially ensuring stakeholder inclusivity, identifying relevant, sustainable development issues, risk assessment and risk management, and its impact on the business model.
- The performance and targets category encompasses the organizational approach to SDG and its vision and mission in setting targets, value creation, sustainable development risks and opportunities in the future cash flows, asset valuation, valuable lives, and contingent liabilities.

Concerning the type of disclosure, SDGD Recommendations do prioritize "qualitative disclosures on governance oversight, strategy, and management approach and hence insights into the ability of the organization to create long term value for the organization and the society" without diminishing financial or quantitative disclosures (Adams, 2020, p. 7).

The feedback on the public discussion and consultation responses on proposed disclosures revealed that Sustainable Accounting Standards Board (SASB) noticed that "Companies are more likely to allocate capital to SDGs that are aligned with their business strategy and financial goals. … Investors are more likely to finance SDG-related activities aligned with investment strategy and return targets." (Adams, 2020, p. 6).

The need for a global set of internationally recognized sustainability reporting standards is questioned by International Financial Reporting Standards Foundation (IFRS Foundation, 2020). Prevailing comments support this initiative as an answer to the "demand from investors, policymakers and other stakeholders for a reporting system that delivers consistent, comparable, reliable, and assurable information relevant to enterprise value creation, sustainable development and evolving expectations" (IFAC, 2020). IFAC suggested that the Task Force's work on Climate-related Financial Disclosure (TCFD) could be a good base for developing these new standards.

Standard Metrics and Consistent Reporting of Sustainable Value Creation

In 2017, WEF's International Business Council (IBC) invited its members to align their corporate values and strategies with the UN's Sustainable Development Goals (SDGs) to serve society better. In January 2020, IBC presented the results of this project (World Economic Forum in collaboration with Deloitte, EY, KPMG, and PwC, 2020). This work defines a core set of metrics and disclosures that can be used for reporting on performance against environmental, social, and governance (ESG) indicators and track their contributions towards the SDGs consistently. The result of this process is 21 core and 34 expanded metrics and disclosures. The recommended metrics are aligned with the SDGs and principal ESG domains: Principles of Governance (Governing purpose, Quality of governing body, Stakeholder engagement, Ethical behavior, Risk and opportunity oversight), Planet (Climate change, Nature loss, Freshwater availability), People (Dignity and equality, Health and well-being, Skills for the future), and Prosperity (Employment and wealth generation, Innovation of better products and services, Community and social vitality).

Conclusion

The economy may be seen as a prosperity driver, and the community and the planet as infrastructure impact and benefit from economic and social prosperity in a myriad of ways. It is already well known that businesses cannot succeed in the failing society and destroyed nature.

The COVID-19 pandemic posed some fundamental questions about what matters in society, like priority of needs, the proper balance between individual liberties and collective interests, and the relationship between economic and human health, and all of them are issues that relate to the sustainable development of the society, economy, and the planet.
Changing companies' traditional orientation toward capital providers to various parties from the social and environmental surrounding is induced by postulating non-financial reporting on the company's activities and their impact on society and nature. The leaders in this process are the United Nations, World Economic Forum, many professional organizations, and professional accounting organizations and associations.
The search for the form and content of non-financial sustainability reports is still in progress. Common issues are: what to report, how to write, how to present information, how to define the performance, and to measure the results, which should be linked to the corporate values and business model.

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ARE THERE CORONA PROFITEERS?

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Apstract: The COVID-19 pandemic in the world was declared by the World health Organization, WHO at the beginning of 2020. The consequences for the world economy of the COVID-19 pandemic are soo big. But on the other hand we have the appearance of sudden enrichment. During the COVID-19 virus pandemic, the total wealth of the world's billionaires increased to 10.2 billion dollars. According to the the report of the Swiss bank UBS Group from the month of 2020. Following the proclamation of the COVID-19 pandemic, the governments have taken introduced a series of measures to reduce the consequences for the collapse of the country's economic stability.

Keywords: Covid-19, Banking, Profitability, Corona profiteers, Financial Sector.

Introduction

The Covid-19 crisis has rapidly affected all spheres of society. It has affected business around the world, leaving negative and positive financial impacts. Governments around the world have taken significant steps to overcome the crisis, amortizing its effects.

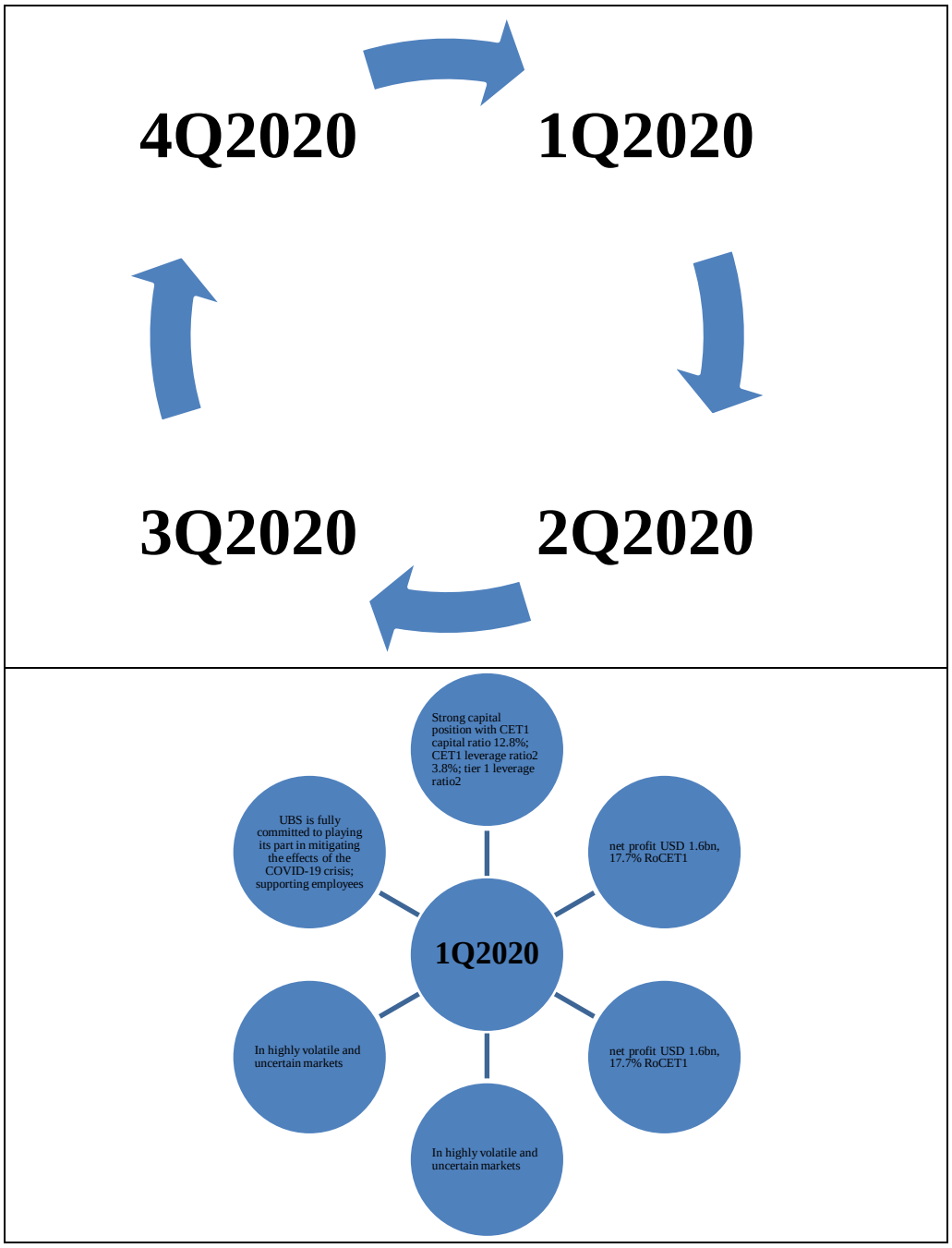
At the beginning of the crisis with Covid-19, the impact on the banking sector was expected to be more significant, but instructed by the experience from the previous crisis, the global economic crisis in 2008, regulators prescribed stricter measures to preserve capital in banks. In this regard, the situation in the banking sector is stable, and the impact of Covid-19 has been significantly reduced.

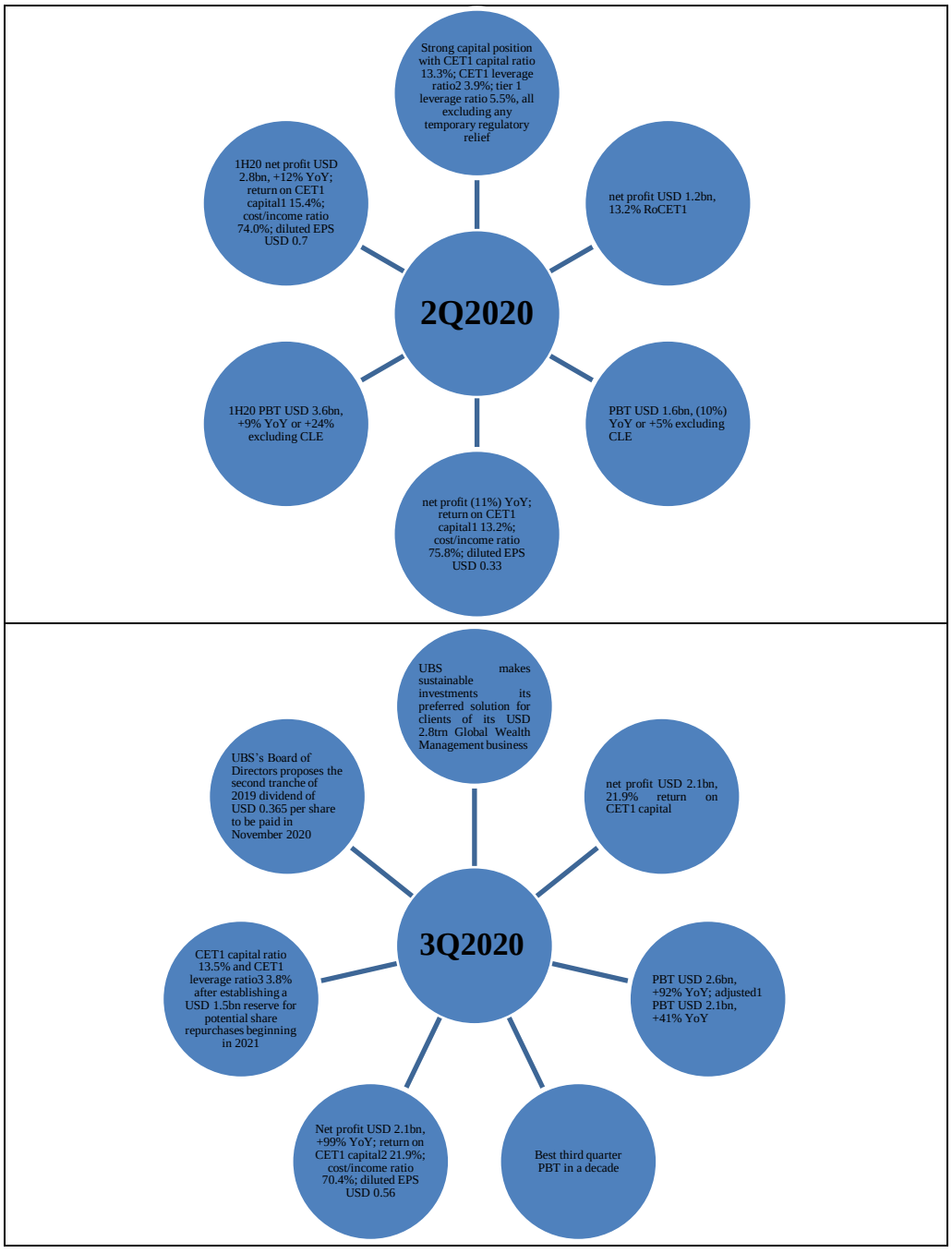
For the purposes of the research, the author gives comparative analysis of UBS Group report of the Swiss bank UBS Group from 2020 , by quarters.

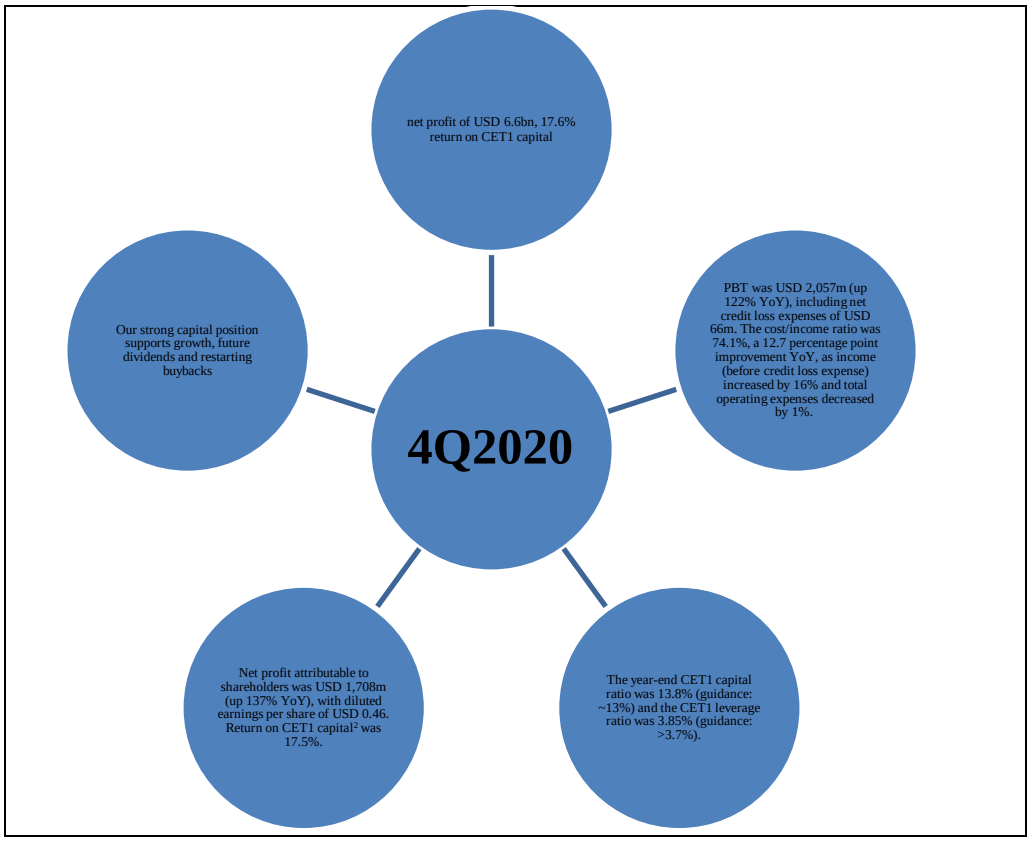
Research Results

The Shapes no 1 shows a comparative analysis of the four quarters of 2020 based on UBS Group reports.

Shapes no 1 comparative analysis of the four quarters of 2020 UBS Group


4Q2020
1Q2020
3Q2020
2Q2020
Strong capital position with CET1 capital ratio 12.8%; CET1 leverage ratio2 3.8%; tier 1 leverage ratio2
UBS is fully committed to playing its part in mitigating the effects of the COVID-19 crisis; supporting employees
net profit USD 1.6bn, 17.7% RoCET1
1Q2020
In highly volatile and uncertain markets
net profit USD 1.6bn, 17.7% RoCET1
In highly volatile and uncertain markets


2Q2020
Strong capital position with CET1 capital ratio 13.3%; CET1 leverage ratio2 3.9%; tier 1 leverage ratio 5.5%, all excluding any temporary regulatory relief
net profit USD 1.2bn, 13.2% RoCET1
PBT USD 1.6bn, (10%) YoY or +5% excluding CLE
net profit (11%) YoY; return on CET1 capital1 13.2%; cost/income ratio 75.8%; diluted EPS USD 0.33
1H20 PBT USD 3.6bn, +9% YoY or +24% excluding CLE
1H20 net profit USD 2.8bn, +12% YoY; return on CET1 capital1 15.4%; cost/income ratio 74.0%; diluted EPS USD 0.7
3Q2020
UBS makes sustainable investments its preferred solution for clients of its USD 2.8trn Global Wealth Management business
net profit USD 2.1bn, 21.9% return on CET1 capital
PBT USD 2.6bn, +92% YoY; adjusted1 PBT USD 2.1bn, +41% YoY
Best third quarter PBT in a decade
Net profit USD 2.1bn, +99% YoY; return on CET1 capital2 21.9%; cost/income ratio 70.4%; diluted EPS USD 0.56
CET1 capital ratio 13.5% and CET1 leverage ratio3 3.8% after establishing a USD 1.5bn reserve for potential share repurchases beginning in 2021
UBS's Board of Directors proposes the second tranche of 2019 dividend of USD 0.365 per share to be paid in November 2020

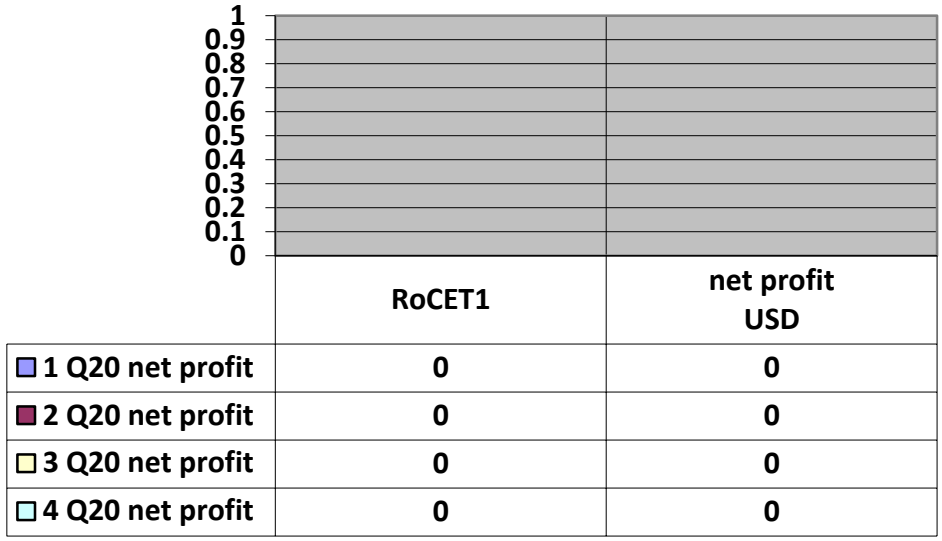


Sours: Autor on report of the Swiss bank UBS Group from 2020 , by quarters

As we see in first qvatral on 2020 year net profit USD 1.6bn, 17.7% RoCET1 is higher than in the second quarter of the same year wherein net profit USD 1.2bn, 13.2% RoCET1. In the third quarter of 2020 where we see that net profit USD 2.1bn, 21.9% return on CET1 capital, to be the same in the fourth quarter net profit of USD 6.6bn, 17.6% return on CET1 capital
In terms of net profit in first qvartal PBT USD 2.0bn, +30% YoY and net profit +40% YoY; return on CET1 capital1 17.7%; cost/income ratio 72.3%; diluted EPS USD 0.43, in second qvartal 1H20 net profit USD 2.8bn, +12% YoY; return on CET1 capital1 15.4%; cost/income ratio 74.0%; diluted EPS USD 0.76, while in the third quarter net profit USD 2.1bn, +99% YoY; return on CET1 capital2 21.9%; cost/income ratio 70.4%; diluted EPS USD 0.56. In same in the fourth quarter PBT was USD 2,057m (up 122% YoY),

including net credit loss expenses of USD 66m. The cost/income ratio was 74.1%, a 12.7 percentage point improvement YoY, as income (before credit loss expense) increased by 16% and total operating expenses decreased by 1%.

Graphic no 1 Net profit USD and RoCET1, by quarters.



	RoCET1	net profit USD
1 Q20 net profit	0	0
2 Q20 net profit	0	0
3 Q20 net profit	0	0
4 Q20 net profit	0	0

Sours: Autor on report of the Swiss bank UBS Group from 2020 , by quarters

As we see on the Graphic no 1 in first qvatral on 2020 year net profit USD 1.6bn and 17.7% RoCET1 is higher than in the second quarter of the same year wherein net profit USD 1.2bn and 13.2% RoCET1. In the third quarter of 2020 where we see that net profit USD 2.1bn, 21.9% return on CET1 capital, to be the same in the fourth quarter net profit of USD 6.6bn, 17.6% return on CET1 capital.

In highly volatile and uncertain markets, in first qvartal 2020 UBS remained a reliable partner to its clients, extending credit well beyond government-sponsored programs. In second qvaratl 2020 strong capital position with CET1 capital ratio 13.3%; CET1 leverage ratio2 3.9%; tier 1 leverage ratio2,3 5.5%, all excluding any temporary regulatory relief. In the third quarter CET1 capital ratio 13.5% and CET1 leverage ratio3 3.8% after establishing a USD 1.5bn reserve for potential share repurchases beginning in 2021.

Also UBS's Board of Directors proposes the second tranche of 2019 dividend of USD 0.365 per share to be paid in November 2020. UBS makes sustainable investments its preferred solution for clients of its USD 2.8trn Global Wealth Management business In the third quarter. In same in the fourth quarter strong capital position supports growth, future dividends and restarting buybacks. The year-end CET1 capital ratio was 13.8% (guidance: ~13%) and the CET1 leverage ratio was 3.85% (guidance: >3.7%). We intend to propose a 2020 ordinary dividend of USD 0.37 per share; we repurchased USD 0.4bn of shares in 2020 and reserved USD 2.0bn of capital for potential future share repurchases.

Conclusion

And finally to conclude. Are there corona profiteers or not?
If we look at the banking sector, it can be concluded that the crisis of Covid-19 led to an increase in the capital of world banks. That the citizens saved more, but that certain protection mechanisms were taken in order to amortize the crisis.
There was a big gap between the winning and losing crown. Unfortunately a large number of people lost their jobs, and a large number of people became rich overnight. As in any crisis. It is necessary to find a measure and make the best survival strategy.

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THE GREEN RECOVERY OF THE ECONOMY AS A POSITIVE CONSEQUENCE OF COVID-19 CRISIS

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Abstract: The COVID-19 pandemic has huge impact on most aspects of human activities, on the economy, health systems, education and living standards of the citizens. Although the tremendous negative effects of the COVID-19 pandemic are obvious - serious global economic losses, dramatic decrease of the international business operations and tourism, breakdown of the global supply chains, ineffectiveness of the health systems and general societal disturbances - the current pandemic may also have some indirect positive consequences.

The aim of the study is to show some positive effects of COVID-19 in the context of sustainable development and Paris Agreement. The research proves that there is a significant link between emergency measures undertaken by the international organizations, the governments and the companies and improving the air quality and reducing environmental pollution. It is confirmed that there are opportunities for a green recovery of the economy and the attention is drawn to the need to continue to pursue the implementation of the Sustainable Development Goals (SDGs), so that the up-to-date progress is not jeopardized. The analysis asserts that there are reasons for optimism after the pandemic, mainly in reshaping the business opportunities and turning to a wider use of 'green' business, 'green' supply chains, 'green' energy, 'green' public-private initiatives, 'green' financial instruments, etc.

The methods used entail a survey of specialized literature, research papers and documents of the UN, UNCTAD, UNDP, UNIDO, OECD, etc., as well as quantitative evaluation and assessment of current global economic trends.

Key words: COVID-19, green recovery, sustainable development

INTRODUCTION

The coronavirus disease in 2020 has dramatic implications on a global scale. The huge impact of the pandemic due to lockdown and quarantine measures is obvious in most aspects of human activities. The coronavirus pandemic which started in 2019 has shown us a new world, one where the status quo no longer exists. The crisis has forced governments to undertake severe measures and the companies to adapt their business models and react to customers' and employees' needs. The social activism also showed sensitiveness to issues that oppose the health of people with economic measures. Looking for opportunities to solve the dilemma economic results versus health of people marked a turn towards a green recovery of the economy.

The main objective of the study is to show some indirect effects and positive consequences of COVID-19 in the context of sustainable development. The analysis is dedicated to the decrease of greenhouse gas emissions and the cleaning of nature as a positive consequence of COVID-19. The findings confirm that there are opportunities and mechanisms for a green recovery of the economy and the attention is drawn to the need to continue to pursue the implementation of the Sustainable Development Goals (SDGs), so that the up-to-date progress is maintained in the future.

All the countries encounter socio-economic, political and legal issues, "neither France nor England has an ideal solution to the challenges posed by COVID-19 for contractual performance. Messy and limited state intervention or narrowly construed doctrines may not address the needs of contracting parties." (Pedamon and Vassileva, 2020). Neither the highly developed nor the less developed countries have discovered the panacea up to now. The results of the analysis clearly indicate that economic measures have significantly mitigated the effects of the pandemic, but also provoke a decisive transition to a green economy.

1.COVID -19 IMPACT ON GLOBAL ECONOMY

The global health crisis caused by the Covid-19 pandemic has inflicted major economic disruptions and brought about a dramatic slowdown in the global economy (IMF, 2020). All the countries have been affected in a different way by the virus pandemic, so they have reacted differently in terms of policies to address this crisis (Hale et al. 2020, EIU 2020). The hardest hit countries are those that rely largely on the tertiary sector, primarily tourism and hospitality because it is a sector of extreme sensitivity to the Covid-19 pandemic.

According to United Nations statistics, the value of global trade in goods fell by 5.6% in 2020 compared to last year. This represents the largest decline in commodity trade since 2009, when trade fell by 22%. This is a much more optimistic report than just a few months ago when UN evaluations estimated a 9% drop. The decline in trade in services is much larger, with services likely to fall by 15.4% in 2020 compared to 2019. That would be the biggest decline in trade in services since 1990, when this series began. In 2009, after the global financial crisis, trade in services fell by 9.5%. Published figures speak for themselves and give a picture of the rift that has occurred in trade in goods and services as a result of the coronavirus pandemic, with figures (UNCTAD, 2020) still falling at the time of publication (Figure 1).

Figure 1: Trade in merchandise and services nowcasts for 2020

Source:UNCTAD *https://unctad.org/news/covid-19-drives-large-international-tradedeclines2020*

The spread of the pandemic has left national economies and businesses to calculate costs, while governments are struggling with new locking measures to combat the spread of the virus. Despite the development of new vaccines, many are still wondering what the recovery might look like. Large shifts in stock markets, where stocks and companies are bought and sold, can affect the value of pensions or individual savings accounts. FTSE, industry average Dow Jones and Nikkei recorded huge declines as the number of Covid-19 cases grew in the first months of the crisis. Major Asian and US stock markets recovered after the announcement of the first vaccine in November, but FTSE is still in negative territory. FTSE fell 14.3% in 2020, its worst performance since 2008. In response, central banks in many countries have cut interest rates. This should, in theory, make borrowing cheaper and stimulate spending to stimulate the economy (IMF, 2021).
Some markets recovered in January this year, but this is a normal trend known as the "January effect". Analysts are worried that the possibility of further closing and postponing the vaccination program could cause greater market instability this year.

2. THE IMPACT OF COVID-19 ON THE SUSTAINABLE DEVELOPMENT. ARE THERE ANY REASONS FOR OPTIMISM AFTER THE PANDEMICS?

The United Nations has mobilized the full capacity of the UN system through its 131 country teams serving 162 countries and territories, to support national authorities in developing public health preparedness and response plans to the COVID-19 crisis. The socio-economic response is one of three critical components of the UN's COVID-19 response, alongside the health response, led by WHO, and the Global Humanitarian Response Plan. As a technical lead for the socio-economic response, UNDP and its country offices worldwide are working under the leadership of the UN Resident Coordinators, and in close collaboration with specialized UN agencies, UN Regional Economic Commissions and IFIs, to assess the socio-economic impacts of the COVID-19 pandemic on economies and communities (UNDP, 2020b).
In order to recover from this crisis stronger and launch a new path towards prosperity, the UN estimates that "a multilateral response of about 10% of global GDP will be needed" (United Nations, 2020).

UN called a 25 trillion USD support package for developing countries to deal with the coronavirus shock. EU alone already announced a package of 540 billion and later approved 672.5 billion Euro (815 billion USD) for recovery and a full package of 1,8 trillion Euro. USA response to the coronavirus pandemic was 2.3 trillion USD relief and funding bill and another 1.9 trillion USD relief bill.

