GLOBAL ECONOMIC OBSERVER

EDITORIAL BOARD

Directors

Serghei Mărgulescu, Nicolae Titulescu University of Bucharest Simona Moagăr-Poladian, Institute for World Economy of the Romanian Academy

International Scientific Board

Mircea Malița, Romanian Academy

Aurel Iancu, Romanian Academy

Emilian M. Dobrescu, Romanian Academy

Gheorghe Zaman, Institute of National Economy of the Romanian Academy

Lucian Liviu Albu, Institute for Economic Forecasting of the Romanian Academy

Ion Neagu, Nicolae Titulescu University of Bucharest

Viorel Cornescu, Nicolae Titulescu University of Bucharest

Napoleon Pop, Institute for World Economy of the Romanian Academy

Leszek Jasinski, Polish Institute of Economics, Academy of Sciences, Poland

Tamas Novak, Institute for World Economics of HAS, Hungary

Serghei Mărgulescu, Nicolae Titulescu University of Bucharest

Francisco Javier Santos, University of Seville, Spain

Chen Xin, Chinese Academy of Social Sciences, Beijing, China

Petre Prisecaru, Institute for World Economy of the Romanian Academy

Simona Moagar Poladian, Institute for World Economy of the Romanian Academy

Luminița Chivu, National Institute of Economic Research of the Romanian Academy

Valentina Vasile, Nicolae Titulescu University of Bucharest

Petre Popeangă, Nicolae Titulescu University of Bucharest

Nicoleta Jula, Nicolae Titulescu University of Bucharest

Matteo Rossi, University of Sannio - Benevento, Italy

Agnes Ghibutiu, Institute for World Economy of the Romanian Academy Sarmiza Pencea, Institute for World Economy of the Romanian Academy Manuela Unguru, Institute for World Economy of the Romanian Academy Florin Bonciu, Institute for World Economy of the Romanian Academy Richard Pospisil, Palacky University, Czech Republic

Managing Editors

Petre Prisecaru, Institute for World Economy of the Romanian Academy Maria Grigore, Nicolae Titulescu University of Bucharest

Advisory Board

Andreea – Emanuela Drăgoi, Institute for World Economy of the Romanian Academy

Ana – Cristina Bâlgăr, Institute for World Economy of the Romanian Academy

Mariana Gurău, Nicolae Titulescu University of Bucharest

Mădălina Rădoi, Nicolae Titulescu University of Bucharest

Reviewers Board

Florin Bonciu, Romanian-American University, Bucharest
Elena Mihaela Iliescu, Nicolae Titulescu University of Bucharest
Serghei Mărgulescu, Nicolae Titulescu University of Bucharest
Cornelia Neagu, Centre for Industrial Economics and Services, National Institute of Economic Research, Romanian Academy
Mihai Rebenciuc, University Politehnica of Bucharest, Romania
Mirela Clementina Panait, Petroleum-Gas University of Ploieşti
Irina Rădulescu, Petroleum-Gas University of Bucharest
Mirela – Cristina Voicu, Nicolae Titulescu University of Bucharest

Petre Prisecaru, National Institute of Economic Research, Romanian Academy

Andreea – Emanuela Drăgoi, National Institute of Economic Research, Romanian Academy
Ana – Cristina Bâlgăr, National Institute of Economic Research, Romanian Academy
Iulia Monica Oehler – Şincai, National Institute of Economic Research, Romanian Academy

Editorial Assistants

Tatiana Furdui, Institute for World Economy, Romanian Academy, Bucharest
Viorica Mirela Ștefan-Duicu, Nicolae Titulescu University of Bucharest
Maria Loredana Nicolescu, Nicolae Titulescu University of Bucharest
Otilia Elena Platon, Nicolae Titulescu University of Bucharest