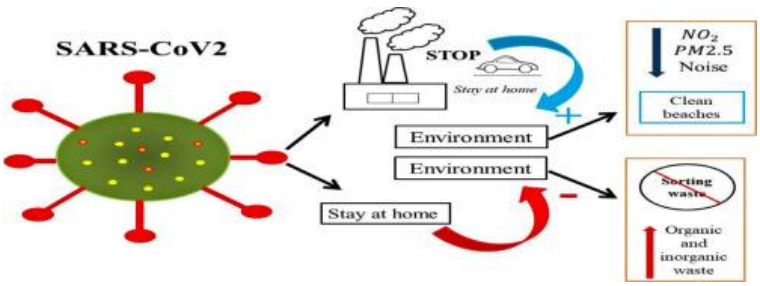
Japan has a budget of 234.2 trillion yen for recovery and announced a third package of 117 trillion Yen (1.1 trillion USD) to stimulate the economy which is equivalent to 22 per cent of the country's GDP (KPMG, 2020). About 3/4 of the budget was allocated to employment and business support, and the rest was allocated to healthcare system, consumption promotion campaign and public investment etc. One of the last initiatives of Japan is a new fund amounting to 2 trillion yen (USD 19.2 billion) announced in December 2020 by the Japanese Prime Minister Yoshihide Suga to assist ambitious green projects over the next decade as part of additional stimulus measures in response to COVID-19. (Nikkei Asia, 2020). However, developing countries may not afford such stimulus due to their very high debt levels (CRBL, 2020).

A thorough picture of the socio-economic and environmental impacts of the pandemic is given by a comprehensive study made by an international group of researchers from University of Sydney, Edinburgh Napier University, University of Queensland, UNSW Sydney, Ministry of Finance of the Republic of Indonesia, National Institute for Environmental Studies & Research Institute for Humanity and Nature, Japan, Yachay Tech University, Ecuador, Duke University and Beijing Normal University. The team members quantified the effects on 26 sectors and 38 regions all over the world. Using a global and highly detailed model, they found that most directly hit was the travel sector and regions of Asia, Europe, the United States, with cascading multiplier effects across the entire world economy because of globalization. The loss of connectivity imposed to prevent the virus spreading triggers an economic 'contagion', causing major disruptions to trade, tourism, energy and finance sectors, while easing environmental pressures most in some of the hardest-affected areas.

This study focuses on 'live' data (until May 2020) and differs from most assessments of the economic impacts of the pandemic based on scenario analyses and/or projections, because it is the first to provide an overview of the combined economic, social and environmental impacts, including indirect effects, of the coronavirus. It shows that consumption losses amount to more than USD 3.8 trillion, triggering full-time equivalent job losses of 147 million and the biggest-ever drop in greenhouse gas emissions.

For the first time the dilemma profit losses against environmental benefits is presented through its quantitative dimensions.
The findings published by the team (Univ of Sydney, 2020) prove the following key reductions:
Consumption: USD 3.8 trillion
Jobs: 147 million (4.2 percent of the global workforce)
Income from wages and salaries: USD 2.1 trillion (6 percent)
Most directly hit: US, China (mainland), air transport and related tourism
Greenhouse gas emissions: 2.5Gt (4.6 percent) -- larger than any drop in human history*
Other atmospheric emissions -- PM2.5: Dangerously fine particulate matter emissions fall 0.6 Mt (3.8 per cent); SO2 & NOx: Sulfur dioxide emissions from burning fossil fuels -- which has been linked to asthma and chest tightness -- and emissions from nitrogen oxide -- from fuel combustion, for example, driving cars -- fall 5.1 Mt (2.9 percent).
Another research (Monserrate, M.A.Z., Ruano, M.A., Sanchez-Alcalde, L., 2020) also confirmed that one of the few positive consequences of the covid crisis is purifying of air and nature. (Figure 2) Locks, quarantines and border closures after the pandemic have led to a reduction in air pollution through decrease of travel and industrial production. These positive observations can serve as an example that changes in our way of life can have positive effects on the environment, reaching in this way Goal 13 of the SDGs (take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy). Thus, recognizing that COVID-19 is primarily a global catastrophe, a pandemic can inspire future behavioral changes with positive effects on the nature and the ecosystems.

Figure 2. Indirect effects of COVID-19 on the environment



Source: Monserrate, M.A.Z., Ruano, M.A., Sanchez-Alcalde, L., Indirect effects of COVID-19 on the environment, Science of The Total Environment, Volume 728, 1 August 2020

The results of the a.m. studies confirmed once again that there are reasons for optimism after the pandemics mainly in reshaping the business opportunities and turning to a green renewal of the economy, which means a wider use of the mechanisms and instruments of "greening" of the economy.

3.OPPORTUNITIES FOR A GREEN RECOVERY

The socio-economic assessments of the international organizations (UNDP, 2020a, UNCTAD, 2020), as well as the scientific study of the international team under the leadership of the University of Sydney, point out that there is a chance for reset of the economy that has been ruined by Covid-19, making a decisive choice to "green" it, integrating climate and investment policies (OECD, 2012).

3.1. Green industry

Green Industry promotes sustainable patterns of production and consumption i.e. patterns that are resource and energy efficient, low-carbon and low waste, non-polluting and safe, and which produce products that are responsibly managed throughout their lifecycle. The Green Industry agenda covers the greening of industries, under which all industries continuously improve their resource productivity and environmental performance. It also aims to create green industries, that deliver environmental goods and services in an industrial manner, including, for example, waste management and recycling services, renewable energy technologies, and environmental analytical and advisory services.

One of the international organizations that promoted the "green industry" concept to place sustainable industrial development in the context of new global sustainable development challenges is UNIDO. Green industry means economies striving for a more sustainable pathway of growth and implementing public policy initiatives that encourage environmentally responsible private investments. The strategy of UNIDO describes green industry as a two-pronged endeavor to decouple resource use and pollution from industrial development and promote the growth of productive sectors and entrepreneurships with a special focus on SMEs (UNIDO, 2011). It includes:

•greening of industries − ensuring that all industries, regardless of sector, size or location, continuously improve their environmental performance. This includes commitment to and actions aimed at reducing the environmental impacts of processes and products through using resources more efficiently, phasing out toxic substances, substituting fossil fuels with renewable energy sources, improving occupational health and safety, taking increased producer responsibility and reducing the overall risks.
•creating green industries − stimulating the development and creation of industries that provide environmental goods and services. Green industry is a growing and diverse sector that covers all types of services and technologies aimed at contributing to reducing negative environmental impacts or addressing the consequences of various forms of pollution. This includes material recovery, recycling companies, waste management and treatment companies, as well as companies that transport waste. Further examples include engineering companies that specialize in wastewater treatment, air pollution control and waste treatment equipment. The sector also encompasses environmental and energy consultants, in addition to the providers of integrated solutions, for example, energy service companies (esCOs) that offer design, implementation of energy saving projects, energy conservation, energy infrastructure outsourcing, power generation, energy supply, and risk management. A central segment of the sector is monitoring, measuring and analysis providers. Green industries also include companies that manufacture and install renewable energy equipment and companies that develop and produce clean technologies.
This dual approach promotes sustainable patterns of production and consumption, i.e. patterns that are resource and energy efficient, low-carbon, low waste, non-polluting, safe, which produce products that are responsibly managed throughout their lifecycle.

3.2. Green supply chains

In recent years, the idea of pushing environmental responsibility upstream to associated suppliers and vendors has gained favor as a strategy among environmentally-conscious companies. In this way, buyer companies seek to ensure that the environmental standards they have adopted internally are consistently maintained by their suppliers, even without government regulation, this sort of inter-firm compliance regime offers advantages to supplying companies that adopt greener practices.

For both suppliers and their customers, a well-managed supply chain effort can go beyond mere cost-cutting, it can create business value in the form of higher quality materials or manufacturing processes, innovative new goods and services, protection of one's brand reputation, and enhanced customer loyalty. Many large multinational companies have adopted green supply chain standards and enforce them through inspection and compliance regimes – e.g. requiring suppliers to use a certified eMs. It is important that standards adopted by multi-national companies are verified by independent and recognized organizations. Some companies offer assistance to suppliers to help them achieve the more rigorous standards. SMEs in particular often need external support and capacity building to assist their participation in green supplier networks.

3.3. Renewable energy sources

Although the economic downturn of Covid-19 has affected total energy investments during the last year, the development of renewable energy projects has remained extremely consistent compared to the hydrocarbon industry. The World Energy Outlook 2020 report, published by the Paris-based International Energy Agency (IEA), predicts that investments in oil, coal and gas will decrease by 8.5%, 6.7% and 3.3%, at the same time it is predicted that investments in renewable projects will increase by 0.9%.

According to Fatih Birol, IEA Executive Director "solar is becoming the new king of the world electricity market. Based on today's policy settings, it is on track to set new records for implementation every year after 2022". As OBG described in detail, emerging markets were among those shaping this trend toward renewable energy after the outbreak of Covid-19. Similar opinion expressed Bundit Sapianchai, President and CEO of Thai renewable energy company BCPG, in an interview with OBG. "From a policy perspective, every government should try to promote green energy more aggressively. Covid-19 paved the way for clean energy by changing lifestyles". From the investment perspective, in March 2020, the stock prices of companies from the energy industry fell by more than 50% compared to their prices before Covid-19. "There is a strong consensus that green energy is a future segment in the development of the industry," he added. "So, this is an opportunity for green funds and green investors to buy stocks at a lower price" (OBG, 2020).

3.4 Green public-private initiatives

Green PP initiatives can be used as an instrument to contribute to the sustainable development. According to the OECD, the challenge for business

is to move towards clear performance indicators for sustainable development, and to align them with the broader needs of society. Green PPPs in a broader sense include cooperation in the field of using renewable energy sources, healthcare, education, etc., almost all the activities related to the green economy.

PPPs are commonly understood to incorporate three key elements: formalized partnership defining the respective roles and responsibilities of public and private actors, risk-sharing among public and private actors and financial reward for private parties, in line with contractual conditions and risk-sharing arrangements. They can be envisaged as formal partnerships, delineated by specific contractual arrangements between public and private parties. More broadly, they can also inform collaboration and cooperation mechanisms between public and private entities or be understood in relation to the need for public authorities to leverage private finance. They therefore offer both practical and conceptual solutions in climate finance to ensure productive interaction of public and private finance organizations. (Gardiner, Bardout, Grossi and Dixson-Declève, 2015)

The potential field of application of PPPs in climate finance is very broad. A recent report of Green Growth Best Practice (GGGI, 2014) points out the thematic areas that are identified for public-private collaboration. They include mostly the green infrastructure, where the PPPs hold the potential for enhancing the efficiency of large infrastructure investments, mobilizing the resources needed to support infrastructure projects of a smaller scale, and supporting innovation as well as the emergence of new growth areas. Another field is the natural resource management, where the importance of shared public and private ownership of natural resources to ensure shared valuation and awareness can help achieve effective compliance and enforcement.

3.5. Green bonds

As many countries turn to debt to help fund their recoveries from the coronavirus pandemic, an increasing number of governments and companies are looking at sustainability-focused financial instruments to fund major projects (Ordonez., Uzsoki, and Dorji, 2015). Germany, Sweden and Hungary launched green bonds to help their economies. According to data compiled by industry analysts, some 200 billion USD in green bonds were issued globally in the first nine months of the year, a 12% increase in comparison with 2019.

Although the figures for most of the year lagged behind 2019 levels, it is evident that 2020 emissions will eclipse last year's record result after the crash in the third quarter. Corporate entities within emerging markets have also turned to green bonds to fund new business developments (Vassileva, Simić and Stevanović, 2020).

As for the emerging market, the Indonesian government issued a USD 2.5 billion green sukuk (Islamic bond) in June 2020, the third venture in a sustainable debt market. Egypt had a portfolio of eligible green projects worth USD 1.9 billion, with 16% for renewable energy, 19% for clean transportation, 26% for sustainable water and sanitation, and 39% for pollution reduction and control. Corporate entities in emerging markets have also turned to green bonds to fund new development. The Saudi electricity company, for example, which is 80% owned by the government and has a monopoly on the transmission of electricity in the country, collected USD 1.3 billion in green sukuk, the first of its kind in the Kingdom. In the same month, the National Bank of Qatar became the first company to issue a green bond in the country, raising USD 600 million. Meanwhile, building on the government's use of sovereign green bonds, Indonesian power company Star Energy Geothermal sold the country's first green corporate bond with an investment grade rating in October 2020, raising USD 1.1 billion (Vassileva, Simić and Stevanović, 2020).

CONCLUSION

If there is one good thing coming out of the COVID-19 crisis, it is that businesses are forced to innovate and re-evaluate the way they operate. For example, the tech community has risen to the occasion of helping companies and citizens adopt technology to overcome some of the challenges associated with the coronavirus pandemic, as technologic enablement allows parts of – or in some cases entire – organization to continue operations amidst the current situation. For sure, the world will look different post-virus and so will international business models.

As seen from the above, there are obvious environmental benefits of the lockdown measures, but these will only be sustained with a real change in the mind-set of industry and governmental leaders towards a more sustainable agenda. This was confirmed by the words of Dr Arunima Malik, from Integrated Sustainability Analysis (ISA) and University of Sydney Business School, who said that the experience of previous financial shocks showed that, without structural change, environmental gains were unlikely to be sustained during economic recovery.

The UN's Framework for the Immediate Socio-Economic Response to the COVID 19 Crisis warns that assessing the impacts of the COVID-19 crisis on societies, economies and environment is fundamental to inform and tailor the responses of governments and partners to recover from the crisis and ensure that no one is left behind in this effort. Without urgent socio-eco-nomic responses, global suffering will escalate, jeopardizing lives and livelihoods for years to come. Immediate development responses in this crisis must be undertaken with an eye to the future. Development trajectories in the long-term will be affected by the choices countries make now and the support they receive.

The post COVID-19 scenarios foresee opportunities for countries, companies, and citizens to end up as losers or winners after the crisis. The research shows that the beneficiaries of the "greening" of the economy might be the winners.

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THE HEALTH COOPERATIVES AS REPONSE TO HEALTHCARE CHALLENGES AND COVID19 PANDEMIC

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Abstract: Health cooperatives are not developed in Serbia, but during 2020 there was created Initative for reopening health cooperatives submitted to the Parliament explaining benefits of such organisational form and requesting change of public policies based on the previous research. This paper propose model that might be of practical power for the existing settings of healthcare system of Serbia, particularly reaching vulnerable groups in rural areas. Global experiences of healthcare cooperatives are presented esspecially considering COVID19 pandemic. Methodology is based on the analysis of the literature and syntesis of historical and modern aspects of health cooperatives in order to propose model of worker based health cooperatives that should be created into the rural areas in order to achieve results more effective than current in provision of the healthcare services.

Keywords: health cooperatives, rural areas, Republic of Serbia, cooperative model, COVID19

INTRODUCTION AND HISTORICAL BACKGROUND OF HEALTH COOPERATIVES IN SERBIA

Health cooperatives in Republic of Serbia have a significant and long history. One of the first ever mentions of Health cooperatives in Serbia was identified during the First Congress of Agricultural Cooperatives (1895), when was opened disucssion about *health funds* within agricultural cooperatives. Interestingly, same model of organization of cooperatives was

later established in Japan (and newer form is known as Koseiren cooperatives) (1). First health cooperatives have been created in 19th century in Serbia and one of such early examples was health cooperative openned in today city of Lazarevac (2, 13;43); (3, 52;53). At the time of 19th century, health cooperative movement was not stable and widespreaded but the idea about development of such organisational form already existed (e.g. rural areas of then Kingdom of Serbia). At the beginning of 20th century, there was very difficult period for entire country due to the two Balkan wars (1912-1913) and the First World War (1914-1918). This extremely difficult period resulted in post-war crises and major issues were connected with following: lack of institutions, demographic concerns, different epidemiological issues, poverty etc. (4,225). Following creation of *Kingdom of Serbs, Croats and Slovenes (1918-1929)*, idea of development of health cooperatives raised again and after WWI first health cooperatives have been developed in 1921. Following that period, until the 1941 – health cooperatives have been multiplying and reaching number of 100 with similar number of created health stations (2,42).

During the WWII, health cooperatives stopped their work and there have been noticed numerous issues with invaders (i.e. health cooperatives were burned, medical stuff were killed etc.) (5,25-63); (2,42). After the WWII, health cooperatives have been re-established, but only until 1949 when those organizations have been included to healthcare system of then Yugoslavia. Following that period, until recently (2020), there have not been any interest in health cooperatives although these type of organizations have been included in Law on Cooperatives (Official Gazette of Republic of Serbia, no.112/2015) (6). In 2020, there was created Initiative for opening health cooperatives which was submitted to the Parliament of Republic of Serbia with request for public hearing (6). Additionally, National Plan for rural revitalization (Ser. *Nacionalni Program za preporod sela Srbije, in further text National plan*) created by Board for villages of the Serbian Academy of Sciences and Arts and Ministery for regional development – includes concept of health cooperatives (for the first time after decades) (7). In following text we are extracting paragraph from the mentioned National Plan explaining views on the role of the health cooperatives in rural areas (8):

> "In the public promotion of the new Serbian cooperative, it is necessary to point out the need to establish health cooperatives, which would also cover rural areas. Such cooperatives would take care not only of the treatment of the sick in the villages but of the various types of their preventive action raising the general level of health culture, which is very low among the peasants."

Those activities are a good signal showing that changing of public policies might happened in the future and health cooperatives might become more frequent organization type in healthcare system in Serbia. In order to facilitate change of public policies and implementation of health cooperatives it is important to present the prospective organizational models that might be competitive solution in resolving ongoing healthcare issues in Serbia (9); (10); (11); (12); (13); (14). In this paper, we are mostly interested in rural areas of Republic of Serbia having in mind health equity, health equality and quality of medical services. Therefore, in further text we are going to propose model of health cooperatives that might efficiently resolve some of the issues of healthcare system, affecting also selected problems of medical professionals including employment and emigration. Also, we are showing examples of health cooperatives from world with special attention to the cases of cooperatives during COVID19 pandemic.

BRIEF PRESENTATION OF THE HEALTHCARE SYSTEM CHALLENGES CONSIDERING HEALTH COOPERATIVES MODEL APPROACH IN RURAL AREAS

Inequality in access to healthcare system is visible in rural areas comparing to the population in cities. This is particularly oriented to the agricultural workers and vulnerable groups (e.g. unemployed women and children). Access to healthcare institutions is not the same for the rural and urban population. In addition, access to primary and secondary healthcare is not the same leading us to the question about health equality in those regions?

Having this said, there is no standardization in the rights to access healthcare for the rural and urban areas and this is exactly the problem where state should consider wider implementation of health cooperatives.

Another major problem is related to agricultural workers and their health insurance access. Namely, according to different sources, their current debt to the Republic Fund for Health Insurance of Republic of Serbia is measured in billions of Serbian dinars. There have been requested changes of law on the health insurance in Republic of Serbia in order to allow calculation of the fees for health insurance based on the profit instead of current setting which is requiring fees based on the size of the farm and potential for production, sales and profit.

Basis of insurance	**Total number of insured persons**	**Insurance holders**	**Members**
Employed	2.889.675	1.774.849	1.114.826
Unemplyed	46.323	35.372	10.951
Pension users	1.962.002	1.751.378	210.624
Enterpreneurs	304.503	181.475	123.028
Agriculture workers	204.628	104.709	99.919
Insured on the basis of state budget	1.326.651	924.532	402.119
Other	167.7	133.922	33.778
Total	6.901.482	4.906.237	1.995.245

Table 1, Health insurance structure in Republic of Serbia (15)

Another example of inequality is connected with rights of the vulnerable groups in rural areas : maternity allowances are not the same in value for the rural and urban citizens and primary healthcare is not approachable as in the cities. Health culture and edification, health risks, mental health, healthy food production and environmental concerns of the rural areas population also requires more attention and Government of Republic of Serbia noticed those concerns (8).

WHAT ARE THE ACTUAL TRENDS IN GLOBAL DEVELOPMENT OF HEALTH COOPERATIVES AND WHAT ARE THE ADVANTAGES OF SUCH ORGANISATIONS?

Health cooperatives are developed in numerous countries globally. According to data obtained from International Health Cooperative Organization IHCO (sector of International Cooperative Alliance - ICA), health cooperatives are on the rise in many countries. This arising trend is not only within scope of number of newly opened health cooperatives, but also it is connected to creation of more complex organizations with more and more employees, members and number of services provided.

Country	Year	Number of organizations	Turnover (million)	Currency	Employees	Users (million)	Users (% of the population)
Australia	2014 - 2016	175	9,244	AUD	15.659	3.6	14.9
Belgium	2016	785	1,002	EUR	19.702	13.2	116.3
Brazil	2015	1,933	-	-	96.023	24	11.6
Canada	2013	130	63	CAD	1.132	0.4	1.1
Colombia	2013 - 2015	152	9,872594	COP	17.383	8.6	17.7
France	2014	1,832	-	-	36.344	12.3	18.4
Italy	2014	6,756	9,235	EUR	233.397	5.5	9.1

Japan	2014-2015	145	1,359,320	JPY	91.969	12.2	9.6
Singapore	2015	4	114	SGD	2.271	1.7	30.3
Spain	2016	507	14,499	EUR	52.006	6.4	13.8
Sweden	2015	298	149,411	SEK	19.367	13.6	137.3

Table 2. Status of health cooperatives in observed countries (16)

*missing data on health insurance cooperatives sector

Having in mind requirements for opening health cooperatives, Initiative for reopening health cooperatives in Republic of Serbia (in further text: Initiative) has recognized following relevant aspects (7):

> "Health cooperative models, like other types of cooperatives, are prone to self regulation, and problems in unregulated markets have detrimental and significant consequences that we could see in the global financial crisis of 2007–2008 when financial instruments were secured by "toxic assets" and world markets collapsed. As a counterpart to such a form of business, cooperatives that are complex with self-regulation operate in a very transparent and responsible manner, and in order for self-regulation to be successful, it must include honesty, concern for others, and social responsibility. Therefore, cooperatives should include a high ethical component in their work, and it is also important to prevent the formation of false cooperatives by law. In order to understand the importance and the way cooperatives work, it is of great importance to include adequate programs in the academic and professional education that train new experts in cooperatives. The development and future of cooperative businesses should be continually encouraged through scientific research, which is the responsibility of the competent alliances or scientific and research institutions with

> which cooperatives should have a high degree of cooperation. Also, international support should be there in order to develop the health cooperative movement further."

When considering rural development and health cooperatives, it is important to mention that numerous countries have been assigning roles to health cooperatives exactly in order to resolve healthcare issues within its rural areas. We have such examples in both historical and modern concepts. Namely, in Kingdom of Serbia (later Kingdom of SHS; Kingdom of Yugoslavia and Yugoslavia (FNRY) - prospectively), health cooperatives had significant impact on rural areas. At time after the WWI, health cooperatives have been implemented in rural areas in UK, USA, India, Poland, France, Romania, China and many other countries considering them to be effective to resolve that time healthcare issues. When it comes to modern aspects, health cooperatives are operating in Sweden, China, India, Brazil, Argentina and many other countries in rural areas (16).

Why are health cooperatives considered relevant for resolving rural areas healthcare issues? This might depend on the type of organisation, services or products provided etc. However, we can discuss about it *an general* as of the socio-economic predispositions that health cooperatives have. Namely, those organizations are created on the local level (with a strong local inclusion), targeting particular healthcare issues that are not covered by public or private sector due to different reasons (or they have competitive advantage over the other two organisational forms). The important aspect is price of services and development of organization that might be competitive comparing to private organizations and therefore affordable for the users. Structure of the cooperatives includes democracy in decision making, autonomy and usually reinvestment in the business of large portion of the profit. This is also why state is usually considering support of cooperatives in form of subsidies, tax reliefs and other beneficial packages as health cooperatives are creating different socio-economic values through work comparing to investor-based business.

INTERNATIONAL CASES OF HEALTH COOPERATIVES AND COVID19 PANDEMIC

Health cooperatives operate in a large number of countries (Table 2) and within this section we will give an overview of the work of individual health cooperatives in the world in the context of opposing the COVID19 pandemic. Such examples point to the fact of the importance of health cooperatives in the world, and especially in rural areas, and therefore relate to the issue of potential establishment of this organizational form in the Republic of Serbia. Experiences from abroad in the moments when the health system is the most vulnerable, health cooperatives have shown a high degree of autonomy in work, flexibility and innovation as well as fast ways to react.

We can also refer to solidarity as one of the basic principles of cooperatives, which is more needed than before during the COVID19 pandemic, and which has been presented by health cooperatives around the world. On the example of the health cooperative from Italy called "GULLIVER" from Modena, one can see the advantage over other organizational models in the health system of Italy. Namely, this cooperative, which has close to 2000 employees and provides about 530 types of services (17), significantly influenced the change of the supply chain, thus providing all the necessary equipment for its users and cooperative members. The supply chain has changed thanks to a high degree of autonomy and the formation of special teams that have obtained information and equipment on the market through various approaches (including local authorities, consulting with politicians and public decision makers, finding new resources on the market, etc.).

Also, the services were provided outside the standard framework and were implemented soon after the first outbreak of the COVID19 pandemic in Italy (let's not forget that the first European pandemic appeared in Italy when there was not enough information about the virus, measures, etc.).

With an innovative approach, this cooperative has created e-applications that are used to provide psychological support to patients and especially to the users of their numerous gerontology centers. Also, a very small number of people infected with COVID19 is stated, which is due to the timely response as well as the good organization of the institution in order to provide services to its customers in times of great challenges.(17)

Colombian health cooperatives were also up to the task during the COVID19 pandemic. COOMEVA is a health cooperative worth about half a billion US dollars and according to them, solidarity as a cooperative principle is something that is constant in their business both during a pandemic and when there is no pandemic. This health cooperative has successfully redefined its five-year business plan and, by applying cooperative principles, provides adequate health care to a large number of users.

In addition to Italian and Colombian health cooperatives, Indian health cooperatives performed well during the COVID19 pandemic. Namely, the Indian Federation of Health Cooperatives SEWA, thanks to good communication with its users, managed to get their opinion before official state and private health institutions and to make a quality analysis of the needs of its many users during the new situation with the COVID19 pandemic. This federation of health cooperatives was founded in Ahmedabas and employs more than 1.5 million women. (18)

Having in mind these and other successful examples of health cooperatives, the potential of these organizational forms is shown, as well as their significance for the society both during crisis and regular activities.

PROPOSED MODEL OF HEALTH COOPERATIVES FOR RURAL DEVELOPMENT IN SERBIA

Ministry of Health of Republic of Serbia should target particular area of interest considering their deficit in performance. In this paper we are interested in rural areas where healthcare coverage is insufficient due to different reasons. Another step would be that Ministry of Health

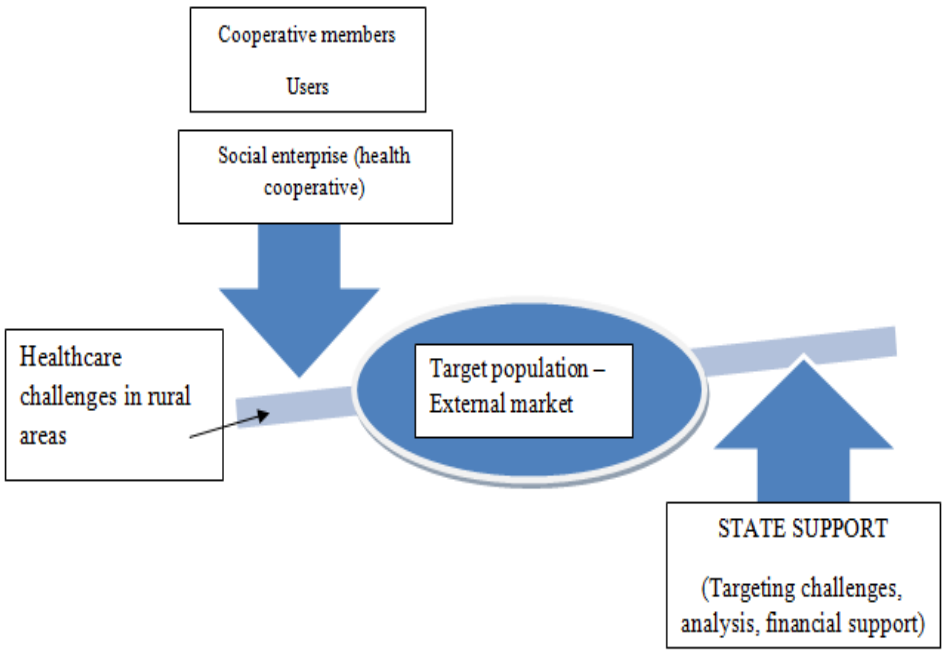
(in cooperation with academic and professional institutions and other connected Ministries departments) acknowledge type of issues that are concerning particular rural area and to propose types of health cooperatives that might be effective to resolve such issues (or to adequately minimize them). For example, we could have one rural region with 30 small villages, geographically dispersed within the area, where public health system do not have significant resources (e.g. sufficient number of doctors and medical stuff, number of units for primary care, number of units of secondary care – or large distance for approaching primary/secondary care etc.). Based on such analysis, there should be runned economical analysis that includes size of the investment for the state to cover such issues through health sector or to check the other options: attracting investor-based healthcare facility or health cooperative.

As we are assuming that state would resolve such issues if there was possibility already, we are considering another 2 scenarios: opening private healthcare facility or health cooperative. Having in mind that private healthcare facility is investor-based model, organized in order to be profitable and having in mind average wage in rural areas in Serbia (significantly lower than the average), we are coming to one of the main reasons why private healthcare institutions already do not operate in observed rural areas. Simply, because villagers do not have suficient incomes to pay out-of-pocket expenses to privately owned clinics despite the fact they need medical services.

Another aspect is related to the prices of medical services. Namely, in Republic of Serbia there is a large disparity of the prices in public and private sector (e.g. cost of CT Scan etc.). In some cases, investor-based model prices are 10 times higher than public health system prices. This also shows instability of healthcare market. Considering that there is no economic interest for investor-based organizations in rural areas and it is too expensive for state to develop strong public healthcare system in rural areas we are proposing model of health cooperatives (as third option) that might be of interest for the patients, state and cooperative entrepreneurs.

This model should be based on the *workers cooperative* that should be created by the medical and other professionals interested in supporting rural areas, but also interested in creating financially self-sufficient organization that should support requirements of the local population creating additional socio-economic values and being profitable at the same time.

If we consider additional aspects that are connected to the unemployed medical stuff in Serbia and level of emigration of medical personal to developed European countries – perhaps health cooperatives might provide solution to previously mentioned challenges through opening another business possibility for those medical workers who would lave country or stay unemployed.



Graph 1, Model of health cooperative and communication with the state on targeting and resolving rural healthcare challenges
Source: Author's graph

Within graph 1, there is presented model of cooperation between state and workers health cooperative (considering both "entities" have the same goal in targeting rural areas healthcare issues and its resolution). Competitive advantage of health cooperative might be easier to set up comparing to the public institutions in organizational sense. From the other hand allocation of prices for services should be determined in such way to assure profitability (e.g. the prices of the medical services significantly vary from public to private institutions). Therefore, state should have another role in providing subsidies for the health cooperatives in the terms of subsidizing difference in price between market price and price set up by the public healthcare system for the insurers (*Private healthcare medical services prices (P1) - Public health insurance prices (P2) –/+ competitive price regulation (CP))*.

CONCLUSION

This paper presents model approach to resolution of the certain healthcare challenges in rural areas of Serbia. More precisely, this paper provides insights into potential that should be considered by the Public policies creators, government and entrepreneurs in area of cooperatives, in order to allocate appropriate model of health cooperatives that might be interesting for the rural areas.

In this paper, we have especially emphasized the section that shows the work of health cooperatives in the world, their number and complexity with additional reference to the cases of health cooperatives during the COVID19 pandemic. Flexibility, innovation, solidarity and autonomy are just some of the advantages of health cooperatives presented in this paper on the examples of the COVID19 pandemic. Finding and protecting the interests of cooperatives members and users of health cooperatives services in accordance with the basic definitions of the work of cooperatives, is exactly what has proven to be important and effective in the conditions of the newly emerging health crisis.

In addition, health cooperatives follow one of the basic principles of cooperatives - solidarity, in their regular operations and not only in cases of crisis. Therefore, the comment of the representatives of the Colombian health cooperative COOMEVA that members and users of their services do not have to wait for the crisis to see the advantage of solidarity in the work of health cooperatives is certainly good recommendation.

Having in mind challenges of healthcare system of Republic of Serbia in rural areas (demography, primary and secondary care reach out, health edification and education, access to health insurance etc.), we are considering that health cooperative model have the advantages comparing to the public health and investor-based models. Those advantages are mainly seen into the unavailability of those two systems to respond to the challenges for a decades, into the socio-economic benefits of cooperatives, lower expenses for the state (comparing to size of investment for developing adequate public health system), employment of unemployed medical stuff, local recognition and support to local community, organizational architecture of the health cooperatives allowing re-investing of large portions of revenues etc. We should also mention there are many other forms of the health cooperatives, but this model of worker based cooperative was proposed having in mind specificities and requirements of the rural areas in Republic of Serbia. Some of the other forms (based on type of services provided) of coopeatives are also the cooperatives in the area of food protection, safe food production, educational and training cooperatives related to health topics, protection of the environment etc.

Please note that further, more detailed analysis should be performed in order to understand all of the capacities of the proposed model and its implications in practice. However, we are strongly recommending health cooperatives as one capable organizational model that might be used with or without state support creating additional values to the society.

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Guest Lecturers

1. ***THE MASS INNOVATIVE REACTION TO THE COVID-19 CHALLENGES: THE CASE OF THE HISTORICALLY BIGGEST HACKATHON THE #EUVSVIRUS***

Author Prof. Milen Baltov, PhD Burgas Free University, Burgas, Bulgaria

2. **BULGARIAN ECONOMIC MEASURES IN RESPONSE TO THE CORONAVIRUS PANDEMIC AND CHALLENGES IN STABILIZING THE ECONOMY**

Author Prof. Svetlana Aleksandrova- Zlatanska Ph.D University of National and World Economy, Sofia, Bulgaria

THE MASS INNOVATIVE REACTION TO THE COVID-19 CHALLENGES: THE CASE OF THE HISTORICALLY BIGGEST HACKATHON THE #EUVSVIRUS

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Abstract: Last march Europe met the harshest of a pandemic after the wartime. It came at a moment when some of the economies were entering the usual cycle of the economic crisis, and it was a matter of time the rest of Europea and the world to undergo it. The questions at that moment were dominated and the uncertainty dominating. Was it a time for innovation and opportunities then? At that very moment a community of enthusiasts from the innovation environment and the European Commission decided an innovative in its essence step – to launch the Pan-European hackathon #EUvsVirus.

Keywords: Business challenges, Hackathon, Innovative Action, Pan-European.

Introduction

To complement hackathons taking place at global and member state level, the in close collaboration with not only the EU member states, but also all the Western Balkan (the North Macedonia with Renata Petrevska in the headline) and many from the neighbourhood countries pan-European hackathon was intended to connect civil society, innovators, partners and buyers across Europe to develop innovative solutions to coronavirus. Started from an official institution (the Commission) in fact the driving force turn to be people from the academia (the author one of them), the business and the society. The #EUvsVirus Hackathon effectively took place on 24, 25 and 26 April 2020, and addressed some 20 imminent coronavirus challenges - the fast production of equipment, scaling up production capabilities, knowledge

and solutions transfer from one country to another), to be quickly developed and deployed across the EU Single Market.

Challenges were "hacked" online by more than 19 000 participants, making the event the biggest hackathon so far. Most of the immediated results turned into projects and at the end of May 2020 a #Matchathon upgraded it meeting investor, local and societal authorities with the best ideas. Burgas Free University invited one of the seven winning in categories teams to its conference and steps further in the research think tank team of Renata with Milen Baltov, this paper's author happy to share the experience.

The problems arising from the Covid 19 crisis

The quarantine and disruption of non-essential activities as measure to contain the COVID-19 pandemic has negatively affected all economies around the World. This has had a deeper impact on small and medium enterprises (SMEs) in emerging economies because they have very limited resources and vulnerable supply chain and business-to-business/business-to-clients relationships. In this context, it is expected that after the pandemic many of these enterprises will disappear as the "new normality" will require changes in business and infrastructure management. To reduce this risk, innovation is identified as a key aspect of business recovery in the ongoing and post-COVID-19 pandemic period. This work presents a multidisciplinary methodological approach to guide these enterprises to innovate their products for new markets and making a better use of their limited available resources. As an example of this approach, the research-supported development of a new product for a family-owned SME was performed in a zone with high COVID-19 risk. The results provide insight regarding innovation as a survival tool for SMEs during and after the COVID-19 contingency, and the use of digital resources is identified as the main facilitator for networking and research-based design of innovative products within the "social distance" context.

The research agenda includes exploring how this unemployment crisis may differ from previous unemployment periods; examining the nature of the grief evoked by the parallel loss of work and loss of life; recognizing and addressing the privilege of scholars; examining the inequality that underlies the disproportionate impact of the crisis on poor and working class communities; developing a framework for evidence-based interventions for unemployed individuals; and examining the work-family interface and unemployment among youth.

In the past few decades, while the healthcare industry has grown exponentially due to the increased awareness and technological advances (Dixit, Routroy & Dubey, 2019). Inaccessibility, unavailability, un-affordability, over-crowdedness causing high waiting times, and length of stays are other disruptions that health systems have faced (Almeida & Vales, 2020; Davis et al., 2019; Supeekit et al., 2016). Unexpected occurrences of endemics, epidemics, and pandemics cause off-balance for system actors and push these systems into bottlenecks, resulting in system-related adverse outcomes and economic and social disorders. Overcoming such challenges, particularly under epidemic and pandemic situations, can only be possible by the involvement of various system actors (Meijboom, Schmidt-Bakx, & Westert, 2011). A new disease that has not been seen before, such as COVID-19, can only be diagnosed and treated by multidisciplinary efforts of various health service providers acting all around the world and requires a range of diagnostic tests, medicines, and many other medical supplies from different industries as well as developing new and effective vaccines or drugs. In such an environment, developing an operative health supply chains becomes inevitable.

On the other hand, the era of advanced digital technologies allows storing huge volumes of medical data. This exponential growth in the electronic medical records (EMR) stored by health services is noticeable and requires in-depth investigations to generate valuable information from the stored raw data. Artificial Intelligence (AI) which was introduced by Alan Turing (1950) is the branch of computer science concerned with the developing smart machines which have ability to perform cognitive functions such as perceiving, reasoning, learning, interacting with the environment and problem solving which usually requires human intelligence. In the past decades, expeditious development, wide applications and outstanding achievements of AI in healthcare sector has been witnessed. AI based healthcare machines are used to monitor and store every sensitive data of patients more accurately and acting as vital force for making impossible acts possible. With the use of AI, the capability of healthcare systems is enhanced in terms of increased working speed and decreased error rate. The intelligent data driven applications of AI in healthcare systems are acting as the major shift in man-machine relationship in terms of transparency, efficacy, privacy, safety, improved productivity, automated decision making approach, human-machine partnering and so-forth.

The growing number of solutions, provided by AI, is impacting daily lives of people around the globe. The most recent example is the use of AI algorithms to aid in the development of vaccine for the 2019 novel coronavirus CIVID 2019. Additionally, in the future, AI will be one of the important technologies to run the healthcare sector efficiently. The major notable players in the domain of applications of AI in healthcare sector include Amazon Web Services, General Electric, Google, IBM, Microsoft, Siemens Healthineers, and among others.

As learnt from the COVID-19 pandemic, it can be concluded that health supply chains require further research and innovations (Donthu & Gustafsson, 2020). In the era of Industry 4.0, managing omnichannel health supply chains effectively is only possible when big data and data analytics are taken into consideration. Big data analytics is proven to help forecast and decision-making, and hence can be powerful in enhancing health supply chains. Data analytics-enabled technologies can be implemented in demand planning, procurement, production, inventory, logistics, and many other supply chain topics. This special issue aims to discuss the opportunities and challenges of big data enabled omnichannel health supply chains and show how the performances of supply chain operations should be improved by using AI and data analytics techniques. This special issue also highlights data-driven supply chain strategies in coping with unexpected increases in demand or overcrowded health environments, such as exploring pandemic situations. Manuscripts with conceptual, empirical, theory elaboration and theory building research are suited for the special issue. Papers focused with entire mathematical/OR/modelling background would not be so suited for this special issue. There should a clear contribution to the theory and impact on busienss and society. In this call, manuscripts that use case research methodology to investigate underlying phenomena will be given preference over others.

The special issue aims to address the following, but not limited to, potential topics in health supply chain business research by the use of AI and data analytics techniques:

- Omni-channel Hospital supply chain management
- Overcrowding modeling and management
- AI based diagnostic medical equipment modeling and management
- Therapeutic and protective medical equipment modeling and management

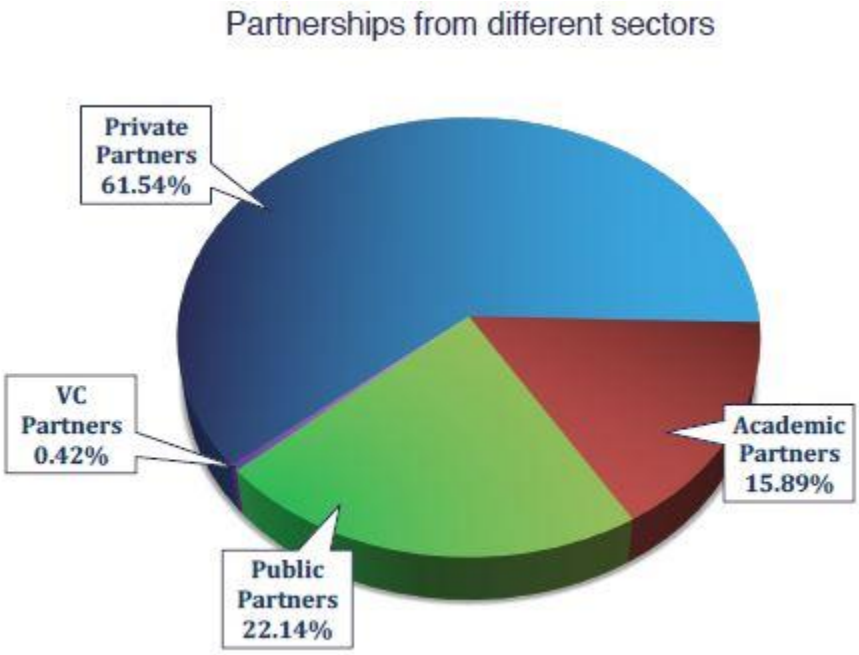
- Data analytics for capacity and resource management of hospital
- Healthcare supply chain coordination management
- Management of critical equipment and materials
- Risk modeling and management
- Health waste management
- Flu vaccine supply chain management
- Data analytics for healthcare management
- Adoption of AI for Pharmaceutical supply chain management

EUvsVirus Hackathon + Matchathon + EIC COVID Platform

On 24-26 April, the European Commission, led by the European Innovation Council and in close collaboration with the EU member states, hosted a Pan-European Matchathon to connect civil society, innovators, partners, and investors across Europe in order to develop innovative solutions for coronavirus-related challenges.

Over 30,000 people from across the EU and beyond submitted 2,164 projects related to various domains including health and life (899), business continuity (381), remote working and education (272), social and political cohesion (453), digital finance (76), and other challenges (83).

Figure 1. Partnerships from different sectors



International Recognition - part of the solution and get recognized all across the European Commission, the European Parliament and all partner networks.

Challenge Domains addressed by the 120 winning teams were:

1. Health & Life

a. Protective equipment

b. Ventilators/respirators

c. Protection of medical personnel

d. Real time communication & prevention

e. Cheap rapid tests

f. Lack of skilled caregivers

g. Research

h. Other

2. Business Continuity

a. Efficient teamwork

b. New and resilient business models

c. Value chains & logistics

d. Protecting employees

e. Demonstrate purpose

f. Stay close to your customers

g. Other

3. Social & Political Cohesion

a. Protection of isolated & risk groups

b. Mitigating fake news spreading

c. Support arts & entertainment

d. Fight against crime

e. Protection of citizens & democracy

f. Developing people-driven economies

g. Other

4. Remote Working & Education

a. Primary and secondary school specific challenges

b. University specific challenges

c. Student's challenges

d. Family life during remote working & education

e. E-learning methods & tools

f. Other

5. Digital Finance

a. Support identification of financial shortfalls

b. Speed-up access to financial support

c. Speed-up distribution of financial support

d. Availability of emergency health insurance

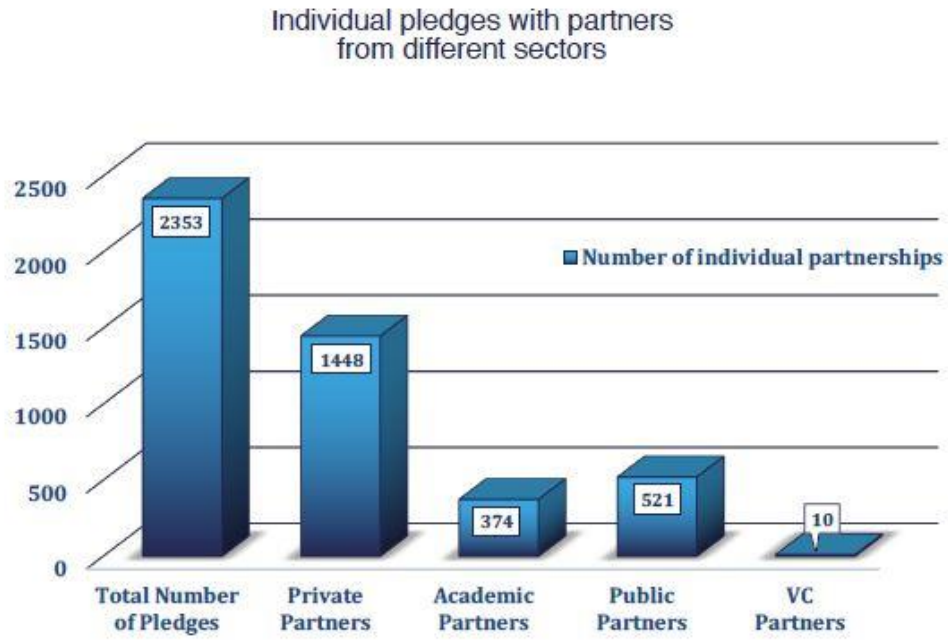
e. Enable crowd to help financially

f. Support for digitally excluded

g. Other

6. Other

Figure 2. Individual pledges with parties from different sectors



Our esteemed jurors then selected 117 finalists and winners, who have been invited to the upcoming EUvsVirus Matchathon (22-25 May), which will include a Demo Day (21 May). During this event, we will help these teams match with corporates, investors, accelerators, venture capitalists, etc. around the world to put their innovative solutions into production and save lives.

Conclusion

The European Commission, in close collaboration with all member States and the participating H2020 associated countries, will provide follow up to the best projects coming from the #EUvsVirus hackathon through the new European Innovation Council (EIC) Covid platform. Foundations, investors, health providers (e.g. hospitals) will also be part of the EIC Covid platform. The s**ocial impact** is related with drive a meaningful project and help your family, friends, neighbours, and all EU countries respond to COVID-19 crisis.

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BULGARIAN ECONOMIC MEASURES IN RESPONSE TO THE CORONAVIRUS PANDEMIC AND CHALLENGES IN STABILIZING THE ECONOMY

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Abstract: Bulgarian government responded promptly by introducing a lockdown. Majority of restrictions in Bulgaria was introduced in the second half of March 2020. This paper presents analysis showing how COVID-19 affected companies in Bulgaria and how the policy responses to it. The Bulgarian economic policy response has been a mixture of fiscal measures and grants funded by EU structural funds. The paper points to measures and steps taken by the Bulgarian government aimed to limit the impact of the COVID-19 and mitigating economic slowdown.

The public costs raise questions about the efficiency of the used state measures. It is too early to estimate overall costs, but at the moment, the price of anti-crisis policy is a decrease of GDP growth by 5,2%. In contrast to a financial crisis firms face a short-term output loss due to a temporary halt of economic activities. In this respect, the pandemic shock shows the strengths and weaknesses of the structure of the economy. The paper presents the overall situation of companies and raising problems from distortions in supply chains and demand. The results of the analysis show that the economic activity of the SMEs reduced and the recovery is uncertain and the global economic environment remains unpredictable.

Key words: comparison, COVID-19 pandemic, measures, turnover, business recovery

Introduction

The economic crises caused by COVID-19 was unexpected and arose asymmetric shock that affected on the business activity and global supply chains. The COVID-19 crisis is a complex and unusual shock to the economy that combines elements of supply, demand, and productivity shocks (IMF working paper,2020)[1].

The medical restriction lasts closely years and consequences and it impact on the overall business activities. The economic recession has reached the most countries of the world, some of them have entered a recession due to the continuous of the lockdown. The economic activity in Bulgaria has been volatile and it has been sensitive to the restrictive measures.

More than one year the Bulgarian economy is developing under uncertainty driven by COVID 19 pandemic and unprecedented lockdown medicine and economic measures. The Bulgarian government has responded with economic support to the business in order to limit the effects of the pandemic on the economy.

The distinguished features of the current economic crisis are defined by a comparison between the financial crisis 2008-2009 and the current economic crises in order to outline the similarities and differences.

1. Macroeconomic performance in a pandemic situation

The Bulgarian economy is small opened, integrated into global production chains. Last five years recorded positive growth rate, real wages increased, the unemployment rate reached 4 percent. The restriction was serious during the first wave of the COVID 19 spread.

[1] Pragyan Deb ; Davide Furceri; Jonathan David Ostry; Nour Tawk, The Economic Effects of COVID-19 Containment Measures, IMF Working Paper No. 20/158, mf.org/en/Publications/WP/Issues/2020/08/07/The-Economic-Effects-of-COVID-19-Containment-Measures-49571

The pandemic crisis was a challenge to governmental policy to introduce the lockdown and applied in parallel economic measures. There is a direct relation between the economic growth and the distribution of the pandemic outbreak.

1.1. Comparison the impact of the financial crisis (2008 -2009) and pandemic crisis on Bulgarian economy

The both crises impact on the global economy, but the driven factors are different. The financial crisis was caused by crashed mortgage lending and disturbance of financial market liquidity. The main transmission mechanism was through the financial markets that are integrated globally. The impact was sudden drop in demand of the capital intensive goods and followed by distortion of the global supply chain.

The COVID pandemic impacts on the supply side of the economy, the real sector faced a reduction of supply labor and the shortages of raw materials and intermediate goods. Furthermore, supply chains are interrupted by reduction of the international trade of goods. A loss of demand was a result of rapidly decrease of the consumption and spending. The imposed restriction on the economic activities and lockdown leads to liquidity shortage uncertainty of the business revenues and investments. The lockdown hampered service sector. The financial crisis lead to accumulated public debt and fiscal deficit.(OECD,2020)[2]. The international Monetary Fund has pointed out the 'Great Lockdown' as due to 'self-imposed' contractions, leading to the 'worst recession since the Great Depression'(IMF 2020)[3] .

The Bulgarian economy reached its lowest level in the second quarter of 2020 as a result of first measures to curb the spread of the virus and lockdown. The first quarter of 2020 the CDP growth decreased by 8,6 percent. After loosening of measures the Bulgarian economy began to recover. The economic recovery of the last year was very fragile and slow, accumulated GDP drop is 5,2 percent.

[2] http://www.oecd.org/economic-outlook/#resources Accessed 17 October 2020. OECD Interim Outlook, October 2020.

[3] IMF. 2020a. World Economic Outlook: The Great Lockdown. April, International Monetary Fund, Washington, DC.

The World Bank forecasted the global economy slowdown up to 5,2% in 2021. IMF has projected the European economy to shrink by 7 percent in 2020 and respectively by 4.7 percent in 2021[4]

Table 1. GDP growth (2019-2020)

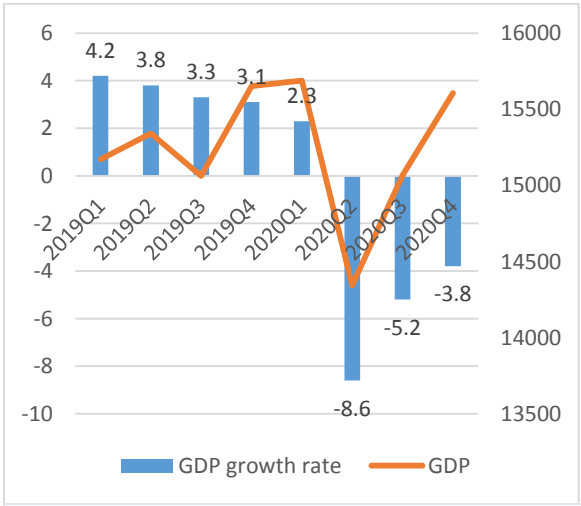
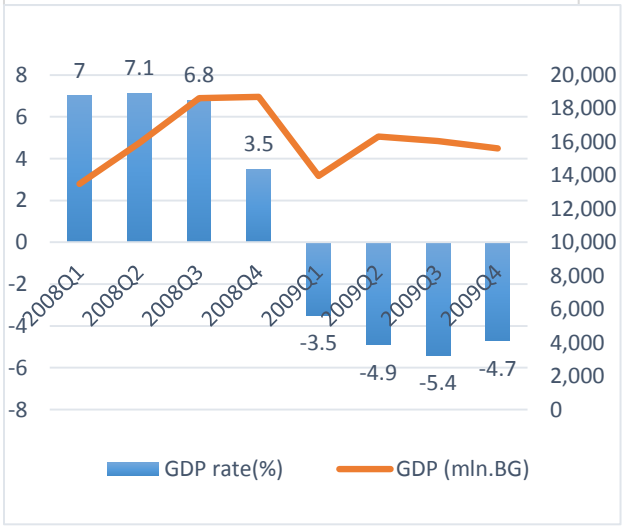


Table 2. GDP growth (2008-2009) a



Source; National Statistical institute

[4] IMF, Europe Whatever It Takes: Europe's Response to COVID-19, World Economic and Financial Surveys
Regional Economic Outlook, October 2020

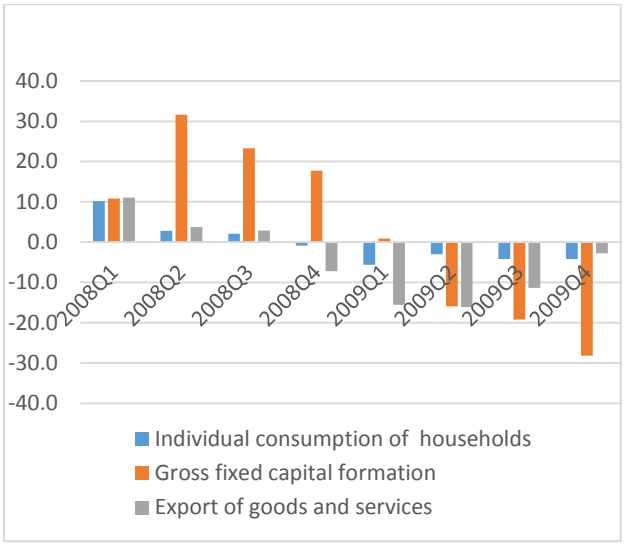
The implementation of the measures is not occurred immediately and as a consequence of the lockdown measure the consumption went down by 5,7 percent and investments by 8 percent and registered employment reached 7 percent but at the end of the year the unemployment rate recorded 5,2 percent[5].

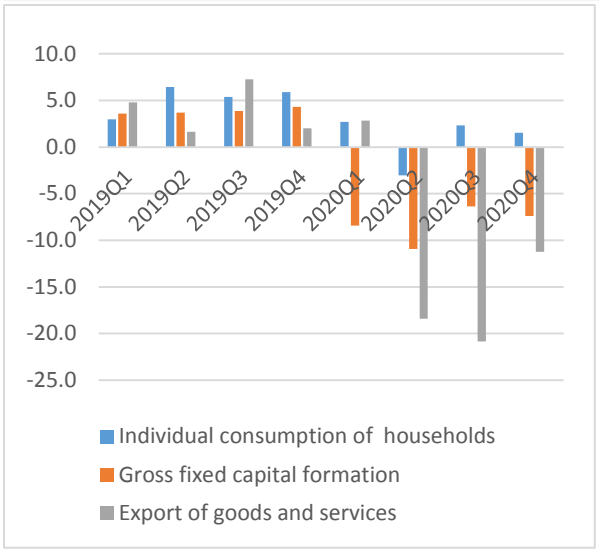
The Bulgarian Economy as a result of the financial crises (2008-2009) lost around 5 percent of the Cross Domestic product and official unemployment was up to 9,2% in 2009. The financial crisis was transmitted by the international trade channel. The export destination is mainly European countries and a decrease of the Bulgarian export demand deepen trade account deficit and the producers had to shrink production significantly. Bulgaria is one of the few countries under currency board arrangement.