CONTENTS

ARTICLES	
TOWARDS MULTILATERALISM 2.0: INTERNATIONAL ECONOMIC RELATIONS IN THE POST COVID-19 CRISIS Florin Bonciu	
NEW DRIVERS OF CHANGE IN THE WORLD ECONOMY IN THE CONTEXT OF SARS-COV-2 PANDEMIC Cristian Moisoiu	1
FOREIGN DIRECT INVESTMENTS – KEY FACTORS OF THE TECHNOLOGY TRANSFER TO CHINA Ana-Cristina Bâlgăr	2
TESTING CORRELATIONS ON TOURISM COMPETITIVENESS IN THE EU Daniel Bulin, Manuela Liliana Muresan, Georgică Gheorghe	3
NATURAL GAS - THE FRIENDLIEST FOSSIL FUEL FOR COMBATING CLIMATE CHANGE AND A KEY TO SINO-RUSSIAN COOPERATION Paul Calanter	4
FINANCING SUSTAINABLE DEVELOPMENT THROUGH STATE AID. EVIDENCE FROM THE SAM REFORM Andreea - Emanuela Drăgoi	5
THE EUROPEAN PILLAR OF SOCIAL RIGHTS. IMPLEMENTATION AND EFFECTS IN THE EU MEMBER STATES Alina Ligia Dumitrescu	6
THE INTEGRATION OF ROMANIAN STOCK MARKET IN EUROPEAN UNION: AN EMPIRICAL ANALYSIS Elena Radu (Grigorie)	7
EUROPEAN GREEN DEAL AND THE PROSPECTS OF EU-CHINA CLIMATE CHANGE COOPERATION Zhang Min, Gong Jialuo	8
THE CHALLENGES OF THE RUSSIA'S ENERGY POLICY DURING THE COVID- 19 CRISIS	ſ
ECONOMIC POLICIES APPLIED BY DEVELOPED AND EMERGING STATES Emilia Cornelia Stoica, Mihaela Sudacevschi	10
BRAND COMMUNICATION DURING THE COVID-19 CRISIS Otilia-Elena Platon	11

THE ROLE OF ACCOUNTING AND ACCOUNTANT IN THE MODERN ECONOMY	
Mihaela Ioana Gurău	119
UNDERSTANDING THE NATURE AND EFFECTS OF DIGITAL GAMES IN PROMOTING SUSTAINABILITY Serghei Floricel	125
PROFESSIONAL EXO-JUDGMENT PERCEPTION – A QUANTITATIVE RESEARCH BASED ON AN INNOVATIVE CONCEPTUAL STRUCTURE – PART	
III	
Viorica Mirela Stefan-Duicu, Adrian Stefan-Duicu.	135

ARTICLES

Towards Multilateralism 2.0: International Economic Relations in the Post Covid-19 Crisis

FLORIN BONCIU, PhD. Institute for World Economy, Romanian Academy ROMANIA fbonciu@gmail.com

Abstract: The present paper analyzes the trends (such as technological changes, geopolitical changes, institutional changes, climate changes, demographical changes) that occurred after the 2008 crisis and which challenged globalization and the post-World War 2 multilateralism. The proposed hypothesis is that these changes would have changed anyway the world order and international economic relations, but the Covid-19 crisis accelerated, modified, and combined these trends in an unexpected ways. As the world economy and the participating actors need to adapt to the new circumstances, the paper proposes some requirements for the design of a new multilateralism which may lead to a more sustainable and less conflictual world. The conclusion is that challenges and changes, both related and non-related to Covid-19 crisis should be accepted and regarded as opportunities. The final part also presents some specific considerations about the challenges and opportunities for Romania in the post crisis period.

Key words: Covid-19 crisis, multilateralism, international economic relations, world order JEL Classification: F01, F23, F53, O43

1. A changing world: trends manifested prior to Covid-19 crisis and implications after the crisis

Understanding the trends and changes that will characterize this decade is a difficult endeavor because after the crisis of 2008-2009 a number of significant changes took place and not all of them have been favorable for the continuation of the globalization process in the format that existed for more than 30 years. Among these changes, there were:

a. Technological changes described under the name of the 4th industrial revolution. Among them artificial intelligence and the large-scale use of robots seemed to be the most influential, especially for the labor market; *b. Geopolitical changes* that were pointing to a relative withdrawal of the USA from Middle East and some other areas (which varied from Afghanistan to Western Europe), a more assertive presence of China as a regional actor but with a larger perspective, a repositioning of the Russian Federation as significant player in numerous areas neighboring its huge territory, a more active presence of Turkey in the areas where the Ottoman Empire had a say more than a century ago;