[5] National statistics institute

Table 3. CDP by final expenditure (2008-2009)

Table 4. GDP by final expenditure (2019-2020)





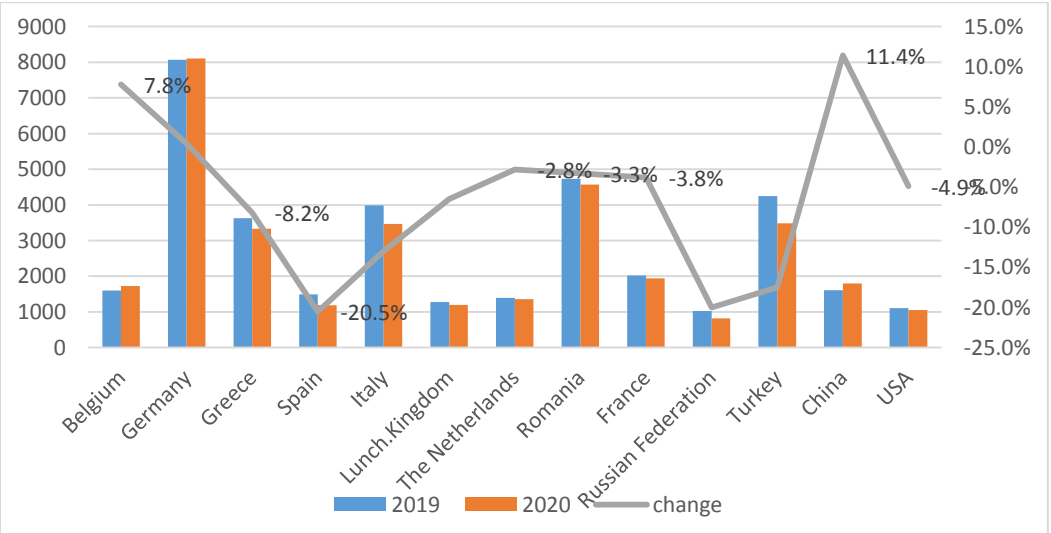
Source: National Statistical Institute

The private consumption fallout in first quarter 2020 and it is due to the uncertainty in employment household income. The measures to preserve the employment and the employee compensation affected positively on the

households' income and private consumption gradually was recovered to 2020. The uncertainty of pandemic spread and threat of economic recession forced people to increase the savings and purchase real estate. The level of the individual consumption level remains at the same level.

The fiscal policy instruments were the appropriate solution to overcome the negative effect of financial crisis through unchanged tax and increase the public expenditures. Domestic demand was disrupted additionally by higher unemployment rate and constant income. The current applied fiscal policy was countercyclical aimed to decrease the negative effects, but during the pandemic the government support investments and transfers to households and to unemployment contribution. The private consumption was preserved stable as a consequence of the expanding fiscal policy The pandemic crisis has hit the external and domestic demand, the export and import goods dropped down. The negative trade balance of goods and services was inherent to both crises. The current reduction of the export is higher than the financial crisis. The export has decreased by 12 percent, respectively the import by 8 percent. Trade balance was negative and its contribution to GDP was less 4 percent in 2020.

Table 5. The export structure by countries (2020)



Source: National Statistical Institute

The export to EU countries recorded 68 percent of the total export. The last ten years the structure of trade by countries has not changed, the main trade partners are Germany, Italy, Greece. Turkey, Russian federation. The exports and the imports of goods and services are significantly affected by the international markets and the limit domestic demand of the main partner countries. The decline in export refers to European countries that economies are seriously affected by a duration of the pandemic and restrictive health measures. For example, the exports to Spain decreased by 20,5 percent, Italy by 13 percent, Greece by 7,8 percent, Turkey by (-17,5 percent). The impact of COVID-19 shows the dependence of exports on the potential and growth of countries' economies, for example, the decline in exports is significant in those European countries whose economies are most affected by the pandemic due to prolonged and severely restrictive health measures. A decline and variability of the export is evidence for its dependence of the domestic demand of the main foreign trade partners and global supply change, as well. The import has decreased due to some extent the decline in domestic consumption and the contraction of the economies of European countries. In particular, the reduction in imports of capital goods has a negative impact on the Bulgarian technological renewal of production in the long run and may be impact negatively on the competitiveness of industrial production. The structure of Bulgarian foreign trade (the raw materials dominated in the import, intermediate goods and low value goods dominated in export structure) makes Bulgarian economy vulnerable to the changes of the international markets and external economic shocks.

2. State measures to support business recovery

2.1. Overview of SMEs Development

The total number of the enterprises is 419 681. Share of SMEs is 99,8% and their share in total employment is approximately 75 percent. It is important to note that 70 percent of the SMEs are engaged in total production. Share of micro and small enterprises is highest it is 92 percent in total number of

enterprises. Share of medium enterprises is 6 percent and share of large enterprises is less it is about 1percent. Micro and small enterprises are crucial component of Bulgarian economy and they contribute closely 60 percent to GDP. The highest number of micro enterprises is in retail trade and services. Direct effect of pandemic was on production and sales, where activity was failed partly or completely during the emergency. The severely vulnerable to the pandemic are companies in retail trade, services, transport and tourism, most of them are very close to failing.

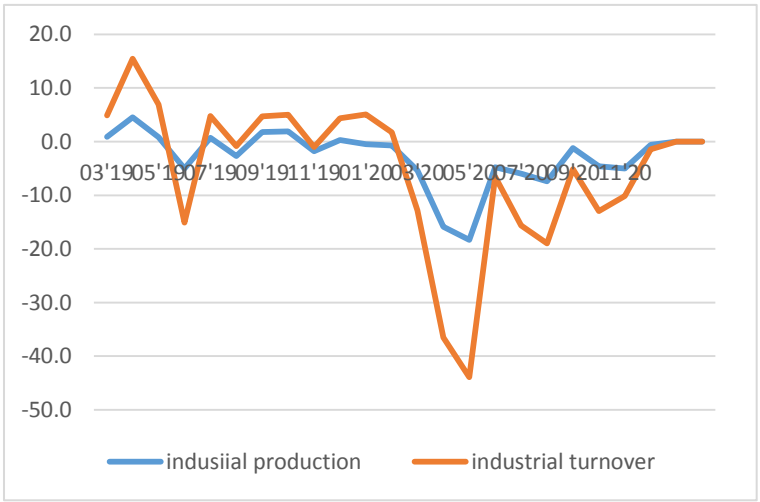


Table 6. Industrial production and turnover (growth in %)

SMEs have a significant contribution to GDP growth. The contribution of the small business to Gross value added is around 40 percent. The manufacturing industry declined by 10,9 percent in 2020. The pandemic affected the financial performance of the SMEs. Deterioration of the financial performance limit capital investment. The revenues from sale of the industry declined by 43,0 percent, retail trade by 48,3 percent.

Source: National Statistical Institute

The losses of tourist summer season were nearly 80 percent. The shortage of working capital is a factor for increasing intercompany indebtedness.

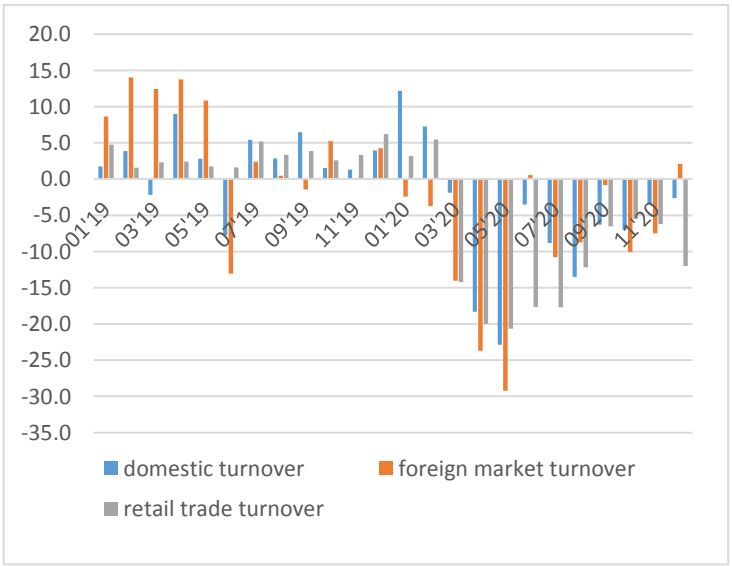


Table 7. Changes in Turnover (%)

The share of the SMEs' tangible assets reached 60,2percent of the total value of tangible assets in 2019. The SMEs are more involved in import and less in export. Only 38percent of the SMEs are engaged in export. A decrease in turnover of SMEs was more 20 percent after lockdown. The imposed restriction on the economic activities and lockdown leads to liquidity shortage uncertainty of the business revenues and investments. Average reduction

Source: National Statistical Institute

range 20 percent to 50 percent losses for tourism, retail trade and transport are higher than other economic sectors. The government policy and measures has addressed to support liquidity of SMEs and protection from bankruptcy.

2.1 National Policy to revive the business

In response to pandemic crisis the Bulgarian government have taken a package of measures funded by EU programs and national budget.

The designed measures the updated EU legislation than enable Bulgarian government to support the business by grants. At the beginning of COVID 19 outbreak was adopted Temporary Framework for State aid measures. The focus of the proposed measures is to support employment, business and public health. The rules state aid was changed and set out possibilities member state to ensure liquidity and access to finance in order to recovery the economy. The temporary framework for the state aid defines provisions related to Block Exemption Regulations[6]. It points out that aid can be in the form of direct grants, tax and payment advantages, guarantees, loans and equity, interest rates, subsidy for loans. The total nominal value of state aid remains below the overall cap of EUR 800 000 per undertaking. The loans will not exceed 25 percent of beneficiary's total turnover the grants. The EU has mobilized financial resources from European Structural Funds and European Investment bank. The EU rules allow provision temporary measures that are directed to support working capital of SMEs, as well as to investment in products and services.

The EU budget 2021-2027 was updated. The next EU Multiannual Financial Framework (MFF) will play a crucial role in the economic recovery. It is amounted EUR1.8 trillion together with Next Generation EU. Next Generation EU is a recovery instrument and approximately 90 percent of funding will be allocated to a new mechanism the Recovery and Resilience Facility (RRF) related to future investments.

A component of Next Generation EU is REACT-EU amounting to EUR 47.5 billion[7] and it is additional funding for recovery affected economic sectors and for job maintenance. The scope of REACT-EU would include structural measures to foster innovation, digitalization and internationalization aimed

[6] European Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty (General Block Exemption Regulation)

[7]European Commission EU's Next Long-Term Budget & Next GenerationEU: Key Facts and Figures, November 2020 https://ec.europa.eu/info/sites/info/files/about_the_european_commission/eu_budget/mff_factsheet_agreement_en_web_20.11.pdf

to restore the activity of SMEs. The procedures for receiving the grants were simplified. The financial instruments can use to provide support in the form of working capital to SMEs.

The mitigation policy that the Bulgarian government has been pursuing started after a decline in economic activity that was caused very fast by unprecedented asymmetric shock of outbreak COVID -19. The measures were mainly focus on liquidity support and preservation the number of employees. The role of the government in dealing with economic measures can be defined as a 'payer-of-last-resort' (Saez and Zucman 2020)[8].

The measures can be group in following categories: fiscal measures - government spending for keeping employment, subsidies SMEs (decrease the tax in most vulnerable sectors to COVID-19 outbreak and increase the social contribution); grants for SMEs funded by European Structural Funds. Separate category is credit guarantees and loans to business (national program for improvement of the liquidity position of private sector through working capital and investment loans)[9].

The government actions for supporting SMEs were implemented through direct grants and loans guarantee schemes that facilitating access to external funding. Grant procedures for SMEs was addressed to cover a lack of liquidity and the shortfall of working capital costs such as raw materials, fuels, labor, expenses for external services (including overheads) and others.

The government has initiated measurers for SME in the form of grants. The Ministry of Economy (National program for competitiveness and innovation) has developed a range of measures addressed to the liquidity needs of SMEs and to help to continue their activities during and after the pandemic. The grants were targeting to refund the working capital shortage.

[8] Saez, Emmanuel, and Gabriel Zucman. 2020. *Keeping Business Alive: The Government Will Pay*. Social Europe, 18 March. https://www.socialeurope.eu/keeping-business-alive-the-government-will-pay. Accessed 20 August 2020.
[9] EIB Group ensured financing measures to €28 billion:

Support to small and micro-companies under the Operational Program "Innovation and Competitiveness" was eligible for micro and small companies which have a decline of at least 20 percent in its turnover of lockdown period 2020. The grant support is a minimum amount of BGN 3,000 and a maximum of BGN 10,000. The total budget of the measure is around EUR 89 million. There was a certain delay in receiving grants from the beneficiaries (micro and small enterprises) due to the administrative procedures and control that are requirements for payments under the European Structural Funds. The substantial EU funds have enabled the Bulgarian government to maintain low public debt and to ensure the protection of the small businesses from bankruptcy.

A credit guarantee scheme known as "Intermediated SME Loan Guarantee Program" was provided by the state Bank (Bulgarian Development Bank). The Bank provides guarantees in favor of commercial banks, which are in a form of loan portfolios to micro, small, medium and large enterprises affected by the COVID-19. The guarantee portfolio schemes may ensure good conditions to borrowers for investment and working capital through reduction of collateral requirements to 50% of the amount of loans and low applicable annual interest rate.

It is contrast to the financial crisis 2008-2009 where the efforts were focused on assistance sustainability of banks and financial sector. The fiscal measures may impact negatively on the budget deficit. There is a risk of an increase the budget deficit due to decline economic activity, The European Court of Auditors (ECA) published integrated review refers to public spending granted to the business. The (ECA) emphasizes that the response measures are opportunity to improve the economic situation however there are risks associated with fiscal stability and accountability of the investments. The relative size of fiscal measures varied significantly across European countries.

The amount of Bulgarian fiscal package is around 2,2 percent of GDP; it is less in comparison with EU member countries. Germany recorded the largest amount of measures to 43 percent of GDP, followed by Italy (37 percent), Lithuania (29 percent), France (23 percent) and Spain (22 percent). Smaller amount of measures is accounted for Romania 4,7 percent of GDP, Slovakia 5 percent, Estonia 6 percent, etc.) [10]

According to the European Audit Court report countries with relatively lower GDP per capita adopted smaller fiscal packages per capita, while countries with GDP per capita above the EU average adopted more varied fiscal reactions that did not appear to depend on the size of GDP [11].

Conclusions

The COVID 19 pandemic destroyed seriously the global economy in short run**.** The financial crisis **(**2008-2009**)** began with disruption of the USA financial and real estate markets and after that transfer to global financial system. The pandemic crisis was unexpected and hit real economy and supply of chain of products. The slump of the economic growth since the first half of 2020 as a consequence of the pandemic is due to restriction on supply side constraints imposed by Bulgarian government. The Bulgarian economy was affected by decrease of external demand. The sales of services dropped down, the following sectors -transport, logistics, tourism, retailed trade were directly affected by administrative restrictions towards diminish the spread of the pandemic outbreak.

[10] See European Court of Auditors Risks, challenges and opportunities in the EU's economic policy response to the COVID-19 crisis https://www.eca.europa.eu/Lists/ECADocuments/RW20_06/RW_Economic_response_to_Covid19_EN.pdf

[11] European Court of Auditors Risks, challenges and opportunities in the EU's economic policy response to the COVID-19 crisis pp. 20, report December 2020 https://www.eca.europa.eu/Lists/ECADocuments/RW20_06/RW_Economic_response_to_Covid19_EN.pdf

The fall in domestic demand was an expected consequence of the lockdown, but arising issues affected the liquidity of companies.
The direct effects of restrictions were a decline in employment, in output and revenues, lack of working capital in most of micro and small enterprises. Despite the implemented measures many companies in the severely affected sectors (tourism, retailed trade, food service) facing bankruptcy and they would difficult to restore viability. However, the state assistance succeeded to save the level the average wages and salaries of employees in private sector and to private consumption rose after the first quarter of 2020. The measures aimed to overcome the negative effect of the pandemic and to accelerate the process of surviving the small business. The measures to revive the economic activity was costly and the public debt has increased.

The economic effects of the pandemic crisis on the economy are hard to be predicted in condition of declining economic growth and unrecovered European and global economy.

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Session no 1

MEDIA REPRESENTATION AND MOBILITY TRENDS UNDER COVID-19 PANDEMIC CONDITIONS: A PILOT RESEARCH

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Abstract: This paper reports on a pilot study designed to provide further insight into the relation of media representation and mobility trends in the Republic of Serbia under COVID-19 pandemic conditions. The study resorts to two publicly available sources: the "Politika" newspaper's web archive and the Google mobility trends reports. The data sources are considered with respect to the period between February 2020 and March 2021. At the methodological level, the research employs natural language processing and time series analysis techniques.

Keywords: COVID-19, media representation, mobility, natural language processing, time series

1. Introduction

People's everyday behavioral patterns during the COVID-19 pandemic are related to multiple external factors, including legislative-regulatory policies, economic specificity, media representation and cultural context.

The point of departure for this paper is that a better understanding of these relations may allow for more informed decision-making about COVID-19 prevention and control. In line with this, the paper draws on a study designed to provide further insight into the relation of media representation and mobility trends in the Republic of Serbia under COVID-19 pandemic conditions. The reported research is data-based to the extent that it resorts to two publicly available sources: the linguistic content of electronic newspaper articles selected from the "Politika" newspaper's web archive, and the quantitative content of the Google mobility trends reports. The data sources are considered with respect to the period between February 2020 and March 2021. At the methodological level, the research employs natural language processing and time series analysis techniques.

2. Datasets

The reported research is data-based to the extent that it resorts to two publicly available sources: (i) the quantitative content of the Google mobility trends reports, and (ii) the linguistic content of electronic newspaper articles selected from the "Politika" newspaper's web archive.

(i) The Google mobility trends reports include daily reports (captured in PDF and CVS files) on Android users' mobility. The reports are derived from aggregated and anonymized Google location history data, and divided by regions. In this paper, we consider the mobility trends reports for the region of the Republic of Serbia.

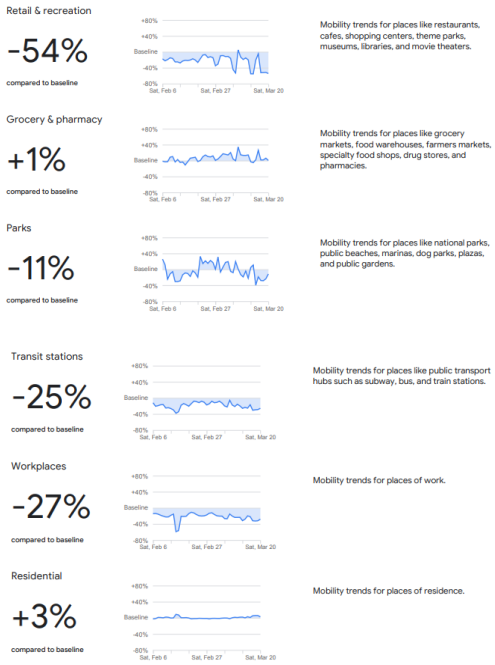

Figure 1. An insight into the Google mobility trends reports (adopted from https://www.gstatic.com/covid19/mobility/2021-03-20_RS_Mobility_Report_en.pdf).

Besides the regional division, the mobility reports are generated for the following place categories: retail and recreation, grocery and pharmacy, parks, transit stations, workplaces, and residential. The quantitative data are presented with respect to a baseline value for a particular day of the week which is generated as the median value for the given day of the week during the period between January 3rd and February 6th 2020 (cf. Figure 1).

(ii) The website of the "Politika" newspaper provides an open-access online web archive dating back to July 2nd 2006, but we consider only the archive's contents (i.e., newspaper articles) in the period between February 2020 and March 2021 (i.e., a period of the pandemic).

In the scope of the reported study, the textual contents of the newspaper articles are automatically extracted, tokenized and lemmatized. Based on this pre-processing (cf. Figure 2), we generated a vector containing relative daily frequencies of articles that are thematically related to the pandemic.

An article is considered thematically related to the pandemic if it contained at least one index term form the vocabulary: *covid*, *covid19*, *korona*, *koronavirus*.

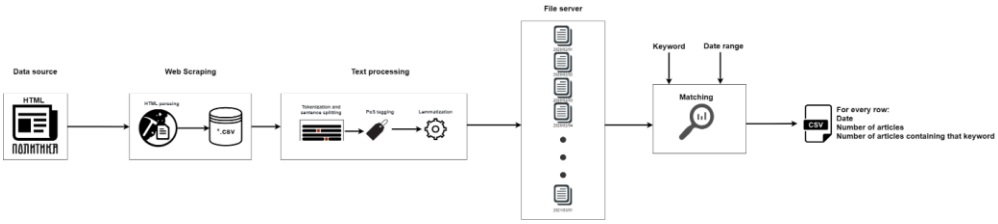

Figure 2. Processing the "Politika" newspaper's web archive.

3. Analysis

To obtain an insight into the relation of media representation and mobility trends in the Republic of Serbia under COVID-19 pandemic conditions, we compared the vector of relative daily frequencies of Covid19-related newspaper articles with the Google mobility data vectors.

Figure 3. Graphical representations of the vector of relative daily frequencies of newspaper articles (marked in bluish) and the Google mobility data vectors (marked in reddish).

For the purpose of illustration, Figure 3 provides graphical representations of the vector of relative daily frequencies of newspaper articles (marked in bluish) and the Google mobility data vectors (marked in reddish). It appears that the mobility in retail and recreation, workplace, transit station and grocery and pharmacy is negatively correlated to COVID19 media exposure, the residential mobility is positively correlated to COVID19 media exposure, and the park mobility is not conclusive, so it is excluded from the analysis.

To provide a more quantitative insight, we consider the cosine similarity between these vector pairs. In addition, we observe a set of conditions obtained by two-week-synchronization of the mobility data time series. There is a data gap in the Google mobility trends, and the corresponding time period was excluded from the analysis. The results are provided in Tables 1 and 2.

Table 1. Results (part one).

Category	Cosine similarity to the media exposure						
	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
Retail and recreation	0.79464	0.780904	0.780136	0.785117	0.788141	0.802623	0.808528
Grocery and pharmacy	0.346085	0.337266	0.31008	0.297254	0.30773	0.303925	0.341203
Transit stations	0.851753	0.855537	0.852532	0.853397	0.856504	0.857524	0.866586
Workplace	0.869899	0.874043	0.882288	0.889349	0.89435	0.896066	0.901064
Residential	0.675219	0.684476	0.692075	0.692671	0.695807	0.695743	0.70205

Table 2. Results (part two).

Category	Cosine similarity to the media exposure						
	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13
Retail and recreation	0.798854	0.787676	0.779366	0.775402	0.7863	0.789447	0.785996
Grocery and pharmacy	0.363623	0.346884	0.32842	0.310742	0.301944	0.326035	0.346952
Transit stations	0.869717	0.867662	0.863828	0.861768	0.859469	0.864324	0.864434
Workplace	0.891795	0.89049	0.896381	0.899481	0.898921	0.906564	0.90252
Residential	0.685575	0.682808	0.686774	0.685827	0.680678	0.689544	0.68367

4. Conclusion

This pilot study provided a restricted insight that human people's everyday behavioral patterns were related to the COVID19 media exposure in the observed pandemic period. The reported results may be indicative of delayed effects of media exposure, but it is important to note that this study was not intended to address the research question of causation, but rather of correlation.

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YET ANOTHER CLASSIFICATION: AN OVERVIEW OF COVID-19-RELATED RESEARCH IN THE FIELD OF NATURAL LANGUAGE PROCESSING

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Abstract: Considerable scientific effort in the field of natural language processing has recently been dedicated to the broad research question of automatic extraction of COVID-19 related information from available textual sources. In this paper, we provide a brief overview of the research

results in the field, and make a "diagnosis" that the natural language processing community remained (almost completely) immune, at least until this moment, to any other methodological approaches but data-driven statistically-based approaches.

Keywords: COVID-19, natural language processing, World Health Organization

1. Introduction

It has already been acknowledged that a significant amount of COVID-19 related information is captured in unstructured and semi-structured documents, such as scientific papers, clinical trial records, adverse event reports, electronic health records, news feeds, social media posts, etc. In line with this, considerable scientific effort in the field of natural language processing has recently been dedicated to the broad research question of automatic extraction of COVID-19 related information from available textual sources that otherwise would be invisible to researchers. In this paper, we provide a brief overview of the recent research results in the field.

2. Linguistic Corpora

As COVID-19 related news articles, social media posts and research articles are (still) being published at ever increasing rate, it comes as no surprise that a number of organizations are collecting and updating COVID-19 related linguistic corpora. Most of these corpora comprise international research papers, and are intended to support COVID-19 related research in general, e.g., National Institute of Health (USA) LitCovid [4], Elsevier's Novel Coronavirus Information Center [6], World Health Organization COVID-19 database [27], etc. However, some of the corpora are particularly designed to support COVID-19 related research in the field of natural language processing.

ParlaMint is a multilingual set of comparable corpora containing parliamentary debates in the period between the end of 2015 and the mid-2020 [8], collected within a project funded by the CLARIN European Research Infrastructure Consortium. These corpora are intended to support the development of tools for focused observations on trends, opinions, decisions on lockdowns and restrictive measures as well as on the consequences with respect to health, medical care systems, employment, etc. in times of COVID-19 pandemic [5].

The Covid-19 Open Research Dataset (CORD-19), collected by the Semantic Scholar team at the Allen Institute for Artificial Intelligence, comprises scientific papers on Covid-19 and related historical coronavirus research, and is designed to facilitate the development of text mining and information retrieval systems [26,19].

The Coronavirus Corpus contains textual contents of online news articles thematically related to the coronavirus in twenty different English-speaking countries. This corpus is intended to serve as a record of the social, cultural, and economic impact of the coronavirus (COVID-19) in 2020 and beyond [7].

The Coronavirus Tweets Dataset includes CSV files that contain IDs and sentiment scores of the tweets related to the COVID-19 pandemic, collected during the real-time monitoring of Twitter feed based on keyword and hashtag matching [13].

TAUS Corona Crisis Corpora include COVID-19 related linguistic data, available in the form of bilingual corpora, and intended to support machine translation research [23,24].

However, the principles underlying the collection of these corpora are not really elaborated – they are conceptually reduced to word and phrase matching, while the notions of corpus *representativeness and balance [20] are hardly considered at all.*

3. Applications

As an insight into the COVID-19 related research in the field of natural language processing, we provide a brief overview of thematically relevant research articles that are comprised so far (i.e., March 2021) in a publicly available database compiled by the World Health Organization [27].

With respect to research objectives, the selected articles can be divided in two groups. The first group is primarily related to clinical trials:

- providing longitudinal information about clinical trials and associated entities [1],
- exploring the impact of sex and gender in the incidence and severity of COVID-19 [2],
- establishing a model that factors in clinical symptoms and predict COVID-19 incidence [3],
- describing the clinical characteristics and determining the factors that predict intensive care unit admission of patients with COVID-19 [10],

- characterizing changes in fifteenth of the world's largest mental health support groups found on the website Reddit, along with eleven non-mental health groups during the initial stage of the pandemic [14],
- exploring the effects of long-term treatment by calcium channel blockers on the outcomes of COVID-19 infection in patients with high blood pressure during in-patient hospital stays [15],
- predicting COVID-19 test results based on patients' self-reported symptoms [16].

Table 1 summarizes the selected research articles with respect to their clinical aspects.

Table 1: Characterizing the selected research articles with respect to their clinical aspects [27].

Reference	Diagnosis	Etiology	Prediction	Prognosis	Therapy
[1]					□
[2]	□				
[3]		□	□	□	
[10]	□		□	□	
[14]	□	□			
[15]					□
[16]	□	□	□	□	

The second group is primarily related to social media analysis:

- collecting user-generated Twitter data as a complementary resource for identifying potential cases of COVID-19 [12],
- investigating COVID-19-related health beliefs on Twitter and impacting factors associated with fluctuations in health beliefs on social media [25],
- examining comments on Canadian Prime Minister Trudeau's COVID-19 daily briefings by YouTube users and track these comments to extract the dynamics of the opinions and concerns of the public over time [28].

4. Conclusion

With respect to technical complexity, approaches to automatic extraction of COVID-19 related information from available linguistic corpora vary from simple examining word and phrase frequency [11,17,18] to sophisticated statistical and neural network-based approaches. At the methodological level, most of them are almost dogmatically data-driven. This is in line with the currently dominant trend in the field of natural language processing, based on a behavioral assumption that knowledge can be automatically derived from language corpora, e.g. by means of statistical analysis, without the need to understand underlying phenomena [9].