c. Institutional changes that affected both international institutions with universal vocation and the idea of multilateralism, such as the World Trade Organization, the International Monetary Fund, the World Bank, UNESCO, or the World Health Organization. These changes were either implicit, determined by the new balance of power resulted from several decades of progress registered by some developing countries (among them China, India, Vietnam), or explicit, determined by the actions of some important actors (first of all, the USA, but also Israel and others) which criticized and blocked the functioning of the World Trade Organization, pulled out of UNESCO, announced the retreat from the World Health Organization, suspended or delayed the payments of contributions to the United Nations Organization etc. These changes weakened for the moment the proper functioning of the existing international organizations, without proposing something else. The establishment of some new international organizations by BRICS countries (such as the New Development Bank or the Asian Infrastructure Investment Bank that began their activity in 2015) has already determined positive results, but the scale of their operation is still too limited for representing real alternatives to the Bretton Woods institutions;

d. Climate changes which have become so evident and with consequences that are so serious that the awareness for the phenomenon and its implications raised considerably for most of the world population. The idea of taking

steps for a global response to climate changes enjoyed a broad support, but the real evolution has been rather disappointing. The Paris Agreement, signed in 2016, by the representatives of 196 states has been subsequently declined by the USA, while other states (e.g. China) defined their own road map function of the resources and the costs of implementation they considered as acceptable;

e. *Demographical changes and the migration phenomena*. Demographical changes, both as regards the structure of populations by age groups and by ethnic structure for the states with a multi-ethnic structure have an objective nature and are defined by a long inertia. During the early 2000s there were a lot of discussions and analyses about the aging phenomenon which was specific mostly to the developed countries, but later, towards 2020, the focus shifted to the implications of the political choices of the new generations, especially in case of major countries like the USA. In case of the USA, a country with a multi-ethnic structure, the passage of time led not only to the gradual reduction in total population of the Baby Boomer generation, but also to the gradual replacement of the Anglo-Saxon majority to a Spanish majority. An equally impressive phenomenon is to be found in France, but also, to different degrees in other former colonial powers, the so called "inverse colonization" which represents massive inflows of people from the former colonies which may change the demographic structure (Stern, 2020). To these situations one can add the massive inflows of emigrants coming to the Western Europe during the middle of the last decade especially from war zones (such as Syria) but also from Central and Eastern Europe. All these changes involving people have initiated economic, social and political implications that will mark the decade until 2030.

The mere enumeration of these changes reflects their profound nature and structural implications. The world economy had to become anyway different until 2030 but these trends have been accelerated, modified, or combined in ways impossible to anticipate before the onset of the Covid-19 pandemic. The majority if not all states were little prepared but at least aware about the changes mentioned above; unfortunately they proved to be totally unprepared for the pandemic, although they had been warned about this risk in numerous occasions in the past 30 years (Maratz Henig, 2020).

It is worth mentioning that a simulation of a pandemic determined by a coronavirus, carried out in the USA on October 18, 2019 under the name Event 201 by Johns Hopkins Center for Health Security together with World Economic Forum and Bill and Melinda Gates Foundation indicated the lack of preparedness for such a risk (Center for Health Security, 2019). Similar conclusions were reached by a simulation of pandemic that took place in Great Britain in 2016 under the name of Exercise Cygnus (Pegg, 2020). In retrospect, one can note that the numerous warning signals regarding the risk of a pandemic had been provided by reputed virologist and the implications of these risks have been described by various successful writers and film directors (Maratz Henig, 2020).

The Covid-19 crisis which started in March 2020 has determined a simultaneous decline of supply and demand, being, by its very nature, a natural catastrophe and not an economic crisis. All states have been confronted with similar challenges but the implications of these challenges have been different because the states entered the crisis with very different situations as regards their health care systems, the quality and effectiveness of administration, financial, scientific and human resources. For these reasons, beyond general matters, each state had to look for its own solutions, function of available resources, know-how and the reaction of its population.