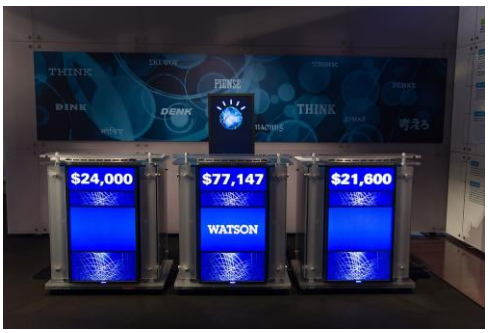

Figure 1. *Watson stage replica in Jeopardy! contest, Mountain View, California, 19 September 2013, source:* https://www.flickr.com/photos/atomictaco/12935316785/, *author: Atomic Taco. This image is licensed under the Creative Commons Attribution-Share Alike 2.0 Generic license.*

The natural language processing is certainly a remarkable field in many respects, but we must not afford to oversee the negative lessons from its history. One of them is related to IBM system Watson which was introduced as a natural language processing system that provides treatment recommendations based on patients' electronic health records and medical databases. In its famous public debut, Watson convincingly defeated two human champions in the game of Jeopardy! However, in one of its responses, it made an awkward mistake, classifying Toronto as a U.S. city. The source of this mistake lies at the methodological level: Watson's algorithms are statistically based. This seemingly small mistake is indicative of a deeper methodological pitfall, *a consequence of which was that in all attempts to apply Watson in automatic medical text analysis, it under-delivered [21,22]* .

Nevertheless, despite this any many other lessons, hope tends to triumph over experience in the field. Although significant effort has already been invested in COVID-19 related research in the field of natural language processing, it seems that this community remained (almost completely) immune, at least until this moment, to any other methodological approaches but data-driven statistically-based approaches. Unless this methodological ideology changes, exciting results should not be expected – although some exciting promises might have already been made.

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HOW FAR ARE WE FROM AUTOMATIC COVID-19 DIAGNOSTIC ANALYSIS?

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Abstract: This talk provides a brief overview of recent research on automatic X-ray image classification for the purpose of COVID-19 diagnostic analysis. We reflect on the optimistic results reported in selected research papers, and conclude that machine learning approaches still omit to fully recognize the fundamental distinction – at least when observed from the medical aspect – between the classification task and the diagnostic prediction task.

Keywords: COVID-19, convolutional neural network, X-ray imaging

1. Introduction

Chest X-ray imaging is one of the most prominent methods for COVID-19 diagnostic analysis and patient treatment, due to its non-destructive nature, time-efficacy, low cost and high sensitivity to pulmonary infection. At the other side, the potential of automatic X-ray image classification has already been widely recognized by the image processing community. This talk provides a brief overview of recent research on automatic X-ray image classification for the purpose of COVID-19 diagnostic analysis. At the methodological level, this overview is focused on convolutional neural network-based approaches.

2. Datasets

A significant number of datasets containing chest X-ray images have already been made available for research purposes, including, but not limited to the datasets given in Table 1.

Sample chest X-ray images adopted from [16] are provided in Fig 1: images (i) and (iv) represent 'no-finding' patients, images (ii) and (iii) represents patients with COVID-19, and images (v) and (vi) represnets patients with pneumonia.

Table 1. Selected X-ray image datasets.

Dataset
MIMIC-CXR Database [1]
MIMIC-IV Clinical Database [2]
Chest X-Ray Images (Pneumonia) [3]
CheXpert: a chest radiograph dataset with uncertainty labels and expert comparison [4]
COVID-19 image data collection [5]
Figure 1 COVID-19 chest X-ray dataset initiative [6]
Radiol Cardiothorac Imaging 2 [7]
COVID-19 Image Data Collection [8]
COVID-19 Chest X-ray Dataset Initiative [9]
Actualmed COVID-19 Chest X-ray Data Initiative [10]

RSNA Pneumonia Detection Challenge Dataset [11]
COVID-19 Radiography Database [12]

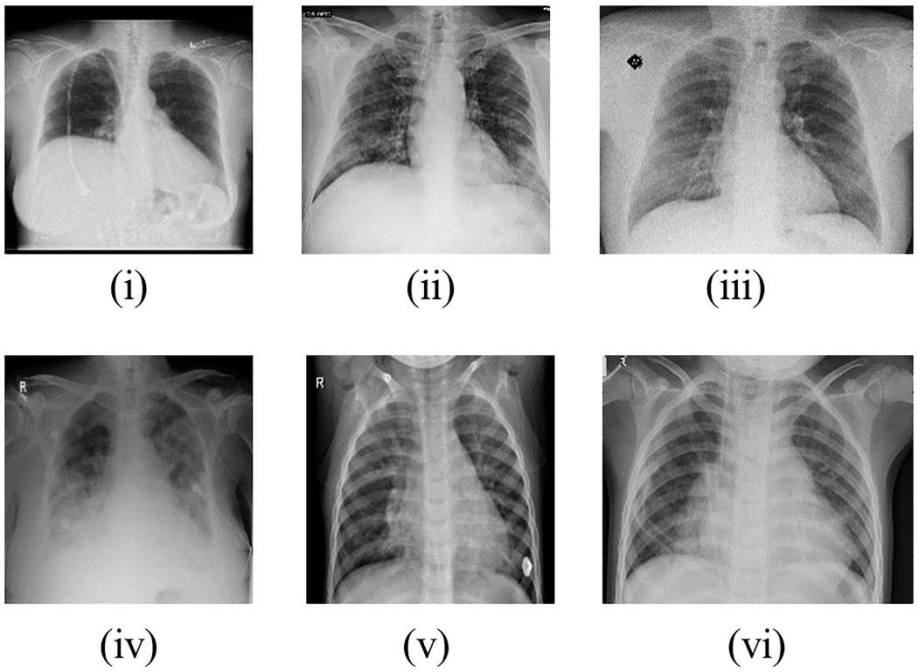

Figure 1. Sample chest X-ray images (adopted from [16]).

However, neither of these image datasets are proven to be representative or even balanced. Therefore, two approaches are generally applied to provide more representative and balanced datasets. The first approach relates to combining two or more available datasets [13, 14]. The second approach is tailored to artificially generate additional chest X-ray images. For this purposes, transfer learning is primarily applied [17]. In addition, data augmentation is applied to reduce the network dependency and increase the training customization level [16].

3. Accuracy

At the methodological level, this overview is focused on a rather canonical representatives of image processing techniques, i.e., data-driven, convolutional neural network-based approaches [16,17,18]. The recent results sound rather promissing. A study described in [16] reports a balanced accuracy of 87.7% in three-classes prediction (i.e., no-findings, COVID-19, pneumonia) and a specific balanced precision of 97.0% for the COVID-19 class. A study presented in [14] reports a two-state classification accuracy of 95.7% and sensitivity of 98%.

4. Conclusion

Although optimistic results have been reported in recent research papers on automatic X-ray image classification for the purpose of COVID-19 diagnostic analysis, machine learning approaches still omit to fully recognize the fundamental distinction – at least when observed from the medical aspect – between the classification task and the diagnostic prediction task.

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Session no 2

IMPACT OF COVID-19 ON CORPORATE FINANCE

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Abstract: The COVID-19 pandemic has brought the world economy into a deep recession. Unlike the previous financial crisis, which spilled over into the real sector through the financial market, this recession hit both sectors at the same time - the financial and real sectors. Although the responses of individual governments are different and how they occurred at different time intervals, the effects are devastating for all economies as a whole. This paper will analyze the effects of COVID-19 on the corporate sector. The focus of the analysis will be on the initial months of the pandemic facing the world's economies - the first two quarters of 2020. The aim of this paper is to look at initial expectations, measures taken by individual governments, individual country initiatives to help the economy during the lock-down, social distancing and limited movement of people. Available data from official international institutions will be used for this research. Based on official data and due to short time series, we will use only a comparative analysis with the idea to determine the differences that exist between economies. The results of the analysis showed that the most developed countries suffered a smaller decline in their economies at the beginning of the crisis, a slightly larger decline as the recession deepened, but also that the recovery will be faster than in the case of less developed countries.

Although most research has relied on the financial consequences and costs of the recession caused by the COVID-19 pandemic, the contribution of this paper is in the analysis of other nonfinancial consequences of this recession. We expect that this analysis in the future will provide a good basis for a more complex and comprehensive analysis of all factors and recessionary effects of the COVID-19 pandemic.

Keywords: corporate finance, COVID-19 pandemic, economies

Introduction

Today, the world has become a testing ground for various threats. The rattling of weapons, the financial crisis, the oil crisis, the global recession, etc., have been replaced by a new pest. Recent months have been dominated by growing concerns about the pandemic Covid-19 and negative effects that have nothing to do with any particular religion, nationality or territory. Health reports are disappointing, we can even say completely wrong – the number of deaths and infections stands out, but hides the number of those who are successfully recovering. Why is the idea of intimidation dominant? Why does negative news dominate? It changes the expectations of people around the world about both life and work.

COVID-19 has changed the future course of life, work, education, finance, economy, society, not only public health. It showed not only the weaknesses of the health system, but he also confirmed the existence of non-systems. This non-system has appeared in the 1980s, when the state lost its identity, under the slogan of Reganomic and Thatcherism. It is obvious that the consequences came late. The struggle for wealth and power has distorted social values. The worker was left without system protection, with a weak worker-union, limited workers' rights and a high degree of job insecurity (uncertainty). The employer is increasingly focused on a non-system management model in which it depends on limited and imposed liquidity. It is an environment in which the expectations of market participants are distorted, because the dependence on state policy is growing.

Everyone is familiar with the debates taking place within the whole world on how best to overcome the current crisis and the discussions surrounding the process of supporting SMEs and real economy. The main topics are related to the financial aspect of the recovery plan. But the worker has to be priority. A worker who spends time at home locked, he becomes lazy because games and fun become more important than education. Thus, he loses the acquired skills, gets fat and becomes inefficient.

Upon his return to the company, his productivity will be lower, and lower than before the pandemic. Thus, unit labour costs will be rising and companies will not be able to make a profit. There is no company in Serbia that reached the pre-crisis profit rate, despite state financial support. Of course, except for the chemical and pharmaceutical industry. State support through the reduction of tax obligations, subsidizing the salaries of employees, delaying payments to the state, prolonging the repayment of loans… OK, it's helpful. But, this is not a sufficient impetus to strengthen the economy.

Like the crisis of 2008, this recession caused by the Covid-19 pandemic, brought two important challenges: illiquidity, and a decline in equity capital. The lack of liquidity hinders the functioning of the company at the micro level, and consequently the functioning of the economy as a whole at the macro level. The decline in the value of capital is a consequence of the decline in activity, which further complicates the functioning of the economy. The COVID-19 pandemic has led to declining company revenues but also rising costs. At first glance, it is paradoxical that costs continue to rise, even though companies are not working.

The following pages of this paper, after the introduction, will present the effects of the COVID-19 pandemic on the corporate sector in individual developed economies, regional integrations and organized groups. The focus of the analysis are the main elements of business - labor, labor productivity, added value and gross domestic product, at the beginning of the crisis caused by the COVID-19 pandemic.

Literature review

Most research and newspaper reports on the effects of the Covid-19 pandemic have focused on finance, liquidity, capital and profits.

Numerous studies on the early effects of the crisis caused by the COVID-19 pandemic have shown that financial institutions and markets in the United States (supported by the strong intervention of the Federal Reserve Board) have enabled corporations to raise foreign capital and overcome the first crisis (Li et al., 2020; Halling, Yu, and Zechner 2020). Other researches (Carletti et al., 2020; Schivardi et al., 2020) considered the impact of COVID-19 on the liquidity and capital positions of a large number of companies, including private firms in Italy. Some research (Ramelli and Wagner 2020; Albuquerque et al. 2020) examined business elements, specifically related to the company's balance sheet, and the business models that companies launched in the early part of the pandemic.

According to Ellul and, others (Ellul et al., 2020) cash flows of corporations were seriously hit at an early stage of the crisis. The effect is temporary only in appearance, because many companies will experience the crisis in the long run. This will deepen the problems in the long run. „For example, some firms have business models that are incompatible with social distancing; firms in the industrial and energy sectors will suffer from falling demand for their products; and, financial firms may engage in more reaching for yield in a scenario of zero short-term rates."

However, one part of the research paid attention to the effects of the crisis on the real sector. Companies in the UK have a large reduction in productivity "within-firm" and that this negative effect will be partially offset by a positive effect "between-firm" (Bloom et al., 2020). According to this research, Covid-19 disproportionately affects the sectors of low productivity and the least productive companies among them, which therefore makes a smaller contribution to the economy.

Some papers (Alekseev et al., 2020; Bartik et al., 2020; Brinjolfsson et al., 2020; Gourinchas et al., 2020; Papanikolaou and Schmidt, 2020) have shown a widespread impact on firms, while Bakaee and Farhi (2020) presented stagflation effects and declining production. The large and negative impacts of Covid-19 on the labour market were investigated by Chetti et al. (2020), and Kahn et al. (2020), while Guerrieri et al. (2020) showed that pandemic shocks caused a lack of demand.

Corporate sector during the first months of the pandemic crisis

The crisis caused by the Covid-19 pandemic is the third crisis in the United States in this millennium, a crisis with great consequences. This time, incomparably compared to the previous two (terrorist attack in 2001 and financial crisis in 2008-9) due to the infection of a large part of the population of all generations and the high mortality rate.

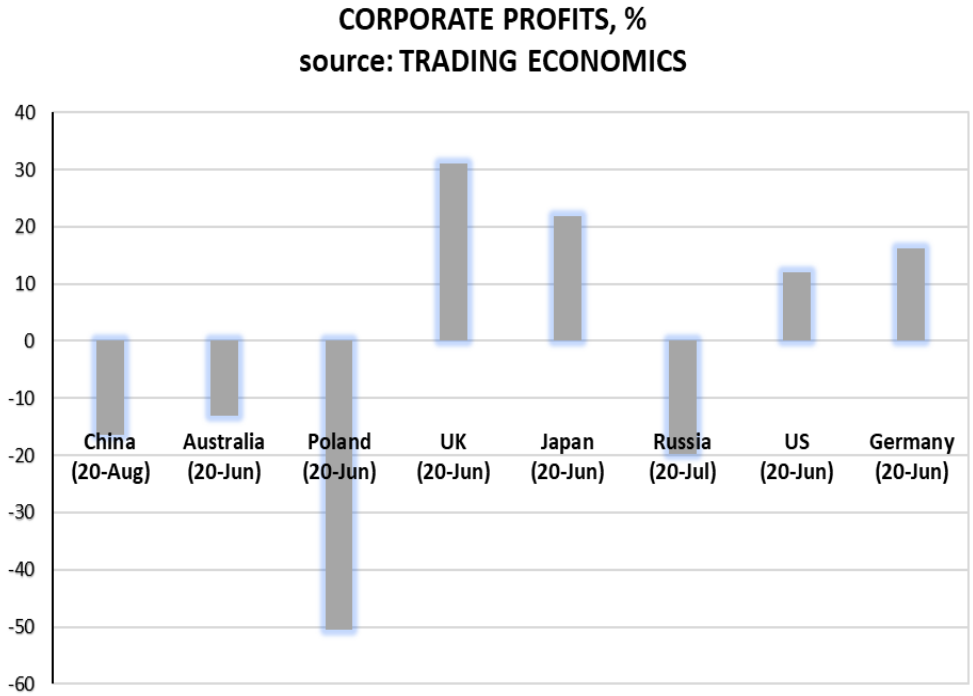
In this liquidity crisis as well, according to theoretical models, pro-cyclical negative spirals of liquidity appeared due to the sharp decline in the traders' funding liquidity. Stock exchanges, according to Brunnermeier and Pedersen (2009), react by increasing trading margins because they want to minimize the risk of non-payment between counterparties, but this leads to an increase in the risk of liquidity financing.

Liquidity support, through numerous assistance programs, is the intention of states for companies to survive. That the economy functions as much as possible. However, such an effect is short-lived. And the consequences, in the form of growing debt, will become problems in the medium and long term. Slowing down the pace of economic recovery due to the crisis (Kalemli-Ozcan, et. al, 2019) distances them from investing and investing. This will further slow economic growth and the economy will be in recession longer, with medium-term depressed economic activity.

The COVID-19 pandemic has caused some of the biggest disruptions in the global markets as well. Capital market values fell by 30-40%, while the withdrawal of liquidity supply recorded an increase of 200-300% of margin requirements on global stock exchanges. Foley (2021) showed that the London Stock Exchange (LSE) had a larger increase in margins compared to the Chicago Mercantile Exchange (CME).

The pandemic has worsened the cash flows of a large number of companies in all economies, with certain sectors being significantly more affected than others. The tertiary sector – services and tourism - was most affected. Larger companies faced negative winds from the slow financial market, while SMEs suffered from illiquidity.

Figure 1. Profit in corporate sector, by selected countries



It is estimated that gross domestic product (GDP) in the second quarter of 2020 fell by 9.5% in the United States, compared to the previous quarter, and by 10.1% in Germany. Social costs, lost employment costs and curfew resulted in a negative impact on the well-being of individuals and communities. There were almost no job postings in the months of the pandemic (Ellul et al., 2020).

Lock-down changed business activities, redefined relationships within and between firms, and changed the angle of observation around the world. Workers stopped working, which worsened labour productivity. The labour market is threatened! Employers are therefore at a loss for months back. This is because unit labour costs increase. The decline in efficiency and productivity affects the decline in effectiveness and profitability of companies. Economies face less added value. This further leads to a fall in GDP in the medium term (see Table 1).

There is a growing chance that the crisis/recession will spill over into the whole of 2021.

Table 1. Productivity, Value added, GDP, seasonal data, growth rate, quarterly data

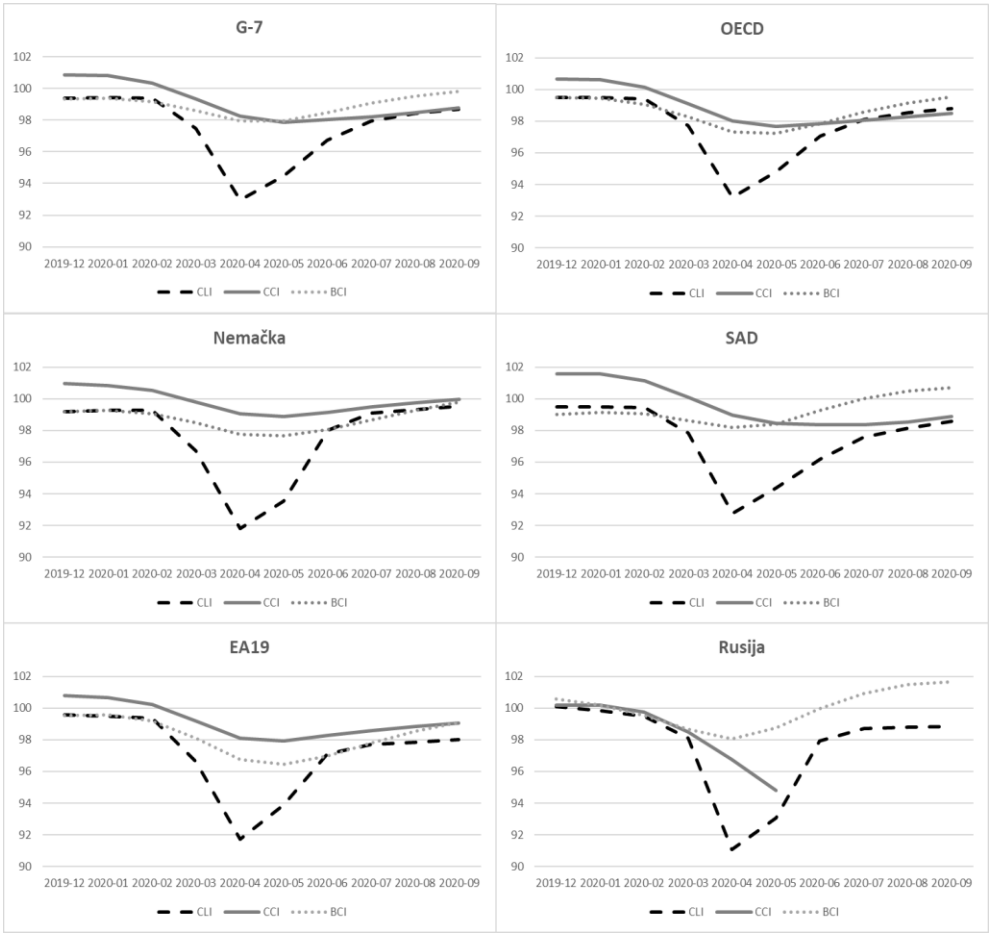
	Productivity		Value Added		Gross Domestic Product	
	Q1/2020	Q2/2020	Q1/2020	Q2/2020	Q1/2020	Q2/2020
EU-27	-3.0	-8.9	-3.0	-11.6	-3.3	-11.4
EU-19	-3.4	-9.2	-3.4	-11.9	-3.7	-11.8
United Kingdom	-3.1	-19.3	-2.5	-19.8	-2.5	-19.8
Switzerland	-2.4	-5.0	-1.9	-7.1	-1.9	-7.3
Germany	-1.9	-8.5	-0.4	-9.8	-1.9	-9.8
France	-5.7	-11.3	-5.7	-13.8	-5.9	-13.7
Italy	-4.9	-10.8	-5.4	-13.2	-5.5	-13.0
Spain	-5.7	-11.3	-4.9	-17.9	-5.2	-17.8
Russian Federation	-0.7	-3.0	-0.9	-3.3	-0.9	-3.2
United States	-1.0	-7.8	-1.3	-9.0	-1.3	-9.0
Canada	-0.8	-10.2	-1.9	-11.4	-1.2	-11.5
Japan	-0.4	-7.7	-0.6	-8.3	-0.6	-8.2
Australia	-0.3	-6.7	-0.3	-7.0	-0.3	-7.0
New Zeland	-1.1	-7.8	-1.2	-11.0	-1.3	-8.1

Source: Eurostat

In the first two quarters, according to Eurostat data (Table 1), a dramatic decline in GDP in the first half of 2020 was recorded in all countries of the world. Differences exist within the structure of GDP. Household final consumption expenditures have been significantly reduced. On the other hand, general government spending has shown a mixed picture, with significant differences between countries, but is highest in the developed part of the world.

Trade declined in this way and net exports remained unfavorable.
The effects of Covid-19 on hourly labour productivity are estimated to be negative (Bloom et al., 2020). That is because hours worked are estimated to have dropped by around 40% in 2020 Q2, which is a larger fall than the input share weighted fall in capital.
The following figure (Figure 2) shows business indices in several developed economies. The beginning of the pandemic shook all economies. Although the most severely affected are developed economies, which have had high rates of GDP decline, they will grow faster in the future thanks to a large economy and economic structure.

Figure 2. Business indicators by countries, percentage



Source: TRADING ECONOMICS

Note: The composite leading indicator (CLI), Business confidence index (BCI), Consumer confidence index (CCI)

During the first three quarters of 2020, developed economies also achieved negative profit rates within the corporate sector (see Figure 2). A dramatic drop in the index was recorded in April 2020. These indices clearly reflected the movement of the economy based on business cycles, business environment and expectations of individuals and households. The recovery went from economy to economy. Confidence in business gradually returned, mostly in Russia and the United States. China has valorized its rapid recovery from the pandemic with positive economic growth rates - dominantly the fastest growing economy in 2020.

Conclusion

In this paper, we have shown that the effects of the Chovid-19 pandemic have had major negative effects on economies. The whole world is in trouble. The consequences of the crisis will be felt in 2021 as well. All countries of the world have come out with recovery plans. SMEs, farmers and small businesses need help.

The solution is to stimulate demand. So, the money should be given to citizens and households that will increase consumption. Paying the bill 20% gets back in budget – soft relaxation. Increasing the purchase of products will stimulate the offer, i.e. production. The volume of production growth will affect the increase of employees or the growth of wages of existing workers. This is accompanied by rising productivity and falling unit labour costs. And here it is, profit!

The authors highlighted certain elements of the corporate sector during the crisis, which can serve as guidelines for future research in this area, including consideration of macroeconomic effects and related external effects on enterprises.

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THE IMPACT OF THE COVID 19 PANDEMIC ON SPORT AND THE SPORTS INDUSTRY

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Apstract: The subject of this paper is the impact of the kovid 19 pandemic on sporting events around the world and the sports industry as a whole. All major athletic races in the world, from marathons in New York, Boston, Paris, etc., have been canceled. Out of the planned 66 races called athletic stadiums in Serbia in 2020, only 12 were held, with a limited number of runners, due to the rules and recommendations of the crisis headquarters. In the time in which we live, sport is currently one of the most important and most important social activities, motivated primarily by economic reasons and opportunities for quick earnings, and then a positive impact on health. Certain branches of sports, such as football or basketball, have found a solution in games without an audience. Audiences at tennis tournaments are slowly returning, but it is still a big risk. It is not yet clear how the sports industry will overcome the problems caused by the pandemic, nor what kind of future awaits sports in the post - kovid era 19.

Keywords: sport, kovid 19, athletics, Serbia

Introduction

Regardless of sport originating from a game, it is today too big of a business to be just a game. In the time we live in, sport is currently one of the most significant and most important social activities, motivated primarily by economic reasons and opportunities for quick earnings, and then by the positive impact on health. Sport, i.e., athletes, with their successes influence the creation of a positive image of the state and the nation on a global level. Consequently, this affects the creation of a better economic position of the country where the athletes come from, and can also affect the improvement of image, investment and business cooperation (Aziz et al., 2012). Sport is one of the fastest growing industries nowadays, which attracts large amounts of capital. The sports industry is particularly interesting from the perspective of the brand management, because the branding of sports products is of great importance, whether it is about sports events, athletes or sports clubs" (Virijević-Jovanović, 2015, 151). Skoko claims that during the great sport events, not only are the countries organizers (hosts) making profit, but also the countries participating in the competition. The sports stage is one of the most popular and far-reaching promotional channels, and sport events, in addition to providing impressive images thanks to the competitive spirit, create emotional connections between viewers around the world (Skoko, 2009, 162). Precisely because of that, due to the growing profit in the sports industry and the popularity of sports on a global level, there is no production branch that is not interested in cooperation with the sports industry (Dašić, Jović Bogdanović, 2020).

The COVID-19 pandemic at the beginning of 2020 hit the sports industry hard. Many leagues across the globe suspended their seasons and UEFA took the unprecedented step to postpone the scheduled 2020 European Football Championship to 2021. This move cost UEFA an estimated 300 million euros, whereas cancelling the event entirely would have cost the federation around 400 million euros (Lange, 2020a). The potential loss in the Formula One season, of revenue from the combined hosting fees across the whole season, which are paid by the individual host nations, could amount to over 602 million U.S. dollars (Lange, 2020b).

In addition to the very bad impact on health due to inactivity, mental health risks associated with loneliness and anxiety, the Covid 19 pandemic will also have very long-term consequences on everyday life, health and societies in general and many sectors of the economy, especially service sectors, e.g., tourism, food and accommodation services, transport, sports, etc. Playing sports, regular exercise, even the slightest physical activity have been mentioned for many years as tools that are important for maintaining human health (Dašić, et al., 2020).

The impact of the Covid 19 pandemic on sports competitions

The coronavirus (COVID-19) pandemic that has swept across the globe in the last few months has not only had a significant impact on public health, society, and the economy as a whole, it has also wreaked havoc to the sporting calendar. In a bid to stem the spread of the virus, many professional and amateur leagues across all continents and sports took the unprecedented step to postpone or suspend their seasons on the advice of the CDC to avoid gatherings of large amounts of people. For example, sports play a significant role in social and cultural life in Japan. While traditional sports such as sumo, kendo, and judo that are deeply rooted in Japanese culture are still popular, imported sports have also grown in popularity among people in Japan, whether for watching or playing. Japanese people usually become engaged in some form of sports from an early age. Physical education begins in earnest in elementary schools, with several pract (Statista Research Department, 2020). On the other side, many professional leagues across the globe suspended their seasons and hundreds of thousands of jobs were put at risk as public sporting events across the world were cancelled. Analysis suggests that revenue in the sports industry will be under 74 billion U.S. dollars in 2020 as a result of the crisis, almost half that of the pre-COVID-19 estimates (Gough, 2020).

Sport has big cultural and economic importance, becoming not only competition, but it is today one of the major ways of nation and state branding. Famous sportsmen could be very easily used as the brand of the products and best connection to the branding of the whole nation. Regions, states, nations as well as whole continents are in active competition in promoting with one aim only: development of the associations to the specific destination in order to obtain organization of some sport event.

Organizing of the Olympic games, football, basketball or any other world championships is giving strong economic driving force to the host country (Dašić, 2018).

The results of a 2020 survey among European national Olympic committees show that over 93 % have had to significantly review their work-related practices, and over two thirds (67 %) reported their elite athletes were unable to use training facilities. While larger clubs in major sports are likely to have the financial resources to cope with a temporary loss of income, the same is not true for grassroots sports facilities that rely on self-employed coaches and volunteers and face a greater risk of shutting down. According to a recent forecast (Katsarova, 2021), Covid-19-related measures have had a double negative impact on EU27 sport, translating into a 15 % loss (or €47 million) of direct sports-related GDP and a 16 % loss of sports-related jobs (or 845 000). The scale of those affected extends beyond sports professionals to also include those in related retail and sporting services such as travel, tourism, infrastructure, transportation, catering and media broadcasting, to name but a few, in which case the proportions of the losses will reach respectively €79 million in GDP and 1.2 million in jobs. Among the EU countries, the sports sectors that have a high relative importance to the national economy are estimated to suffer the greatest loss in terms of GDP and employment. This is the case in Austria (respectively 20 % and 20 %), Spain (19 %, 20 %), Cyprus(19 %, 19 %), Croatia (18 %, 16 %) and Denmark (15 %, 15 %). Those expected to be the least impacted are Greece (3 %, 4 %), Bulgaria (5 %, 6 %) and Belgium (5 %, 7 %).

So, it can be concluded, Covid-19 has affected every aspect of the sport industry ecosystem. Every part of the sporting value chain has been affected, from athletes, teams and leagues, to the media that broadcast and cover games and brands and sponsors that advertise around them. Global sports sponsorship deals alone represented almost a $46 billion industry 2019 year. Then there's sports-related advertising. In TV, brands put almost $20 billion toward sports-related programming last year, with about $17 billion (85%) spent around live sporting events. Brands also put close to $1.2 billion toward digital advertising. We expect unprecedented disruption to the ecosystem over the coming months and perhaps permanent change longer term, with a break in traditional sponsorship deal-making until the true impact on the landscape is known (Sher, Bradford, 2020).

Amateur participation sports such as running, triathlons and cycling are suffering heavily from the crisis. These disciplines are highly dependent on mass, physical participation. Their format (rather long and slow) does not allow the shortfall to be recouped through significant media-related revenues. Amid this uncertainty, the overlap between real and virtual sports is increasingly converging. This blurring of boundaries takes on a new dimension with the emergence of the hybrid sports model, which merges sports-like physical efforts with esports' virtual rendering. We believe that hybrid has the potential to carve out a promising value proposition for participation sports by attracting a balanced mix of both (virtual) spectators and (connected) participants. Relying on the same training and performance model, triathletes, runners and bikers can smoothly try their hand at this new category; the investment in equipment more or less compensates for the logistical costs of getting to event sites. (Dellea, et al., 2020) Out of the planned 66 races called athletic stadiums in Serbia in 2020, only 12 were held, with a limited number of runners, due to the rules and recommendations of the crisis headquarters (Čegar, 2021).

It is estimated that in 2020 a large drop in international tourist arrivals will reduce global tourism industry revenue by almost 70%. Thus, COVID-19 is not only a danger to human life, but also has numerous short-term and long-term negative economic, social and environmental consequences. The impact of COVID-19 on tourism in developing countries is projected to be significantly greater than in developed countries. In some smaller countries where tourism accounts for more than 50% of GDP (e.g., Maldives and Seychelles) the pandemic has pushed a large part of population to poverty since the tourism is a primary source of income in these countries (Luković, Stojković, 2020, 85).

The economic impact of the pandemic on the sports industry

The globalization of today's market has conditioned that sport has today become one of the largest if not the largest business and implies looking at the whole world as a possible market. The announcement of the pandemic of the new disease COVID-19 at the beginning of 2020 indicated a significant impact on economic events and trends, primarily through the possible occurrence of an economic recession that would be global and different from the previous ones due to an unusual factor that generates it.

The pandemic can certainly be considered a negative exogenous shock whose effects spread through the economic system, causing an economic downturn and recession. However, it is difficult to talk about the impact of a significant shock that affects the economy at the moment when that shock continues to act, without clear indications of how long it will be present in the future. So, there is uncertainty about the duration and intensity of the shock. Therefore, estimates of future economic trends change daily, as do data on the number of infected and deceased in individual countries and on entire continents, as well as changes in state measures related to the introduction of quarantine, social distancing, closing borders, but also mitigating these measures in later stages (Praščević, 2020).

Due to the pandemic, many businesses are endangered globally, not only for sports professionals, but also for retail chains and the sports services industry related to national leagues and events, which include travel, tourism, infrastructure, transportation, catering, media broadcasting and the like. Professional athletes are also under pressure to postpone their training, while trying to stay at home and risk losing professional sponsors who may not support them in the way originally agreed (Bas et al., 2020). Sport is an important economic sector in the EU, with a share in national economies, which is comparable to agriculture, forestry and fisheries combined. The economic and social potential of the sports industry should not be underestimated as a means of combating the economic crisis caused by the Covid 19 pandemic. The results of one study showed that the GDP related to sports was 279.7 billion euros of the EU. This amounts to 2.12% of total GDP, or every 47th euro is generated by the sports sector. Sport is intensively employed, which means that it creates more employment than its share in GDP. Sports-related employment in the EU was 5.67 million people. This amounts to 2.72% of total employment in the EU (Deloitte, 2019).

The estimated global value of the sports industry was $ 471 billion in 2018 - an increase of 45% since 2011 - and before the coronavirus began to spread across our planet, it seems that the only path was upwards. Every part of the chain of sports values is now affected, from athletes, teams and leagues, to the media that broadcast and cover and follow games. There are three main revenue flows for sports leagues: broadcasting (media rights sales), commercial (sponsorship and advertising partnerships), and league match revenue (tickets and services). All major sports depend on broadcasting revenues, as shown by the data on revenues from the biggest leagues in the last five years.

The global value of sports broadcasting rights is about $ 50 billion - 60% of which is made up of just 10 sports leagues (Hall, 2020). Sponsorship as another element of promotion in sport is the relationship between the sponsor, the donor, and the sponsored party receiving the funds. Sponsorship is one of the most focused ways to place a promotional message. Sponsorship affects the increase of the image, as well as the perception of the sponsor in the context of the sponsored event, facility or athlete. Thus, for example, the image of an athlete can positively affect the image of the sponsor, as well as increase brand awareness (Ratković, Dašić, 2018:164). In such a situation, individual sponsors may be forced to terminate sponsorship agreements. For example, it was announced that Adidas and Emirates, the two main sponsors of the Real Madrid football team, faced critical financial difficulties. As a result, their national governments provided them with financial support to enable them to continue running their business as before. However, it is evident that not everyone will be so lucky; there will be many companies with financial problems that may not be able to receive such assistance from their governments and that will have to meet the obligations of their sponsorship agreements (Garcimartin, et al., 2020).

Sports and fitness brands such as Adidas and Nike initially responded to COVID-19 by reducing hiring across geographies. These firms acted quickly to the situation, reducing hiring activity by 40% and 47%, respectively, in March 2020. However, leading data and analytics company GlobalData notes that Adidas saw opportunity in ecommerce and started hiring again from May.[12] Adidas said 60% of its business was currently at a standstill, with more than 70% of its stores closed worldwide and all big sporting events - including the Tokyo Olympics and Euro soccer tournament - postponed or cancelled (Thomasson, 2020).

Just because of that, german sportswear company Adidas aims to double its e-commerce sales by 2025 and make its products more sustainable as part of a five-year plan to lift profitability closer to that of rival Nike. The company has reopened 95% of its stores after coronavirus lockdowns, as it forecast a 2021 sales growth rate in the mid-to-high teens, rising to as much as 30% in greater China, the rest of Asia and Latin America. While the sporting goods industry has suffered from store closures during the COVID-19 pandemic, it has managed to sell more online as more people have taken up running,

[12] Adidas looks to gain market leadership during COVID-19 while Nike takes a conservative approach. https://www.globaldata.com/adidas-looks-gain-market-leadership-covid-19-nike-takes-conservative-approach/

hiking and yoga during lockdowns. Nike, the world's biggest sportswear brand, has said people have logged on to its workout and store apps en masse, driving significantly higher online sales over the 2020 year (Thomasson, 2021).

Sports tourism significantly contributes to the existing and potential tourism development. Numerous examples have shown that sports tourism has significant economic effects, in the form of additional income, income from tickets, tourist income, etc. Also, the development of sports and recreation goes hand in hand with human needs and social development and ensures improvement of the quality of life of the entire population. For the needs of various sports events in a certain area, numerous sports facilities are being built, which are later used for numerous events, competitions, etc. Sports events carry with them infrastructure improvement, that is, they bring rich investments that bring great profits. In addition to numerous sports facilities, many other infrastructure facilities are being built for tourist purposes. The sports industry continues to grow and globalize, and sporting events are a great opportunity for countries to be at the center of media attention for a short period of time. Viewed from the economic point of view, through the legality of the process of production, exchange and distribution and consumption, professional sport represents the area of capital placement and its rapid fertilization. In the developed countries of today, the meaning, value and importance of professional sports and its economic dimensions have been accepted, and the best example is the football league of the United Kingdom. Television broadcasts of sports events are the most important when it comes to sports and business. The Premier League is certainly the most watched football league in the world, with direct broadcast to 212 territories, 643 million homes and a possible television audience of 4.7 billion people, with a tendency of constant increase (Dašić, Jović Bogdanović, 2020).

Conclusion

We can hear more and more that after the Covid 19 pandemic nothing will be the same when we talk about sports. Taking into account the stated data in the paper, it is still not clear how the sports industry will overcome the problems caused by the Covid pandemic 19, as well as what kind of future awaits sports in the post-Covid19 era. In one study (Dellea, et al., 2020) results indicate that the sports sector was less prepared relative to other industries, with a full recovery expected no sooner than 2022-2023.

Investigating the potential changes arising from the crisis, digital transformation, revenue diversification and investments from external stakeholders are the market prospects most likely to be accelerated. We also looked at how strategic collaborations are expected to impact the sports landscape going forward. The lack of income from matches is just one big concern for clubs and tournaments, especially the smaller ones. The sponsorships and the sports advertising industry are currently facing the biggest challenges since World War II.

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IMPACT OF COVID-19 ON AUDITING

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Abstract: During the COVID-19 coronavirus pandemic, auditors need to be more agile and creative in performing audits and complying with the auditing standards. Performing auditing procedures in the middle of this pandemic is troublesome for many auditors. The aim of this paper is to help auditors identify key questions and guidelines for work during the coronavirus pandemic. This paper will address some of those possible auditing challenges in the light of COVID-19 including audit planning and risk assessment, the auditor's understanding of the entity's system of internal control, auditing accounting estimates, forecasting related to going concern, performing subsequent event procedures, forming an opinion, and reporting on financial statements (including key audit matters) etc.

Auditors are working in the public's interest to serve the needs of users of the audit reports. Therefore auditors may face difficult decisions about whether the audit evidence can reduce audit risk to an appropriately low level. Auditors would need to exercise vigilance, professional skepticism and judgement when performing the audit procedures to address the identified risk areas. In light of the economic effects of COVID-19, risks that the auditor needs to consider may include: risks of impairment of assets; going concern risks as a result of liquidity and working capital issues; heightened fraud risks as internal controls may not be operating as planned or due to increased pressure on management; increased risk of error as a result of changes in management's process, systems and controls in the present circumstances etc. Despite the challenges they face during conducting an audit in a pandemic environment auditors should ensure that audit quality is not compromised.

Keywords: Audit procedures, Audit risk, Auditing standards, Audit quality, COVID-19.

INTRODUCTION

Global developments relating to the COVID-19 pandemic have also impacted the work of auditors. The consequences of the COVID-19 pandemic on financial statement reporting and audit engagements are complex and have resulted in challenges for management, those charged with governance and auditors.

The uncertainty arising from the current environment may increase the challenge in obtaining the sufficient appropriate audit evidence needed to form an independent view about the reasonableness of management's estimates and judgments. The impact of COVID-19 on businesses could be very significant and could put pressures on management to meet performance targets or market expectations. This raises the risk of the likelihood of fraud in the financial statements to a higher level which requires the auditor to exercise a much higher degree of skepticism and carry out extended audit procedures to eliminate the possibility of fraud or material errors in the financial statements.

Entities being audited are adjusting to the changing environment relating to their businesses and operations, including financial reporting processes, disclosures in financial statements and their ability to maintain operations in the foreseeable future. Similarly, auditors have to adjust how they obtain sufficient appropriate audit evidence on which to base the audit opinion, amid challenges relating to, among other things, access to people or information, revising the identification and assessment of certain risks of material misstatement, and changing planned audit procedures or performing alternative or additional audit procedures as may be appropriate (IAASB(a), 2020).

The application of International Standards on Auditing/ISA and the International Code of Ethics for Professional Accountants including International Independence Standards, including compliance with the fundamental principles (integrity, objectivity, professional competence and due care, confidentiality, and professional behavior), is key to the preservation and expansion of public trust in all auditors.

PROFESSIONAL RECOMMENDATIONS FOR AUDITORS IN THE LIGHT OF COVID-19 IMPLICATIONS

The COVID-19 outbreak in Serbia and across the globe has caused disruptions to business operations and challenges to how auditors conduct their audits. Auditors should continue to ensure compliance with the relevant international auditing standards and ensure that high quality audits. Auditors will need to consider the impact of the COVID-19 outbreak on audit work performed in accordance with the following list of key International Standards on Auditing (ISAs) and guidelines for the auditor during the coronavirus pandemic in Table 1.

Relevant ISA	Specific Matters for Consideration
Identifying and assessing risks of material misstatement **(ISA 315 (Revised))**	• The impact on the planned audit approach of new or revised risks that have arisen because of COVID-19 • Possible revision of risk assessments already made • In light of the economic effects of COVID-19, risks that the auditors need to consider and continuously update may include: ✓ Risks of impairment of assets; ✓ Risks of breaches/modification in contracts and their impact; ✓ Risks of breaches in loan covenants; ✓ Going concern risks as a result of the liquidity and working capital issues; ✓ Heightened fraud risks as internal controls may not be operating as planned or due to increased pressure on management; ✓ Increased risk of error as a result of changes in management's process, systems, and controls in the present circumstances. • The impact of changes to the auditor's understanding of the entity's system of internal control, including: ✓ The control environment ✓ Changes to the planned reliance on controls in determining responses to identified risks of material misstatement.

	• Changes needed to planned responses arising from the impact of environmental developments, such as the ability to obtain sufficient appropriate audit evidence (e.g., there may now be access issues or attendance at a stock count may not be possible for which alternative procedures maybe needed.)
The auditor's responses to assessed risks **(ISA 330)**	Greater focus on: • The financial statement closing process. Where the financial statements closing process is delayed, the auditors will need to assess whether additional audit procedures need to be performed on matters which had been previously concluded as there is a higher risk of potential misstatements in the financial statements. • The auditor's evaluation of the overall presentation of the financial statements, including consideration of whether adequate disclosures have been made. Where it is not possible to obtain sufficient appropriate audit evidence by performing alternative procedures, the auditors should consider whether a modified opinion in the audit report is necessary. • The auditor's conclusion on whether sufficient appropriate audit evidence has been obtained.

Auditing accounting estimates **(ISA 540 (Revised))**	Greater focus on: • Changes to regulatory factors that may affect accounting estimates (e.g., initiatives aimed at sustainable solutions for temporarily distressed debtors in the context of the outbreak). • Whether assumptions are appropriate in the circumstances and in the context of the applicable financial reporting framework (e.g., cash flow forecasts, discount rates, etc.). • Whether data being used by the entity is relevant and reliable. • The effect of changing inherent risk factors, in particular uncertainty.
The auditor's responsibilities relating to subsequent events **(ISA 560)**	• Considering that shifting reporting deadlines increases the period (and therefore the related risks) for events occurring between the date of the financial statements and the date of the auditor's report. • The identification of any material subsequent events related to COVID-19, and whether these have been appropriately addressed or disclosed in the financial statements in accordance with the financial reporting framework. • The effects of the coronavirus could be concluded generally as a 'non-adjusting event', and therefore forecasts, projections, and associated assumptions used in preparing financial statements as of 31 December 2019, would reflect either little or no change as a result of the coronavirus outbreak. However, for reporting periods

	ending thereafter (e.g.: for financial periods ending 31st March 2020), the effects of the coronavirus would have to be incorporated into the financial statements as an adjusting event.
The auditor's responsibilities relating to going concern **(ISA 570 (Revised)**	• The impact of COVID-19 (i.e., whether it has materially impacted or is it expected to materially impact) on the auditor's evaluation of management's assessment of going concern. • It is expected that the going concern assessment will be more challenging as companies cope with various issues such as significant declines in revenue, operating losses, delayed payments from debtors and difficulty in obtaining financing. n this current situation of uncertain economic environment and its impact on the company's future performance, the auditor should exercise care and maintain professional skepticism in assessing the appropriateness of going concern assumption. • Where there is adequate disclosure about material uncertainty made in the financial statements, the auditor shall express an unmodified opinion. Where the financial statements have been prepared using the going concern basis of accounting, but the auditor had assessed the basis of accounting to be inappropriate, the auditor shall express an adverse opinion.

Group audits **(ISA 600)**	• If applicable, reassessment of the group auditor's planned procedures in relation to the work of component auditors, such as the ability of the group auditor to appropriately review (or be involved in) the work of component auditors, i.e., whether alternative procedures need to be considered, and the impact on the sufficiency and appropriateness of audit evidence on which to base the group audit opinion. • In forming the group opinion, the group auditor would need to: ✓ Assess whether there are any procedures that can be performed at group level to gain assurance; and/or ✓ Consider alternative methods in performing the review, where it had been determined that it is necessary to review the component auditor's work papers but is unable to physically access the component auditor's work papers.

Forming an opinion and reporting on financial statements (including key audit matters) **(ISA 700 (Revised) and ISA 701)**	• Focusing on matters to be able to conclude, including whether all key aspects of the audit have been appropriately addressed, such as: ✓ Areas that may require management to provide further evidence due to the fast-changing nature of this issue. ✓ New uncertainties introduced as a result of COVID-19, e.g., have appropriate changes been made to recognize any enhanced uncertainty in the calculation of accounting estimates (including impairment calculations); ✓ The impact of new or changed laws or regulations on the financial statements. ✓ Where an auditor cannot obtain sufficient appropriate audit evidence, then the auditor is required to modify their opinion in that respect. Where the possible impact on the financial statements could be both material and pervasive, then the auditor is required to disclaim their opinion or if it is material but not pervasive, to express a qualified opinion. When an auditor, having obtained sufficient appropriate audit evidence, concludes that misstatements are material, the auditor is also required to modify their opinion in that respect. When the effect of such misstatements is both material and pervasive, the

	auditor is required to express an adverse opinion.
	• Auditors should remain alert to the possibility that, in the current circumstances, misstatements may occur. Such misstatements may arise, for example, due to: the application of the going concern basis of accounting when it is not appropriate; the omission of disclosures about a material uncertainty relating to going concern; or a failure to recognize adequate impairment of assets or adequate provisions for obligations or to provide related disclosures.
	• Where applicable, new key audit matters to be included in the auditor's report (e.g., matters that rise to the level of requiring significant auditor attention owing to the impact of COVID-19).
Other Information **(ISA 720 (Revised)**)	• Any inconsistencies between the information provided by the entity in its annual report and in the financial statements about the impact of developments arising from COVID-19.

Table 1: Key International Standards on Auditing (ISA) and guidelines for the auditor in the light of COVID-19
(*Source: IAASB(b), 2020; ACRA, 2020; Financial Reporting Council, 2020; MIA, 2020; The ICAP,2020)*

COVID-19 IMPACTS ON EUROPEAN AUDIT OPINIONS

Professional skepticism is "an attitude that includes a questioning mind, being alert to conditions that may indicate possible misstatement due to fraud or error, and a critical assessment of audit evidence." (CPEA, 2020). Independent auditors play an important role in the financial reporting process by providing an independent opinion on financial statements.
In view of possible adverse implications of COVID-19 on reporting companies, the auditor's use of professional skepticism is reinforced. The auditor should be able to exercise professional skepticism in obtaining audit evidence, due to the possibility of various factors, including:

- Higher risk and susceptibility of material misstatement;
- Presence of fraud indicators;
- Errors detected;
- Complex judgments;
- Incomplete or consistent audit evidence contrary to the initial risk assessment.

The auditor should also consider the impact of scope limitation when forming the audit opinion. The opinion would be modified (qualified opinion or to disclaim an opinion on the financial statements) where the auditor is unable to obtain sufficient appropriate audit evidence on which to base the opinion. The consequences of COVID-19 may trigger certain risk factors that may affect the risk of misstatement due to fraudulent financial reporting.
A blog by Audit Analytics reported that there were already noticeable numbers of going concern opinions related to COVID-19 in Europe. Audit Analytics Europe has 7 databases, including Audit Opinions and Key Audit Matters, that cover public companies listed on European exchanges (EEA, UK, and Switzerland). As of the week ended 13 November 2020, Audit Analytics has observed the following trends in European audit opinions referencing COVID-19 (Audit Analytics Staff, 2020):

- Going Concern Modifications: 171,
- Emphasis of Matter Paragraphs: 289,
- Key Audit Matters: 574.

A going concern modification is the expressed uncertainty that a company is able to continue in the near future. The vast majority (78%) of companies receiving going concern audit opinions are small-cap companies, with a market capitalization under €100 million. This observed trend remains unchanged, suggesting that smaller companies are continuing to be significantly impacted by the uncertainties surrounding the COVID-19 pandemic.

Of the companies that have received a going concern audit opinion related to coronavirus, 25% are in the Manufacturing industry and 25% are in the Services industry. As of this update, Manufacturing has slightly outpaced the Services industry in terms of going concerns that Audit Analytics has captured.

KAMs are intended to increase the usefulness and information provided in the auditor's opinion. The disclosures made by the auditor are supposed to describe an area of significant audit risk, a summary of the auditor's procedures to test the audit area, and any key observations of the auditor with respect to that risk (where appropriate).

Nearly 30% of companies that have received a KAM related to the pandemic to this point have been in the Finance, Insurance, and Real Estate industry, while 23% have been in the Services sector. The Finance sector receiving a substantial amount of COVID-19 KAMs referencing the pandemic can be partially attributed to potential impacts from an economic downturn during the pandemic that may trigger impairments related to carrying values of investments. Additionally, the valuation of financial instruments during the highly volatile market conditions of the pandemic is highly subjective and judgmental and can materially affect financial statements; this poses a significant audit risk, which may warrant its inclusion as a KAM.

An emphasis of matter paragraph is a component of the auditor's report on financial statements that addresses matters that the auditor considers is fundamental to the overall understanding of financial statements. Where the impact of COVID-19 is, in the auditor's professional judgment one of the most significant matters having an impact on the audit of the financial statements, including those which had the greatest effect on the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team, then the auditor considers reporting this as a key audit matter.

CONCLUSIONS

Independent auditors play an important role in the financial reporting process by providing an independent opinion on financial statements. The stakeholders would demand quality audits, having an effective and efficient approach and appropriate and timely audit reports. The auditors are expected to put in more extensive efforts while conducting the audits in the current and post COVID-19 environment.

The auditor should be able to exercise professional skepticism in obtaining audit evidence, due to possibility of various factors, including: Higher risk and susceptibility of material, Misstatement, Presence of fraud indicators, Errors detected, Complex judgments, Incomplete or consistent audit evidence contrary to the initial risk assessment. Despite these challenges, auditors are still expected to conduct the audit in accordance with the approved International Standards on Auditing (ISAs).

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Session no 3

ENERGY TRANSITION IN SERBIA AND THE WORLD IN THE ERA OF COVID-19 PANDEMIC[13]

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Abstract: Energy and energy resources are of great importance in the contemporary technologically sophisticated economy, digitalized society, and the era of knowledge economy. Namely, energy is an area of special importance for the entire economy and society because a stable, sustainable, modern, secure and well-functioning energy sector contributes to the well-being of the entire economy and society. Today, special emphasis is placed on the use of cleaner and more sustainable energy with the aim of improving energy security, as well as environmental protection. In that sense, the importance of the energy transition comes to the fore, which means the transition of the energy system from the use of fossil fuels to the energy production and consumption based on renewables.

[13] This paper is the part of the research results on project II U-001/20, Assessment of the impact of Covid-19 on social and economic development, Alfa BK University, Faculty of Finance, Banking and Audit, Belgrade, Serbia.

The increasing penetration of renewable energy into the energy supply mix, the beginning of the mass electrification process, and improvements in energy storage systems are the key drivers of this process. This paper deals with the analysis of current trends in energy transition in the world, monitoring its situation in Serbia, as well as considering the impact of the coronavirus pandemic COVID-19 on the direction, and intensity of its current trends. Although the current wave of energy transition is largely driven by concerns about environmental sustainability, and the global economy, global energy supply remains extremely carbon-intensive. The COVID-19 coronavirus pandemic has led to new challenges in this area, as well as a significant and unforeseen decline in global GHG emissions. However, unlike the situation in the world, the pandemic did not significantly affect the energy transition in Serbia, where this process is still in its infancy. Although Serbia has great potentials in renewable energy sources that could largely replace the use of coal, conservativism and the strong mining lobby dominate Serbian society, which could significantly jeopardize this process.

Key words: electricity, energetics, energy transition, fossil fuels, renewable energy sources.

1. INTRODUCTION

All analyses of the key economic and technological changes indicate that energy has always been and remains the key enabler and crucial factor of economic change for the last two and a half centuries, as well as the cornerstone of economic development. All of these impose a request for adequate and responsible energetic development management. The beginning of the contemporary technological era is related to key discoveries in energy transformation, pointing to the enormous importance of energy and energy resources in the contemporary technologically sophisticated economy, digitalized society, and knowledge economy era. Throughout today`s world, the strategic positioning of contemporary nations and companies for access to the remaining natural resources, especially mineral energy sources such as oil and natural gas, is taking place. This is also the case with the technological competition in energy efficiency and commercial use of renewable energy sources (Rudarsko-geološki fakultet, 2013, p. 5).

Only during 20th century, the world population more than quadrupled, intensifying its negative impact on the global environment. Therefore, one of the most serious challenges of today`s generation is to provide sufficient space, food, and resources in a sustainable way (Roser, 2019), i.e. in a way that will not jeopardize existence and survival of future generations. In the same period, the average annual supply of commercial energy increased by more than four times. The higher efficiency of modern energy converters, as well as new machines and devices means that contemporary society today produces two or even three times more useful energy per unit of primary power supply than it did a century ago. Therefore, during 20th century, contemporary economies experienced an enormous increase in the per capita energy services` supply (in some counties from eight to twelve times), while these multipliers even ranged from 20 to 30 in the case of some industrialized countries (Vaclav, 2000, p. 24). Taking into account the fact that the demand for final energy has increased more than thirty times in this period, we can conclude that all these trends also affected the per capita growth of energy consumption globally. Thus, alongside with the intensive exponential growth of the world population, especially pronounced in the second half of the 20th century, but also despite of the decreasing energy intensity trends, there is still far more pronounced primary and final energy consumption per capita today.

There is no doubt that energetics represents an area of special importance for the entire economy and society because a quality, stabile, sustainable, modern, secure, well-organized, and well-equipped energy sector directly contributes to the prosperity and well-being of the whole society. Numerous empirical studies indicate a direct correlation between energy and economic growth and development, with particular emphasises on the role of electricity and supporting infrastructure in these processes. The benefits of electricity enable efficient lighting, the development of contemporary information and telecommunication technologies (ICT), more productive production processes, more creative service delivery, and the promotion of the digital economy. Energy is an essential production driver, which is way there is always a need for continuous energy supply in order to maintain existing levels of economic activity and enable economic growth and development. Energy is even considered an indispensable production factor since the construction of factories; installation, operation, and maintenance of tools, devices and machines; converting inputs into desired products; and transport of raw materials and goods require the material and energy flows (Stern et al., 2017, p. 4).

Today there is a special insistence on the use of higher quality, i.e. more productive, cleaner, greener, more sustainable, and flexible energy in order to improve energy security, as well as natural environment protection. Since electricity is an indispensable part of contemporary production and service processes, the importance of energy security issue, as a fundamental prerequisite for growth and economic development, but also the overall social prosperity comes to the fore. In today`s aspirations towards more intensive decarbonisation, faster and more extensive use of renewables, economy and society digitalization development, encouraging energy transition, mitigating the negative effects of climate change, and finding an adequate response to cyber-attacks, the issue of energy security and its numerous aspects are gaining special importance (International Energy Agency, 2020). Although there is no unique definition of this term, the notion of energy security integrates various concepts such as energy supply certainty, reliability of energy infrastructure, affordability, physical availability, and environmental suitability of power infrastructure (Paravantis and Kontoulis, 2020).