The Covid-19 crisis made irrelevant many ideas regarding the minimal state, globalism and universalism because very acute problems of life and death asked for immediate decisions and actions under very unusual conditions. Such decisions and actions could not have been taken by means of time consuming consultations of a large number of individual actors which did not have the financial and material resources or the administrative tools for immediate actions, many times of a coercive nature, that had to be implemented immediately at a state level. In the contemporary world, in the West as well as everywhere, it is an objective reality that such means are available only at the state level.

The onset of the Covid-19 crisis reminded once again that different periods and circumstances, as well as different states, ask for different administrative methods. If during the periods of peace and progress democracy, liberalism and universalism may lead to an increased efficiency and the increase of wellbeing, during the periods of profound crisis, be it war, natural catastrophes (the pandemic belongs to this category) or deep economic crises (such as the Great Depression of 1929-1933) a strong, effective and efficient state/administration is required in order to make best use of the existing resources, to motivate the population towards clear and measurable goals that bring a glimmer of hope at a reasonable time horizon. And because everything has a price, such strong states may be accused in the post-crisis period of lack of transparency, lack of consultation of stakeholders and even lack of economic efficiency. The question is who can speak about economic efficiency

when the salvage of human lives is at stake? Economic efficiency is indeed very important and useful, but, as any criterium, should be considered in each context and not in an abstract way.

The survival of people and companies during the pandemic is a complex task which requires human, material and financial resources which are so huge that all other aspects remain in the background, waiting to be rediscussed, redefined and brough back to the fore only after the imminent danger has gone.

2. The limits of the post WW 2 multilateralism and the need to define a new multilateralism

In order to define the best ways forward for the short and medium term horizons humankind may need what Peter Scoblic and Philip Tetlock named " a better crystal globe" (Scoblic and Tetlock, 2020). Perhaps we need a broader perspective of our analysis or maybe the world order and the institutions needed for its functioning should be redesigned according to a new reference framework.

The reality of the period March-November 2020 showed that the existing world order was not functioning in an effective and efficient way, one can even say it did not function reasonably: the world missed a leader to offer solutions and directions defined by balance and wisdom, in the same way that a good communication was missing between the political and the scientific worlds.

In fact, during the period 2008-2019 the international order based on rules functioned imperfectly while globalization had been perceived by many people rather as an interdependence and interconnectedness of problems and not of solutions (Lo, 2020).

Under these circumstances, beyond a certain degree of international coordination, there had been numerous state level approaches that were influenced by:

i. Traditions and socio-cultural values (such as the greater importance allocated to individual rights in Western countries, especially in Anglo-Saxon and Scandinavian ones);

ii. Nature of states (more democratic or more authoritarian);

iii. The personality of leaders in power at the moment of the onset of the Covid-19 crisis (an example in this context is that of Donald Trump in the USA or, at the other end of the spectrum, of Angela Merkel in Germany).

A hasty conclusion would be to consider that under the new circumstances the world order based on multilateralism is on the verge of being replaced by an order based on the central position of states, a fact that would lead to further focus on bilateralism or regionalism (more precisely to agreements, rules and mechanisms established primarily on a bilateral basis, as it happened with the new agreement between USA-Canada-Mexico that replaced the former NAFTA). But, from a historical perspective, one can note that the major crises of the 20th century (which were not of a pandemic nature), such as the two world wars, economic and financial crises, the effects of the climate change have led to an increase of multilateralism, according to the logic that says that global challenges require global solutions which, in turn, require multilateralism.

At the same time, the existing world order which originates in the specific circumstances of the period from the end of the Second World War is far from being efficient and effective in managing local and regional crises. This fact has become evident before the onset of the Covid-19 crisis due to the incapacity to prevent and to solve conflict situations, such as those from Syria, Yemen or Lebanon (Aydin, 2020).

Another proof of the malfunctioning of the current multilateral mechanisms manifested during the period 2016-2019 in case of the World Trade Organization where its three main functions (negotiation, dispute settlement and provision of transparency) were no longer operational (Mattoo and Narliokar, 2020).

The situations mentioned above pointed to the difficulties and malfunctioning of the multilateral mechanisms related to military, humanitarian, and trade crises. The Covid-19 crisis showed the reduced efficiency of another multilateral organization, namely the World Health Organization.