2. CONTEMPORARY TRENDS IN THE WORLD`S ENERGY TRANSITION PROCESS

Energy transition refers to the shift of the global energy system from a system based on fossil fuels, including oil, natural gas, and coal, to the energy production and consumption based on renewable energy sources such as wind and solar, tidal energy, biomass, geothermal energy, as well as the use of lithium-ion batteries. This term can also be defined as the transition from an energy system dominated by limited, mostly fossil fuels to a system that relies heavily on renewables. It is about an energy system that is able to maximize the potentials arising from increased energy efficiency, and better management of energy demand (Urban Innovative Actions, 2020). The increasing penetration of renewable energy in energy supply mix, the beginning of the mass electrification process, and improvements in energy storage systems are among key drivers of the energy transition process (S&P Global, 2020). This process also implies the introduction of contemporary companies and societies in the processes of economic, legal, technological, innovative, educational, environmental, and other transitional changes that should lead to the construction of more sustainable energy system.

Because of its crucial importance for environmental protection, the energy transition is one of the key pillars of overall government approaches to tackling climate change (Kemp, 2010, p. 291).

Energy related emissions account for approximately 73% of global greenhouse gas (GHG) emissions, most of which are related to carbon dioxide (CO_2) emissions. At the same time, electricity generation (with 38%), and light road transport (with the share of 13%), but also heavy and other industries with total 36% in CO_2 global emissions dominate today. Thus, global energy supply is still almost as carbon-intensive as it was two decades ago. Although the current wave of energy transition is largely sparked by concerns about environmental and global economic sustainability, it can only be successfully implemented if certain assumptions are met at the same time. To this end, the World Economic Forum (WEF) from Davos has designed the so-called *energy triangle*, which is a kind of roadmap towards building a sustainable energy system. Namely, a successful process of energy transition requires the balance between the following three elements of the *energy triangle*: a) energy security and certain access to electricity, b) environmental sustainability of the electricity system, and c) growth and economic development. In order to achieve net-zero emissions, i.e. complete decarbonisation of the economy and society, WEF suggests combining several different solutions that should primarily focus at (Valkhof, 2020): a) increasing energy efficiency, b) developing low-carbon alternative energy sources, and c) capture and storage of inevitable CO_2 emissions.

The COVID-19 coronavirus pandemic has led to new challenges in this area, as well as a significant and unforeseen decline in greenhouse gas emissions globally. This pandemic has halted regular business flows, leading to the chain of events that have disrupted and altered the functioning of all economic sectors, including the energy as well. According to the estimates of the International Energy Agency (IEA), GHG emissions should have been reduced by 8% by the end of 2020, to their lowest levels since 2010. Under regular circumstances, this would be a great success because the Paris Climate Agreement requires their annual cutting down by 6% (World Economic Forum, 2020, p. 2). Today, IEA however estimates that the use of renewables should increase at least six times faster than before, so that the Planet could start fulfilling the Paris Climate Agreement goals. The aim of this accord is to limit the average global temperature growth to well below 2°C in this century, compared to its pre-industrial level (International Renewable Energy Agency, 2018, p. 8).

However, since these reductions in GHG were not caused by structural changes in the economy, but by the devastating health crisis and consequent economic recession, it follows that the implementation of this process will depend of the degree of the cooperation between public and private actors to develop and implement appropriate sustainable economic, policy, technical, and social solutions.

The COVID-19 coronavirus pandemic had threatened the great attention paid to issues of climate policy, economic resilience, energy transition, and energy security. This health crisis has caused one of the most severe and serious economic and energy shocks in the recent history of humankind. In addition to massive disruptions to business, the crisis has also brought instabilities to value chains, food and medicine supplies, global production, services, tourism, mobility, and people`s daily lives. It is now clear that its long-term consequences for the energy transition will last for a long time. Although the shocks caused by this pandemic have led to a reduction in consumption and fossil fuels` emissions, not all these will be enough to achieve the most important goals of the Paris Climate Agreement, nor to limit global climate change. The economic recovery policy is marked all over the world by the use of incentive packages that will certain determine the intensity, scope, direction, and type of energy consumption. All of available primary energy sources, the COVID-19 coronavirus pandemic has had the greatest impact on oil consumption so far, due to its predominant role as a fuel that meets the needs of land, see, and air transport. S&P Global Platts Analytics estimates that the global oil demand fell by 8.4% compared to its pre-epidemic forecasts, as did coal demand by 5.7%, primarily due to reduced economic activities in developing countries. At the same time, the global demand for the natural gas experienced the smallest decrease of 3% compared to the period before the pandemic, above all due to the fact that this fuel is widely used as a heating fuel. Given all the above, there was a delay in capacity building and implementation of renewable energy projects at the key world markets, which are estimated to have reduced the renewable energy generation by about 3.6% in 2020 (Kramarchuk et al., 2020).

3. THE STATE OF ENERGY TRANSITION IN SERBIA

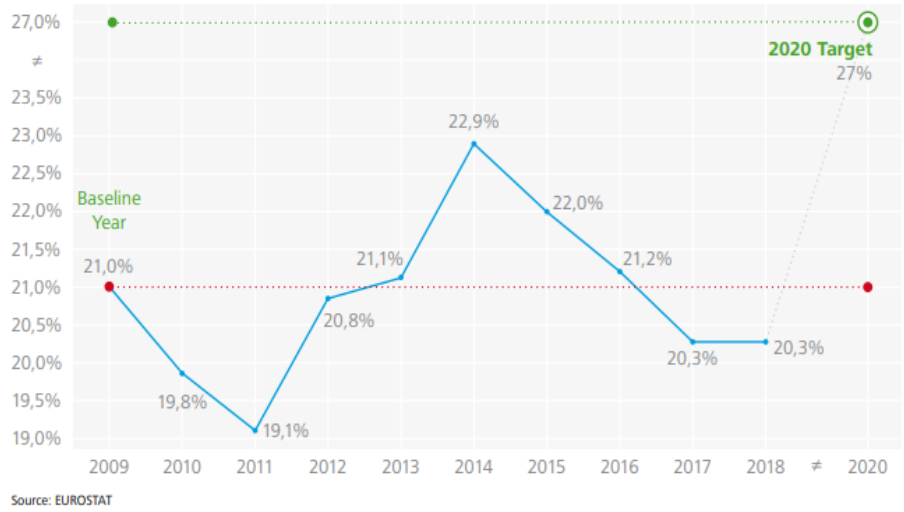
In 2005, by signing the Energy Community Treaty (ECT), Serbia became a full member of the Energy Community (EC), which finally defined the regional market of electricity and natural gas in the countries of Southeast Europe and the Black Sea region.

The EC brings together the members of the European Union (EU), and its neighbours with the aim of creating an integrated pan-European energy market and extending the EU internal energy market rules and principles to the Treaty signatory countries (Energy Community, 2020b). This initiative has created a single, stable, and regulatory framework for cross-border energy trade, because the signatory countries, in addition to the EU energy acquis communautaire, have also accepted its general rules in the energy related fields of environmental protection and competition. As an EU accession candidate country, Serbia should implement the EU environmental and electricity sector acquis, together with carbon pricing mechanism and emission standards for combustion plants introduction. By signing this agreement, the country has committed itself, among other things, to improve the energy supply measures related to environmental conditions, and encourage the use of renewables by increasing their share in the electricity production mix. Serbia has also committed itself to improve its energy efficiency. The country has also made concrete commitments. Serbia agreed to increase the share of renewables from about 21% to 27% by 2020, shut down small inefficient combustion plants in cities, and to introduce at least 10% of biofuels in its the structure of liquid fuels (Đukić and Batas Bjelić, 2018, p. 135). Although many Energy Community countries have already made significant steps towards energy transition, including the adoption of appropriate market schemes and comprehensive decarbonisation programmes, most signatory countries (Albania, Bosnia and Herzegovina, Kosovo, Northern Macedonia, Georgia, Moldova, Serbia, Montenegro and Ukraine) has not introduced any carbon pricing mechanism yet. The only exceptions in this regard are Ukraine, which recently introduced a nominal tax, and Montenegro, which introduced an excise tax on coal used to produce electricity (Nikolić and Filipović, 2020, pp. 48-49). The EC recognizes the fact that the investments in the energy transition process are crucial, but also the fact that high market dominance, limited regional integration, and low electricity prices continue to be the biggest obstacle in attracting new investments, and market participants in this area. It therefore insists on introducing carbon pricing mechanism as a key step in advancing this process, which would help countries in the region no longer rely on a coal-dominated energy mix, as well as to decouple carbon emissions from electricity production (Energy Community, 2020a).

In 2007, Serbia also ratified the Kyoto Protocol, with which the country likewise undertook the obligation to get rid of the fossil fuels widespread use in its energy production, as well as to focus on the use of more attractive, efficient, cleaner, and cheaper renewable sources. The Protocol also obligates industrialized countries to stabilize and reduce GHG emissions. In order to help them to reach their emission targets, as well as to encourage the private sector and emerging countries to contribute to these efforts, three market-based mechanisms have been introduced: a) International Emissions Trading, b) Joint Implementation (JI), and c) Clean Development Mechanism (CDM). So far, Serbia has only participated in the implementation of CDM projects (Srbija i klimatske promene, 2018). Finally, in 2017, Serbia signed the Paris Climate Agreement by which it voluntarily committed itself to reducing carbon emissions by only 8.9% by 2030. However, despite all these efforts, its emissions continue to growth, while about 80% of domestic energy is based on the combustion of fossil fuels, especially lignite of poor quality (Đukić and Batas Bjelić, 2018, p. 134). Finally, Serbia is at least declaratively committed to energy transition process and increased use of renewables, as evidenced by numerous adopted documents such as the National Strategy for Sustainable Development of the Republic of Serbia, the Draft Energy Development Strategy for 2025 with Projection until 2030, and National Action Plan for the Use of Renewables, etc. All these documents insist on the construction of new and renovation of existing facilities in accordance with the renewables` use requirements, substitution of conventional fuels with biofuels, combined heat and power production (cogeneration), electricity production from renewables, biofuels and other renewables installation in the transport sector, the deployment of technology that enables more efficient use of renewable energy, etc. (Ministarstvo energetike, razvoja i zaštite životne sredine RS, 2013, pp. 8-9). With the adoption of additional secondary laws and other regulations during 2019 and 2020, Serbia has made a significant progress in the adaption of the renewable energy related acquis communautaire, while at the same time increasing its renewable energy capacity. The total capacity of renewable energy sources is 3,490 megawatts (MW), of which large hydropower plants amount to 2,342 MW (67%), pumping storages 614 MW (18%), wind energy 398 MW (11%), small hydropower plants 104 MW (3%), biogas 22 MW (1%), and solar energy 11 MW (less than 1%). However, the implementation of these legal acts remains extremely questionable because the country has significantly failed in achieving defined renewable energy goals. Namely,

Serbia is still far from achieving the determined goal for 2020 of 27% renewable energy share in its gross final energy consumption, which is at the same time by 0.7% below the value of this indicator in the base year 2009 (Energy Community Secretariat, 2020, p. 171). Inertia and slowness have permanently accompanied its path to energy transition, especially in the development of solar projects and wind farms. In the period from 2009 to 2018, the value of this indicator ranged only from 19.1% to 22.9%, and from 2014, the value of this indicator began to fall sharply (Figure 1). Serbia also lags far behind in realization of these goals in the electricity, heating and cooling, and transport sectors.

Figure 1 The Share of Renewable Energy in the Serbian Energy Mix



Source: Energy Community

The COVID-19 coronavirus pandemic has accelerated the process of energy transition by showing that power systems across Europe can accept large amounts of renewable energy. This health crisis indicates the need for increasing energy sources diversification and requires a different approach of the economy and industry to the energy market. This data represents an important message for Serbia, which still has a big task ahead of it when it comes to a more intensive transition towards the renewable energy use and increasing energy efficiency. The energy transition in Serbia should be supported by a strong social component in order for this process to be fair, and equable enough. Although the pandemic led to the drastic drop in the electricity price in the period from March to August 2020,

which then began to recover, it could be said that it did not significantly affect the energy transition in Serbia. This is because the electricity consumption felt by only 2-3% because of the specific national economy structure, and the growth of household consumption (Stojčevski, 2021). In addition, in Serbia, this process is still in its infancy. Electricity prices on the regional SEEPEX stock exchange felled by about 40% compare to the three-year average, indicating the fact that fossil fuel power plants are slowly losing the race with green power plants.

Finally, if we would now take a look on the use of renewable energy sources in the last twelve years in some countries of Western Balkans region, we could notice that Serbia is clearly lagging behind almost all countries in this process (Table 1). Namely, Albania and Bosnia and Herzegovina recorded a significant and steady growth of the renewables` share in their gross final energy consumption, far exceeding the defined level of this indicator in Serbia for 2020 of 27%. On this path, Bosnia and Herzegovina especially has made a significant progress over this period, whose share of renewable energy sources has almost doubled. In contrast, Albania experienced an increase in this indicator of 5.23%. The drastic differences in the achieved energy transition level in this region are also reflected in the average values of this indicator, according to which Montenegro is in the lead in this process, followed by Albania and Bosnia and Herzegovina. These data also appear as a consequence of the larger starting bases of these countries. In contrast, in this period, Serbia managed to slightly increase the value of this indicator by only 0.42%. Only Northern Macedonia is in a less favorable position than Serbia, whose average share of renewables` in gross final consumption amounts to 18.04%. This remarkable progress of Bosnia and Herzegovina in the process of energy transition is also evident from Figure 2.

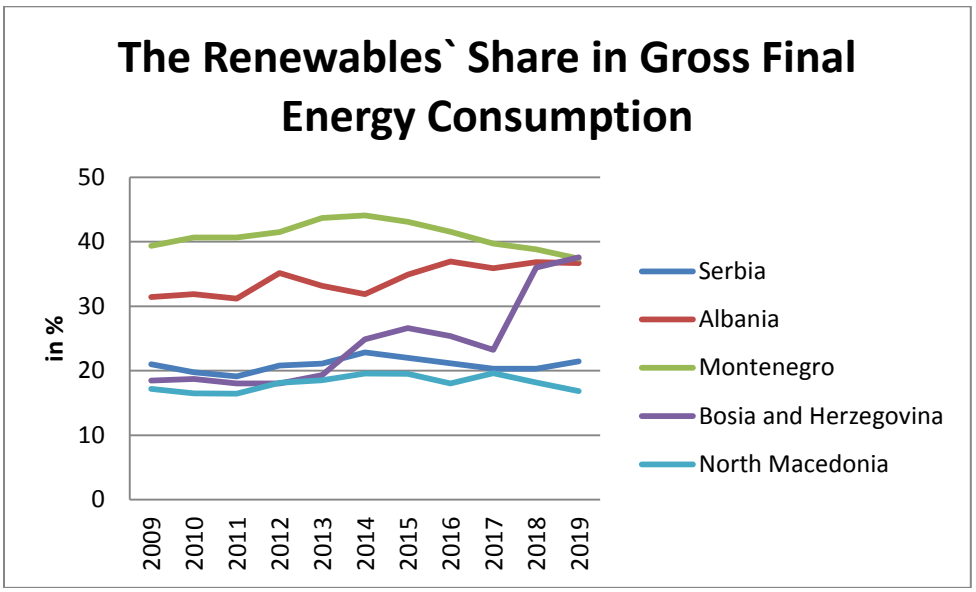
Table 1 The Share of Renewable Energy Sources in Gross Final Energy Consumption and its Eleven-Year Average (in %)

Years	**Serbia**	**Albania**	**Montenegro**	**Bosnia and Herzegovina**	**North Macedonia**
2009	21.02	31.44	39.37	18.47	17.20
2010	19.76	31.87	40.64	18.71	16.46
2011	19.12	31.19	40.65	18.00	16.41
2012	20.79	35.15	41.51	18.01	18.12
2013	21.10	33.17	43.70	19.31	18.50
2014	22.86	31.86	44.10	24.87	19.55
2015	21.99	34.90	43.07	26.61	19.52

2016	21.15	36.94	41.55	25.36	18.04
2017	20.29	35.90	39.71	23.24	19.63
2018	20.32	36.84	38.80	35.97	18.18
2019	21.44	36.67	37.37	37.58	16.81
Average	**20.89**	**34.17**	**40.95**	**24.19**	**18.04**

Source: Eurostat

Figure 2 The Progress of Western Balkans Countries in Energy Transition Path



Source: Eurostat

4. CONCLUSIONS

Serbia has great potentials in its renewable energy sources that could largely lead to replacing the use of coal. However, the conservativism, inertia, as well as the strong coal lobby, which is very influential and could easily oppose and endanger this process, dominate Serbian energetics. The potential of energy transition, with renewable energy technologies, energy efficiency and smart technologies that lead to the creation of highly sophisticated jobs and profitable ventures, is still insufficiently understood in Serbian society. Also, the society does not understand the importance of the energy for the country`s economic growth. Although Serbia has a lot of potentials in solar and wind energy, hydro resources, biomass, geothermal energy, waste energy, etc., it is still very slow towards meeting the set goal

of 27% share of renewable energy sources in gross final energy consumption. In addition, Serbia started this trajectory very late and does not make enough efforts in implementing the energy transition and encouraging energy efficiency (Rajaković, 2021).

Serbia's progress in a way towards proactive global energy transition will require the implementation of important structural changes, but also the adjustment of the entire economy, social habits, laws and regulations, social institutions, and value systems to low-carbon culture and green energy. A special problem in this regard is the behaviour of domestic population and industry, which are accustomed to an irrational, wasteful and socialized system of high energy losses and non-market costs and prices, which for decades has enabled the survival of families and public entities, resisting changes and progress in this area (Đukić and Batas Bjelić, 2018, p. 136). Serbia also faces challenges of economic and environmental energy sector's sustainability, improving energy efficiency and reducing carbon intensity, for which it has not made satisfactory improvement. In that sense, the country should focus on the market measures implementation, as well as the charging of all negative externalities and inherent costs, including the costs of harmful gas emissions, environmental pollution, depletion of non-renewable resources, as well as endangering human health and safety.

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INITIAL IMPACT OF THE COVID-19 CRISIS ON EMPLOYMENT AND FISCAL POLICY RESPONSES[*]

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Abstract: The rapid spread of the Covid-19 virus has forced the governments of most countries to introduce restricted movement and social distancing measures from March 2020. Restricted movement measures have led to a decrease in the production of goods and services and a sharp decline in most economic indicators. The new circumstances caused by the pandemic hit the wholesale and retail trade, accommodation and food services, transport, and some manufacturing sectors the hardest. This paper examines the impact of the COVID-19 pandemic on employment indicators in Serbia, compared to changes in the labour market of other Western Balkan countries. The Covid-19 crisis has halted the upward trend in employment rates in recent years in most Western Balkan countries. However, the employment rate remained relatively stable because of fiscal policy measures aimed at retaining or creating jobs and supporting firms' liquidity.

[*] This paper is the part of the results of research on project II U-001/20, Assessment of the impact of Covid-19 on social and economic development, Alfa BK University, Faculty of Finance, Banking and Audit, Belgrade, Serbia.

Fiscal measures have contributed to the maintaining or even increase the number of formally employed. At the same time, the number of informally employed decreased significantly. The largest changes in employment indicators have been in the second quarter of 2020. The effects of the Covid-19 crisis had the largest impact on vulnerable groups of employees, particularly on the reduction of informal employment, part-time employment rate and number of temporary employees. In the second quarter of 2020, the growth of the number of employees absents from work and those who work from home was significant, as well as the growth of working hours lost. Fiscal measures have enabled short-term relative stability of labor market indicators. However, the long-term impact of the COVID-19 crisis on the labor market will depend on the recovery of the Serbian economy, but also of the economy its main foreign trade partners.

Key words: Covid-19 crisis, fiscal measures, part-time employment, temporary employment, Western Balkan

1. INTRODUCTION

The spread of the Covid-19 virus in early 2020 caused an unexpected global health, economic and social crisis. The governments of most European countries have implemented the restricted movement and social distancing measures from March 2020, such as banning public gatherings, introducing curfews, quarantine, and completely closing international borders. After several weeks of implementation, the most restrictive measures (from March to May 2020), these measures started to be softened in most countries. However, the second wave of the pandemic in July and August, and especially the third wave during the fall, forced most European countries to reintroduce lock-down of economies and restricted movement measures. The virus pandemic is still present today, increasing global uncertainty and making it difficult to plan economic activities.

Restricted movement measures result in economic activity reduction and a sharp decline in most economic indicators, especially in the second quarter of 2020. The decline in real GDP of Serbia in the second quarter was 6.3% compared to the same quarter previous year, while in the third quarter there was a smaller decline (1.4%) (Statistical Office the Republic of Serbia). Restrictive measures affected the decrease in industrial production (20% in April compared to the previous year),

manufacturing production (decrease of 20%) and decrease in retail trade by 20%. In addition, the net inflow of foreign direct investments decreased, which in the period January-November 2020 amounted to EUR 2.2 billion. Due to reduced external demand and disruption in global supply chains, manufacturing exports and imports have been reduced too. After contraction in March/April 2020 by 35%, exports have been recovered from May to November by 62%. However, Serbia's exports are largely directed towards the EU (primarily to Germany and Italy) and countries of the region depending on demand in those countries (National Bank of Serbia).

The new circumstances caused by the pandemic have hit the wholesale and retail, accommodation and food services, transport and storage, agriculture the hardest, with over 700,000 workers at immediate risk of losing their jobs. These are sectors in which self-employment, temporary employment, part-time employment, and work in the gray economy are highly represented. The aim of this paper is to examine the impact of the COVID-19 pandemic on employment in the Serbian labour market as well as the labour market changes in other Western Balkan countries. The rest of the paper is organized as follows: Section 2 shows changes in labour market indicators in Serbia and other Western Balkan countries. Section 3 analyzes changes in the employment of vulnerable groups. Section 4 presents the fiscal measures implemented by the Western Balkans countries governments and Section 5 concludes.

2. LABOUR MAKET INDICATORS IN WESTERN BALKAN COUNTRIES BEFORE COVID-19

Before to the Covid-19 crisis, the Serbian labour market showed a trend of improving labour market indicators because of GDP growth and macroeconomic stability. According to the Labor Force Survey, in the period from 2011 to 2019, the employment rate increased from 35.8% to 49.0%. The unemployment rate also decreased significantly from 23.6% in 2011 to 10.4% in 2019, while the labour force participation rate increased by 8.1 percentage points. However, the gender gap in the employment rate remained significantly high (14.6%) despite the simultaneous growth of employment of both men and women. In the observed period, the employment rate of men increased by 13.4 percentage points, while the employment rate of women increased from 29.0% in 2011 to 41.9% in 2019.

Also of particular concern is the low youth employment rate (21.5%) relative to the adult employment rate. It has increased compared to 2011 by 7.5 percentage points, but it should have in mind that the population in this age group has decreased by 14% since 2011. The growth of total employment was based on the creation of new jobs, primarily in production, trade, catering, and construction. Since 2016, the share of new jobs has been created in these sectors accounts 89% of the total number. However, the quality of employment is unsatisfactory given that almost a fifth of total employment in 2019 was informal employment (18.2%). The share of low-paid workers was 22.9%. In addition, almost 23% of employees have a temporary employment contract, while the share of precarious workers was 8% (International Labour Organization).

The male unemployment rate in 2019 was 10.4% while the female unemployment rate was slightly higher (11.5%). The position of young people in the labour market has significantly improved, which shows a decrease in the unemployment rate from 50.9% to 27.5%, with girls 'unemployment being slightly higher than boys' unemployment (29.9% vs. 26.1%). Share of youth neither in employment, nor in education nor in training decreased from 21.6% to 15.7%. A significant problem of the unemployed is the long period of waiting for a new job, which is reflected in the obsolescence of existing knowledge and skills, loss of self-confidence and discouragement in active job search. Almost two thirds of the unemployed in 2019 belonged to the category of long-term unemployed (58.3%).

In other Western Balkan countries, there is also a positive trend in the development of labour market indicators. In addition to Serbia, the highest growth in the employment rate compared to 2011 was achieved by Montenegro (by 9.7 percentage points) and North Macedonia (by 7.8 percentage points). In some countries, the unemployment rate has decreased significantly (North Macedonia, Bosnia and Herzegovina). However, the labour force participation rate is still low. Progress has been made in Albania, Serbia, and Montenegro more because of greater inclusion of women in the labor market. Also, a large gender gap in labour market indicators is an important feature of all Western Balkan countries. It is particularly present in North Macedonia, where the male employment rate is 18.5 percentage points higher than the female employment rate, as well as in Bosnia and Herzegovina, where the difference is 17.5% in favor of men. In addition, the youth employment rate is low and ranges from 20.7% in North Macedonia to 26.7% in Albania.

However, a special challenge for economic policy makers is the fact that on average one fifth of young people were neither in employment, nor in education nor in training. Informal employment on average reaches 25% of total employment in the Western Balkans, with Albania being extremely high (56.7%). The most common are informally employed men, older workers, and people with a lower level of education who are mostly employed on low-paid jobs (OECD).

3. IMPACT OF THE COVID-19 CRISIS ON WESTERN BALKAN LABOUR MARKET

The effects of the Covid-19 crisis on the economy and companies are multiple. Suddenly and in a short time, global and local supply chains were interrupted, the demand for durable consumer goods was decreased, and opportunities for work were reduced due to restricted movement and social distancing measures. Some sectors like tourism, restaurants and hotels services, transportation have been shut down. The new pandemic business conditions required rapid adjustments in the organization of work (for example, work from home, digitalization of business). According to the Union of Employers of Serbia Survey in April, about 17% of companies completely suspended their activities, while 42% maintained a certain level of activity. The short-term consequences of the crisis were most pronounced in the second quarter of 2020, when the Government of Serbia declared a state of emergency for the entire country. Due to the most restrictive measures implemented most business have not been able to carry out economic activities. In the second quarter, Serbia's GDP decreased by 6.4% compared to the same quarter last year. This decline in GDP is still lower than the European Union's 14.4% decline in GDP over the same period (UN Serbia).

Changes in labour market indicators are most visible in the second quarter of 2020 because of the implementation of strict quarantine measures. In all Western Balkan countries, the employment rate decreased (by 0.5 percentage points in Serbia, 1.4 percentage points in Albania, and 5.1 percentage points in North Macedonia), but in the third quarter it increased again (except in Montenegro). The Covid-19 crisis has had a larger impact on declining informal employment as formal employment grows. In the second quarter of 2020, informal employment in Serbia decreased by 132,400 workers compared to the second quarter of 2019. The informal employment rate was 15.2%, which is 4.2 percentage points less than in the same period previous year. At the same time, the number of formally employed has increased by 60,100 (Statistical Office of Serbia).

	Employment rate, 15+			Unemployment rate, 15+			Persons outside labour force, 15-64, in thousands		
	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3
Albania	53.1	51.7	53.2	11.4	11.9	11.6	591,0	620,4	588,6
Montenegro	47.2	45.2	43.0	16.4	15.3	19.0	147,8	167,2	163,7
North Macedonia	44.2	39.1	45.1	17.0	19.0	16.6	521,3	605,9	502,0
Serbia	48.7	48.2	49.9	9.7	7.3	9.0	1.446,4	1.552,1	-

Table 1: Employment, unemployment, and persons outside labour force in 2020
Source (ILOSTAT)

On the other hand, official statistics data show that the unemployment rate in the Western Balkans has remained relatively stable given the severity of the crisis. In Serbia, after 7.3% in the second quarter, the unemployment rate in the third quarter was 9.0%, which is 0.5 percentage points less than in the same quarter previous year. The relative stability of the unemployment rate can be explained by the fact that most companies did not lay off workers, regardless of production reduction, then counting on the existing liquidity reserves. In addition, all Western Balkan countries have implemented fiscal measures to help the economy and preserve jobs.

One of the set conditions for reporting and using measures in Serbia was the ban on reducing the number of employees in the company by more than 10%. The relative stable unemployment rate has been partly due to the increase in the number of persons outside the labor force. In most Western Balkan countries, the number of persons outside labor force increased during the second quarter of 2020, with growth being highest in North Macedonia (around 16%).

According to the International Labor Organization, the sectors most affected by the Covid-19 virus are wholesale and retail trade, accommodation and food service, transportation and storage, manufacturing, real eastate activities. These sectors most affected by Covid-19 crisis contribute to 41.5% to the total Gross Value Added and have a 42.4% of all employees (Pavlovic, Bodroza & Vukmirovic). These are sectors in which the share of informally employed, temporary workers and young people is larger than in other sectors. For this reason, the effects of the Covid-19 crisis on the labor market can be expected to have a larger impact on the employment of vulnerable groups (informal employees, temporary employees and part-time employees).