The Covid-19 crisis also raised some questions (especially in the initial stages during the spring of 2020) in relation to the efficiency of a particular case of multilateralism which is represented by the European Union. The particular character of this form of multilateralism stems from the fact that it has some supranational elements determined by the transfer of state attributes to the community institutions. Such a profound form of multilateralism is expected to generate a better cohesion and coordination. But, at least during the first months after the onset of the Covid-19 crisis, there were many differences among the EU member states as regards their approaches and responses to the pandemic and, in some cases, a level of solidarity less than expected (a case in point being the initial level of solidarity with Italy).

In our opinion, taking into account the above mentioned aspects, we should not reach the conclusion that multilateralism is no longer useful, but, on the contrary, we should reach the conclusion that a collective effort is needed in order to define a new type of multilateralism (some authors define this as Multilateralism 2.0). This new type of multilateralism should start from the realities of the 21st century, both as regards the actors that manifest in the world economy and as regards the challenges we face (climate changes, pandemics, technological changes, demographical changes etc.).

It is worth mentioning that attempts to adapt the existing multilateralism to a new global context existed since early 1990s. More recent attempts (Narlikar, 2020) to define a new type of multilateralism focused on issues that varied from **fundamental ones** (such as the need to define new values that will describe the world order of the 21st century) to **pragmatic ones** (such as the renegotiation of the statute and functions of existing multilateral organizations, the identification and transformation into partners of the categories disadvantaged by the existing globalization and multilateralism or a better communication of the advantages of a new multilateralism for solving the global problems).

Based on the existing studies, the following represent an attempt to identify certain requirements needed in defining a new type of multilateralism, requirements that may be also useful to Romania in defining its international position in the post Covid-19 crisis.

Such requirements for a new multilateralism should:

 \Rightarrow Consider the new realities regarding the balance of power at a regional and global level. As result, the new multilateralism could not be defined only based on values and prospects specific to the Western world;

 \Rightarrow Consider that certain developing countries from Africa and Asia have reached a level of development and national maturity which influence in an objective manner their approach to global economy and international relations, giving priority to their national approach. Different stages of development generate different views on the global economy and this fact should be regarded as an asset and not a liability;

 \Rightarrow Consider the cultural and spiritual differences that exist among states and people for defining a multilateralism that is accepted by all. In this respect, an effort is needed in order identify values that are indeed common for the whole humankind;

 \Rightarrow Recognize the importance of a good communication campaign about the challenges confronting the global economy and the value of cooperation and collective action. Global problems require global solutions;

 \Rightarrow Avoid the mistake of replacing the design of a new multilateralism with an effort to save the old one. The focus should be on the need to adapt to the new realities and not on the conflict between the old and the new multilateralism;

 \Rightarrow Take into account that even in the new global environment of the 21st century multilateralism will have a hybrid nature that is a combination of international order based on states and a certain global governance based on international institutions (Lupel, 2019). In our view, based on contemporary realities, the difference between the old and the new multilateralism will be given by the changes in the global balance of power compared to the 1945 period, as well as by the need to redefine the role and attributions of universal organizations, such as the United Nations Organization;

⇒ Provide for **3 fundamental mechanisms** necessary for the functioning of the global economy, namely **cooperation, competition, and dispute settlement**;

 \Rightarrow Have a pragmatic and realist nature, being oriented towards problem solving in order to become credible as fast as possible. The sooner the new multilateralism will be able to solve existing problems, the sooner will be adopted by force of arguments and not by arguments of force;

 \Rightarrow Give up the supremacy of profitability at any rate and adopt resilience as a means for avoiding and solving further crises (for instance of a pandemic or climate change nature). Both at micro and macroeconomic levels the shift towards more resilience instead of more profit will also mean the transition from "just in time" to "just in case" (Financial Times, 2020).

The above list represents exactly what has been announced, some requirements to be considered when defining a new multilateralism for the post Covid-19 period.

3. Conclusions

During the process of reflection on the global economy after the Covid-19 crisis some considerations proposed by a reputed expert in the field of international relations, John Mearsheimer are worth to be taken into account. In 2019 he argued that the liberal international order established after 1990 would fail, being replaced by a multi-polar world, characterized by 3 types of systems/orders: an international order, with a focus on

cooperation, limited in its enforcement capabilities; and 2 systems/orders manifesting around 2 spheres of influence, that of the USA and of China (Mearshmeimer, 2019). This vision describes in fact the world order that was specific to the Cold War period, the Soviet Union being replaced by China.