Informally employed people had a more difficult position on the labor market even before the crisis. Compared to formally employed, informally employed workers earn up to 30% lower wages and there are more young, older workers and lower education workers among them (Udovicki and Medic). The overall decline in employment in the second quarter of 2020 can be explained by the decline in informal employment. In the first quarter, informal employment decreased by 9.9% compared to the fourth quarter of 2019. The decline continued in the second quarter and amounted to 7.6% compared to the first quarter of 2020, or 23.5% compared to the same quarter previous year. In the third quarter of 2020, the number of informally employed increased by 77,500, but it is still lower than in the third quarter of 2019 by 7.8% (Statistical Office of the Republic of Serbia).

The number of temporary employee data in the Western Balkans also show a decrease in the period of the most restrictive measures. In the second quarter of 2020, the number of temporary employees in Serbia was lower by 63,300 or 13.3% than in the same quarter of 2019. In the third quarter of 2020, the number of temporary employees increased slightly by 20,000 compared to the second quarter of the same year, but is still significantly lower than in the third quarter of the previous year by almost 16%. The impact of the Covid-19 crisis on temporary employment in Montenegro is even more pronounced.

The number of temporary employees in the second quarter of 2020 was 27% lower compared to the same quarter of the previous year, while in the third quarter the decline was 31%. On the other hand, in Northern Macedonia, a slight decrease in the number of temporary employees was registered in the third quarter of 2020 by 2% compared to the same quarter of the previous year.

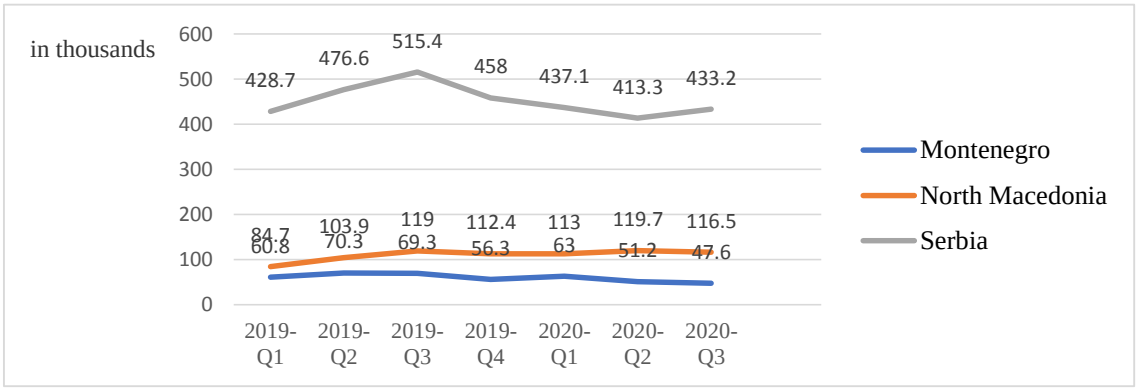

Figure 1: Temporary employees
(Source: Eurostat)

The negative impact of the Covid-19 crisis and social distancing also affected part time employment. Part time employment rate in Serbia was reduced from 10.4% in the first quarter of 2020 to 8.3% in the second and third quarters of the same year. The trend of decreasing the part time employment rate has also been in Montenegro (from 4.3% in the first quarter to 3.5% in the second and third quarters of 2020) and in North Macedonia.

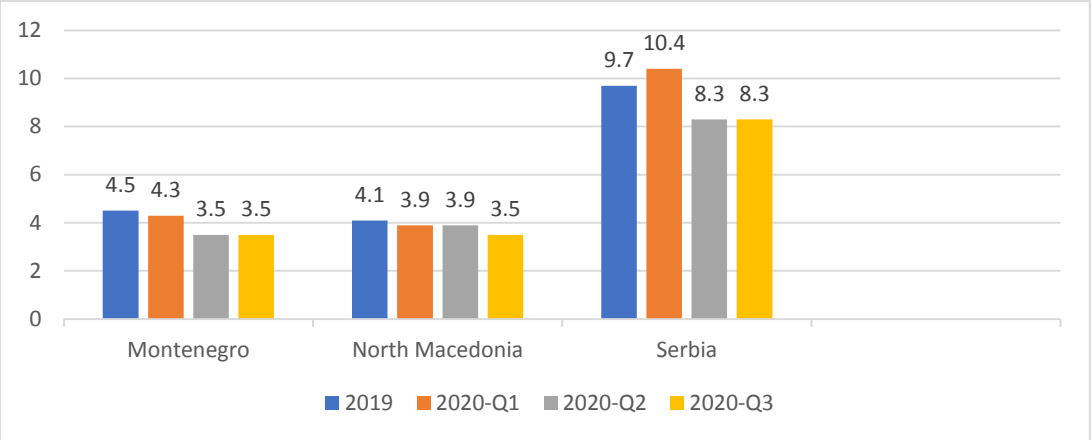

Figure 2: Part time employment rate
(Source: Eurostat)

The negative impact of the Covid-19 crisis and social distancing also affected part time employment. Part time employment rate in Serbia was reduced from 10.4% in the first quarter of 2020 to 8.3% in the second and third quarters of the same year. The trend of decreasing the part time employment rate has also been in Montenegro (from 4.3% in the first quarter to 3.5% in the second and third quarters of 2020) and in North Macedonia. In the second quarter of 2020, the growth in the number of employees absent from work was particularly pronounced. In that period, 11.4% of the total number of employees in Serbia were absent from work, which is 2.4 percentage points more than in the first quarter, and 6 percentage points more compared to the same period last year. Reduced workload due to technical and economic reasons was cited by 204,200 employees as a reason for absence, which is a drastic increase compared to 68,100 employees in the first quarter (Statistical Office of Serbia).

These changes in employment as well as the fact that economic activity has been significantly reduced in some sectors show that the short-term effects of the crisis on the labor market can be better seen through changes in the number of working hours. The ILO proposes taking the number of lost working hours each week due to the crisis and translating this information into the full-time equivalent.

However, these data should not be interpreted as the actual number of job losses because a number of employers decided to continue to pay wages to workers regardless of the economic activity stopping because of the lockdown. The ILO model estimates that 7.5% of annual working hours in Serbia are lost due to the Covid-19 crisis, which is equivalent to 266,100 lost full-time jobs. Analyzing this figure for other Western Balkan countries, North Macedonia has the highest annual working hours lost (13.8%), while Albania has the lowest annual working hours (3.9%).

	Working hours lost in %	Working hours lost expressed as number of FTE jobs, in thousands
Albania	3.9	51,1
Bosnia and Herzegovina	9.7	110,4
North Macedonia	13.8	112,7
Montenegro	7.8	17,0
Serbia	7.5	266,1

Table 2: Annual working hours lost due to the COVID-19 crisis. (Source: ILOSTAT)

One of the ways to mitigate the negative consequences of restricted movement measures and social distancing is teleworking. Working from home requires important changes in the lifestyle of workers but allows work to take place even in lockdown conditions. However, working from home is not possible in all occupations and in all sectors. The share of employees who worked from home during the second quarter of 2020 in Serbia was 12.1%, which is an increase of 2.9 percentage points compared to the first quarter, or 4 percentage points compared to the same period previous year. This data indicates the unwillingness to make a larger transition to teleworking, especially in comparison with the countries of the European Union. In some European Union countries, it is estimated that the share of jobs that can be done at home is 40% in Sweden, 35% in Italy, and 32% in Spain. Work from home is most often applied in education, most of public administration, finance, insurance, and telecommunications (Fana, Perez & Macias).

4. FISCAL MEASURES AS A RESPONSE ON THE COVID-19 CRISIS

The relative stability of labour market indicators has been maintained by the fiscal policy measures. In all Western Balkan countries, fiscal measures have been implemented to ensure job security and employment, as well as to provide liquidity to small and medium enterprises whose businesses are most affected by restricted movement and social distancing measures. In all Western Balkan countries, governments have sought to prevent redundancies due to reduced economic activities by providing compensation to small and medium enterprises in the form of monthly minimum wages during the period of the most restrictive measures. In addition, most Western Balkan countries have provided support to the most vulnerable companies by giving the opportunity to defer the payment of corporate income taxes and social security contributions as well as developing a state guarantee scheme for bank loans. Table 3. provides an overview of implemented fiscal measures in Western Balkan countries.

Country	**Fiscal measures**
Albania	Paying minimum wages as support of small businesses/self-employed that have been forced to close activities from April to Jun (Lek 6.5bn) Doubling of the unemployment benefits and social assistance payouts (Lek 11bn) Guarantee fund for companies for accessing overdrafts in the banking system to pay wages for employees for up to 3 months (0,6% GDP) Paying one-of transfer of Lek40.000 to employees of large companies affected Covid-19 and in tourism sector (0,4% GDP) Small businesses below an annual turnover threshold of Lk 14mil. Will not pay profit tax in 2020; deferring corporate income tax of large companies for Q2 and Q3 2020 to Q2-Q3 2021.

Bosnia and Herzegovina	Paying minimum salaries in April, PIT and SSC for employees of closed sectors affected Covid-19 (0,15% GDP of RS) Increasing the transfers to unemployment funds (0,16% GDP of RS) Developing credit guarantee scheme
Montenegro	Paying 70% of minimum wages in April and May for employees in closed sectors affected Covid-19, 50% of minimum wages for employees in sectors at risk of closing, 70% of the gross minimum wages of newly employed workers. One-time assistance of €50 to all unemployed recorded persons Delaying of tax payments and social security contributions
North Macedonia	Subsidies on wages and social security contributions of employees in private sector (for April, May, and June); cash vouchers for minimum wage earners, unemployed and young people. Targeted support for agriculture, textile, and other sectors. Lowering the late interest rate for public taxes and duties
Serbia	Wage subsidies (RSD 93bn) Payment of three minimum wages for all employees in SMEs; payment of 50% minimum wages to large companies. Labour taxes and SSC deferments to be repaid in 24 installments starting from 2021 (2,2% GDP); Deferment of labour taxes and social security contributions to all private companies for three months. New loans to SMEs from the Development Fund (RSD 24bn) Universal cash transfer of EUR100 to each citizen over 18 years old (RSD 70bn) A state guarantee scheme for bank loans to SMEs (RSD 56.5bn)

Table 3: The implemented fiscal measures in Western Balkan countries (Source: IMF (2021); Regional Cooperation Council (2021))

A first package of fiscal measures in Serbia amounted to about 7 percent of GDP and widely covered many entrepreneurs from different sectors. The second package of fiscal measures was adopted in late July including two

months wage subsidies for SME employees and deferment of labour taxes and social security contributions for additional month. Given that the hotels and tourism has suffered from large loss due to the Covid-19 crisis, government implemented fixed subsidy per room and per bed amounted 0.02 percent of GDP. New package of fiscal measures was announced in February 2021 including three minimum wages subsidy, universal cash transfer to all adult citizens. However, government recognized the need to provide additional support to sectors more at risk by Covid-19 crisis and decided to implement measures like additional payments for employees in travel and hospitality, transport sector and city hotels. The total estimated costs amount 2.1 percent of GDP (IMF).

5. CONCLUSIONS

The implementation of fiscal measures has contributed to maintaining the relative stability of labour market indicators in the Western Balkan countries. The decline in the employment rate was short-lived and present only in the second quarter of 2020 during the implementation of the most restrictive measures prohibiting movement and social distancing. The impact of the Covid-19 crisis has had a larger impact on the reduction of informal employment compared to formal employment. In addition, the Covid -19 crisis has had a larger impact on reducing the employment of vulnerable groups of workers with non-standard contracts like temporary employees and part-time employees. The Covid-19 crisis has contributed to a greater prevalence of new forms of work such as work from home or teleworking.
The Republic of Serbia has adopted and implemented two comprehensive packages of economic and fiscal measures to help employers and citizens, with the announcement of the implementation of the third package. Similar measures have been taken by other Western Balkan countries, which, among other things, has contributed to the short-term preservation of employment and the stability of other labour market indicators. However, it should be borne in mind the narrow fiscal possibilities of the Western Balkan country's governments, due to rising public debt and fiscal deficit, for the future economic incentives. In this regard, the long-term impact of the Covid-19 crisis on the labour market of the Western Balkans depends on the economic recovery of the economies of these countries as well as the economies of their main foreign trade partners.

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THE IMPACT OF COVID-19 ON BANK CAPITALIZATION

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Abstract: COVID-19 *was* declared *to be a pandemic by the World Health Organization on 11 March 2020. It is the most searched term on the Internet, and has a great impact on the bank capitalization around the world. In this paper, we examine the impact of COVID-19 on the capitalization of European banks. In order to draw the adequate conclusions, we use the official data of the World Bank (WB), the Bank for International Settlements (BIS) in Basel, as well as the data of the International Monetary Fund (IMF) and the European Central Bank (ECB). The time series used in this paper include the quarterly data covering the period from 2019 to 2020.*

Key words: bank capitalization, bank operations, capital adequacy, financial sector, profitability.

INTRODUCTION

COVID-19 represents a very serious threat to the financial sector, both locally and globally (8WB, 2020). The global economic crisis of 2008 strongly affected the financial sector. In order to be prepared for potential new challenges, the banks become well capitalized. Based on data from the World Bank (WB), the Bank for International Settlements (BIS) (2, 3, 4 BIS, 2020) and the International Monetary Fund (IMF) databank (6 IMF, 2020), as well as data from the European Central Bank (7 ECB, 2019) database, we reviewed the exposure of European banks to the shock caused by Covid-19. We used the quarterly reports from 2019 and 2020 taking into account the period before and after declaration of COVID-19 global pandemic.

THE IMPACT OF COVID-19 ON EUROPEAN BANK CAPITALIZATION

The banks are generally well-capitalized and they could meet the company's increasing financial needs. Regardless of the development of the capital market, the banks have been the main creditors of individuals and companies for many years. They remain the main creditors in the financial market despite the shock caused by COVID-19.

The vast majority of critical placements of the observed banks include loans to individuals. The exception is the USA, where the share of receivables from the companies is up to 60% (2 BIS, 2020). Bearing this fact in mind, we may conclude that in order to utilise bridging finance successfully the most of companies use bank loans as a only source of financing in the observed period. If we analyse the capital reserves of banks covering the period from the global economic crisis of 2008 to COVID-19 pandemic, we can say that banks are well capitalized. Basel III minimum capital adequacy requirements increased before the global financial crisis of 2008 and they have remained at a significant level during the COVID-19 pandemic. The significantly increased capital adequacy has led to the greater stability in the banking operations.

According to the BIS report (4 BIS, 2020), the difference bewteen the Common Equity Tier 1 (CET1) ratio, the sum that following the capital adequancy requirements, and minimal Basel III capital requirements is 4.5%, the capital conservation buffer is 2.5%, while the capital supplement is 2% at the end of 2019.

Basel III standards imply that banks should have a capital size of 4.5% for Pillar 1, which is more than double than the current 2%, requiring an additional hedging capital reserve of 2.5 %. Thus, the capital adequacy should not be lower than 7%, which present practically a threefold increase. The first pillar deals with maintenance of regulatory capital calculated for the risks that a bank faces. It is considered as the bank's ability to prevent losses. (5 Ljubić, 2015).

The six-year transition period, from 2013 do 2019, is enough time for banks to increases its capital reserves. Based on the higher standard of Pillar 1, Bazel III, banks were well-capitalized and have been able to respond adequatly to shock caused by COVID-19.

RESULTS

In order to draw the adequate conclusions, we use the official data of the World Bank (WB), the Bank for International Settlements (BIS) in Basel, as well as the data of the International Monetary Fund (IMF) and the European Central Bank (ECB). The total capital by components and quarters for European and world banks before and during the COVID-19 crisis are shown in Table 1.

Table 1: Total capital by components and quarters (EUR, billion; percentage)

Indicators/ Time	**CET1 ratio** [1), 2)]	**Tier 1 ratio** [2)]	**Total capital ratio** [2)]
Q1 2019	14.35%	15.60%	14.37%
Q2 2019	14.33%	15.55%	18,00%
Q3 2019	14.37%	15.58%	18,00%
Q4 2019	14.87%	16.06%	18,05%
Q1 2020	14.43%	15.65%	18,11%

1) CET1 capital requirements, Pillar 1

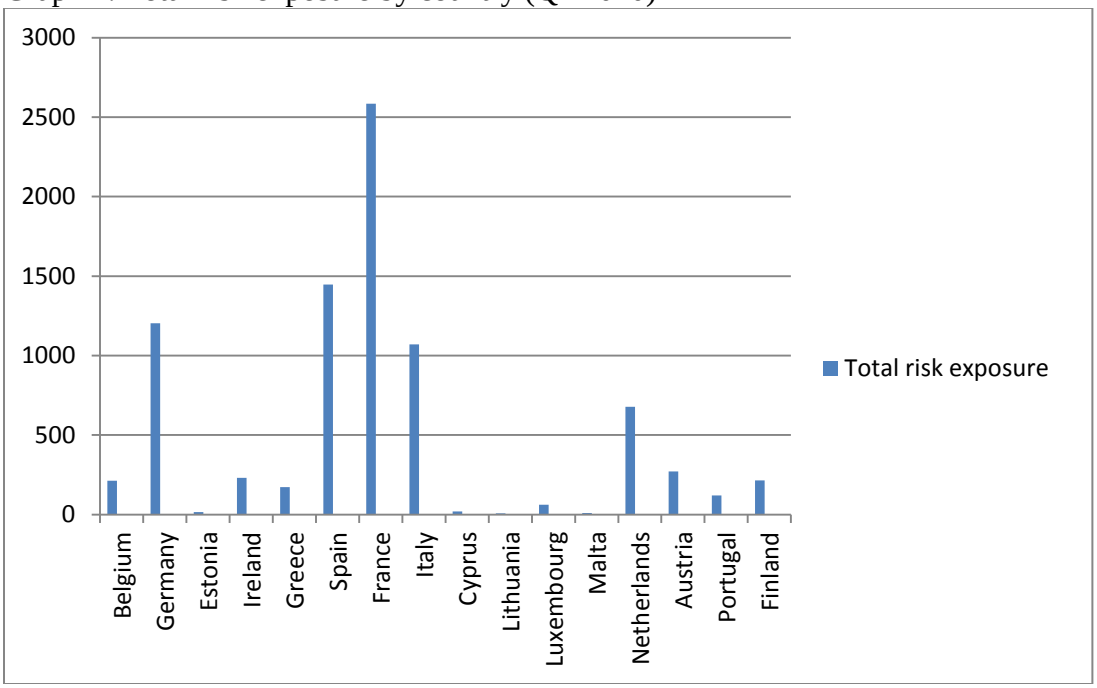
2) Total capital, Pillar 1 i CET1 capital requirements

Source: Authors' calculation basen on ECB database

The total capital and its components by country during the first quarter of 2020 are shown in Graph 2.

Graph 2 shows the total risk exposure of sixteen countries in the first quarter of 2020. In France there is the highest level of risk exposure. Contraty to that, in Lithuania, there is a lowest level of risk exposure in observed period.

Graph 2. Total risk exposure by country (Q1 2020)



Source: Author's calculation based on ECB database

Table 3. Total risk exposure by country (Q1 2020)

Country	Total risk exposure
Belgium	212.83
Germany	1,203.97
Estonia	14.85
Ireland	231.52
Greece	171.73
Spain	1,446.22

France	2,583.57
Italy	1,069.45
Cyprus	20.05
Lithuania	8.43
Luxembourg	61.15
Malta	8.98
Netherlands	678.73
Austria	270.37
Portugal	120.12
Finland	214.4

Source: Authors' calculation based on ECB database

The total risk exposure by country and by component during the first quarter of 2020 are shown in Table 3. We observed followed countries: Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Lithuania, Luxembourg, Malta, Netherlands, Austria, Portugal and Finland.

CONCLUSION

We may conclude that European banks had a lower level of capital reserves at the beginning of the global economic crises of 2008. However, they were well-capitalized when COVID-19 was declared by the World Health Organization, thanks to higher level of Bazel III capital standards.
The capitalization of the observed banks is higher because of the stricter rules on the regulatory capital and risk-weighted assets introduced after the global economic crisis, refers to the Basel III standard, Pillar 1.
Bearing in mind the above-mentioned, we may say that the shock caused by COVID-19 did not have an impact on the European bank capitalization. The European bank are well-capitalized and prepared to face with new potential problems caused by COVID-19.

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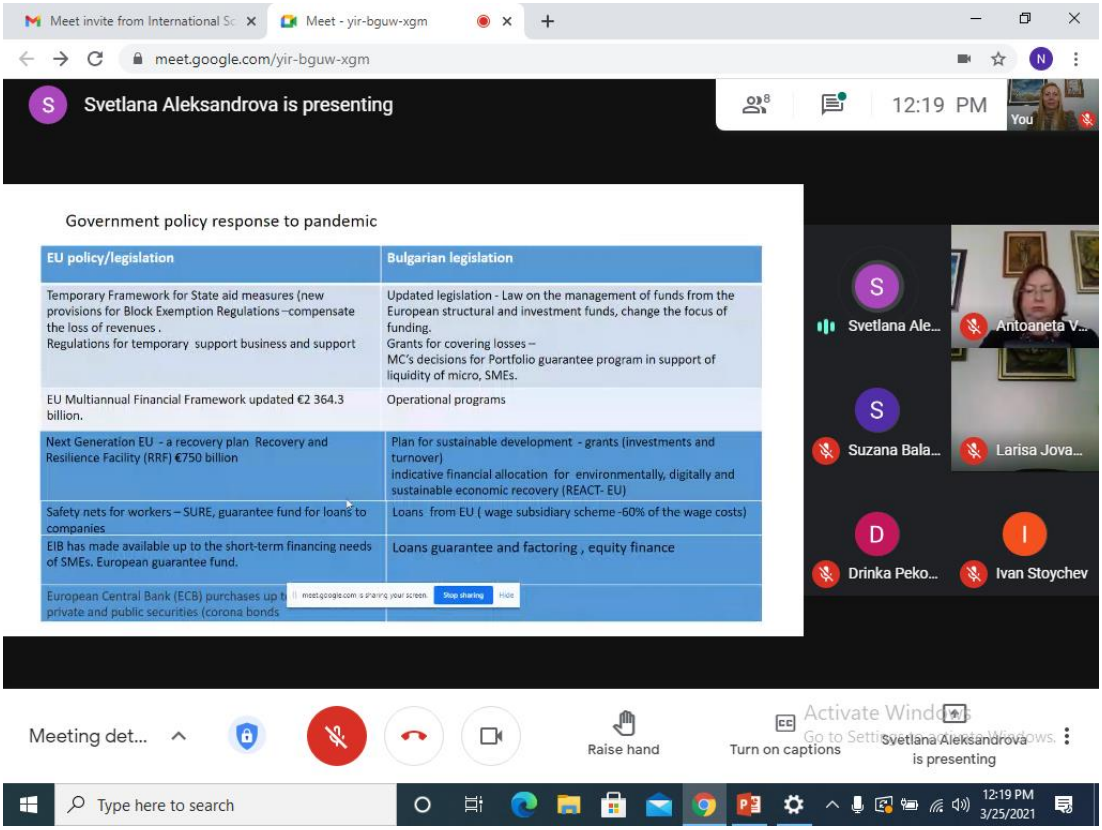

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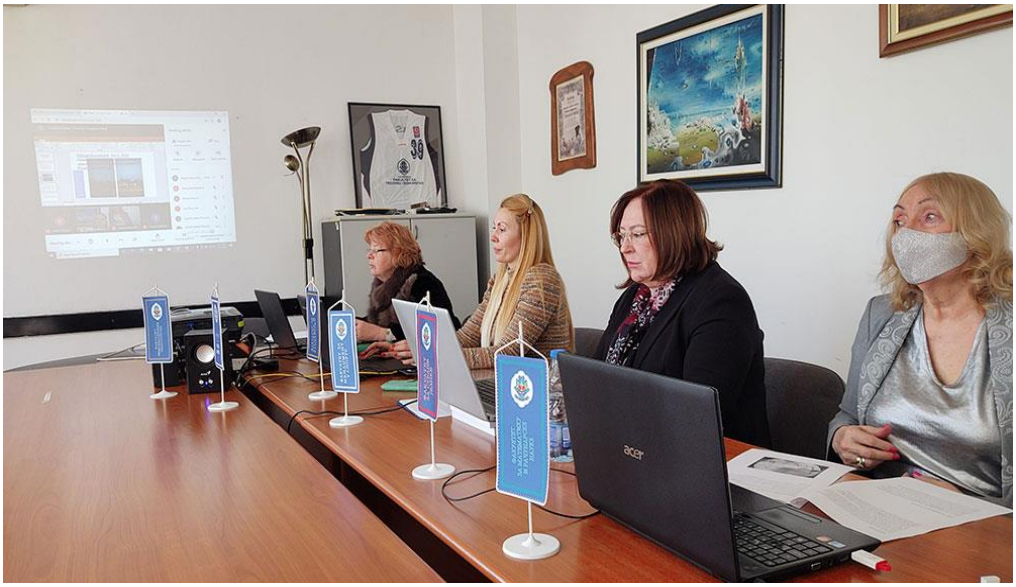

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CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

616.98:578.834]:33(082)
330.34(082)

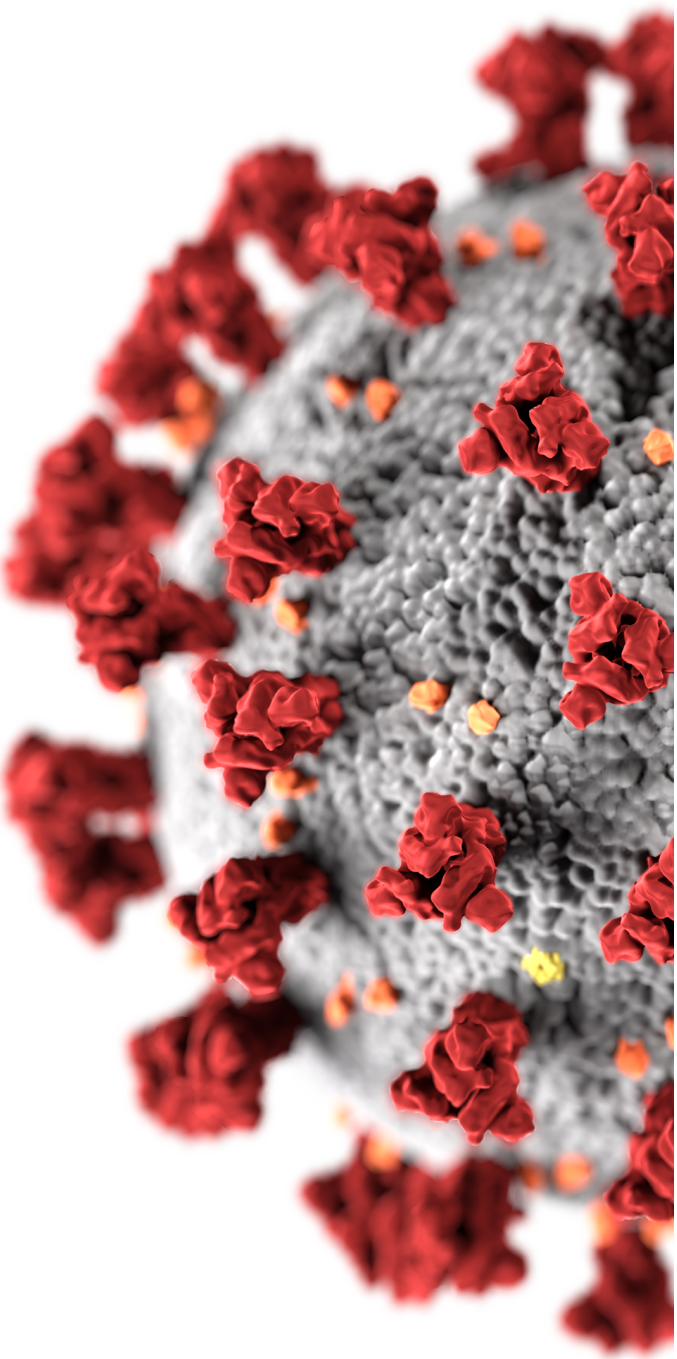
INTERNATIONAL Scientific Conference "Covid-19 and Challenges of the Business World" (1 ; 2021 ; Belgrade)
Proceedings Book [Elektonski izvor] / First International Scientific Conference "Covid-19 and Challenges of the Business World", March 25th 2021, Belgrade. - Beograd : Alfa BK University, 2021 (Belgrade : Alfa BK University). - 1 elektronski optički disk (CD-ROM) ; 12 cm

Sistemski zahtevi: Nisu navedeni. - Nasl. sa naslovne strane dokumenta. - Tiraž 100. - Bibliografija uz svaki rad.

ISBN 978-86-6461-046-9

a) Корона вирус -- Економски аспект

COBISS.SR-ID 40983561



ISBN 978-86-6461-046-9