The vision of Mearshemeir does not refer to a new multilateralism, it is rather a suggestion about the direction of the world order if the states do not initiate efforts for an active coordination. This is why his vision may be treated as an incentive for avoiding a return to a Cold War type situation.

Another vision on the functioning of the global economy, which starts from the assumption of the continuation of the existing regional trends is that of "orders within orders", that is international orders that are overlapping and have some loose common rules for all participants and some stronger rules for a smaller number of participants. Such a vision may be acceptable for Russian Federation and even China, in relation to the geopolitical space of Eurasia (Paikin, 2019). Such a vision starts from the hypothesis of a global economy with several centers of power of unequal importance and may generate a multilateralism with variable geometry.

The need of a new multilateralism results also from the following observation related to the 2008-2020 period. Different from previous historical periods, in this case, great powers did not play a significant role in providing solutions for regional or global crises. In order to be convincing these great powers would have offered examples of good practices regarding the safety of people, development and wellbeing. The fact that the great powers could not deliver such examples of good practices may be regarded as an opportunity for the rest of the states for searching for solutions to their problems based on their own forces or in cooperation with each other. In the same context, if European Union succeeds to coordinate the efforts of its member states during the pandemic and to provide support during the recovery period after the pandemic, then it may assert as a global

pandemic and to provide support during the recovery period after the pandemic, then it may assert as a global power of a new type because it can offer a model for the others. The chance of the European Union to become a global power of a new type is not related only to the controlling and overcoming of the pandemic. After that, European Union can become an example for the transition to a sustainable economy and society based on the Green Europe Strategy (Nye, 2020).

All these changes of situations, perceptions and approaches taking place at a global level may bring to Romania challenges and opportunities. The challenges are represented internally by the need to overcome several problems of economic, social, health and education nature in the post Covid-19 crisis period. These problems are systemic (like the ones related to transport infrastructure), they exist for a long time and have been aggravated by the Covid-19 crisis. Their solving will require large efforts and resources, as well as a good coordination. At the same time, if these conditions are satisfied, Romania may benefit for its development by the so-called "latecomer effect", using the newest technologies available at that moment (Mathews, 2006).

Externally, the challenges for Romania may arise from the need to adapt to a different global context characterized by a new balance of power and by new regulations and mechanisms applied by the international organizations. A different category of challenges will be represented by the requirements of the European Union for its member states to implement certain technologies related to Green Europe. As a member state, Romania will have at the same time numerous opportunities because this status will give access to best practices, EU funds and coordination of its own efforts with those of other member states.

At the same time, Romania will enjoy multiple opportunities to define its own objectives and solutions that can be presented and negotiated within European Union institutions, as well as within other international organizations to whom Romania participate. Any redesign of the international order, of the international institutions and of multilateralism may be an opportunity to express Romania's position and interests and to learn from best practices. A first step towards capitalizing these opportunities is that of understanding the new realities, to take into account the opinions, perceptions and interests of others and to think with courage, open mind and hope for tomorrow.

References:

[1] Aydin, S. (2020), *The fate of multilateralism after the pandemic*, TRT World, May 21. Retrieved from <u>https://www.trtworld.com/opinion/the-fate-of-multilateralism-after-the-pandemic-36506</u>.

[2] Center for Health Security, (2019), *Event 201*, October 19. Retrieved from <u>https://www.centerforhealthsecurity.org/event201/</u>.

[3] Financial Times, (2020), *Companies should shift from 'just in time' to 'just in case'*, April 22. Retrieved from https://www.ft.com/content/606d1460-83c6-11ea-b555-37a289098206.

[4] Lo, B. (2020), *World order in the time of coronavirus*, Lowy Institute, August 14. Retrieved from <u>https://www.lowyinstitute.org/the-interpreter/world-order-time-coronavirus</u>.

[5] Lupel, A. (2019), *Two Tasks to Get Past the Crisis of Multilateralism*, The Global Observatory, August. Retrieved from <u>https://theglobalobservatory.org/2019/08/two-tasks-get-past-crisis-multilateralism/</u>.

[6] Maratz Henig, R. (2020), *Experts warned of a pandemic decades ago. Why weren't we ready?*, National Geographic, April, 8. Retrieved from <u>https://www.nationalgeographic.com/science/2020/04/experts-warned-pandemic-decades-ago-why-not-ready-for-coronavirus/</u>.

[7] Mathews, J. A. (2006), *Catch-up strategies and the latecomer effect in industrial development*, New Political Economy, Taylor Francis Online. Retrieved from https://www.tandfonline.com/doi/abs/10.1080/13563460600840142?src=recsys&journalCode=cnpe20

[8] Mattoo, A., Narliokar, A. (2020), *Rethink, Revive, Rescue: From the Pandemic to Multilateralism 2.0*, Observer Research Foundation, May 7. Retrieved from <u>https://www.orfonline.org/expert-speak/rethink-revive-rescue-from-the-pandemic-to-multilateralism-2-0-65775/</u>.

[9] Mearshmeimer, J. (2019), *Bound to Fail: The Rise and Fall of the Liberal International Order*, International Security, vol. 43, no. 4, April 29. Retrieved from <u>https://www.mitpressjournals.org/doi/full/10.1162/isec_a_00342</u>.

[10] Narlikar, A. (2020), *The malaise of multilateralism and how to manage it*, Observer Research Foundation, January 23. Retrieved from <u>https://www.orfonline.org/expert-speak/the-malaise-of-multilateralism-and-how-to-manage-it/</u>.

[11] Nye, J. S., (2020), *Geopolitics after the pandemic*, Australian Strategic Policy Institute, October 7. Retrieved from <u>www.aspistrategist.org.au/geopolitics-after-the-pandemic/</u>.

[12] Paikin, Z. (2019), Orders Within Orders: A New Paradigm for Greater Eurasia, Modern Diplomacy, April 27. Retrieved from <u>https://moderndiplomacy.eu/2019/04/27/orders-within-orders-a-new-paradigm-for-greater-eurasia/</u>.

[13] Pegg, D. (2020), *What was Exercise Cygnus and what did it find?*, The Guardian, May 7. Retrieved from https://www.theguardian.com/world/2020/may/07/what-was-exercise-cygnus-and-what-did-it-find.

[14] Scoblic, P., Tetlock, P. (2020), A Better Crystal Ball - The Right Way to Think About the Future, Foreign Affairs, October 13. Retrieved from https://www.foreignaffairs.com/articles/united-states/2020-10-13/better-crystal-

ball?utm_medium=newsletters&utm_source=fatoday&utm_campaign=A%20Better%20Crystal%20Ball&utm_content=20201013&utm_term=FA%20Today%20-%20112017.

[15] Stern, M. (2020), *Michel Gurfinkiel on the Reverse Colonization of France*, Middle East Forum, August 22. Retrieved from <u>https://www.meforum.org/61415/gurfinkiel-on-the-reverse-colonization-of-france</u>.

New Drivers of Change in the World Economy in the Context of SARS-Cov-2 Pandemic

CRISTIAN MOISOIU The Department of economic development models Institute for World Economy 13 Calea 13 Septembrie, Bucharest Romania cmoisoiu@iem.ro http://www.iem.ro

Abstract: - The world economy is passing through a crisis with deep implications, due to globalization and the intensity of flows and interdependencies between economies. No country in the world escaped unhurt by this unprecedented crisis, no matter of the incidence of the coronavirus pandemic over it. Could this be a tipping point of a transformative change of the world economy? There are many signals and factors that indicate that there is a disruptive potential accumulated recently. Either technology, digitalization, climate change or the pandemics could determine a shift in societal behavior of people and businesses that might change the world economic order. This paper is not trying to provide answers, but only to present few of the recent evolutions which might have big implications in the proximate future.

Key-Words: - the economic crisis, the world order, international cooperation, SARS-CoV-2 pandemic, state resilience, the world economy JEL Classification: E6, F0, F5, F6, I1

1 Introduction

The coronavirus pandemic, named SARS-CoV-2, has evolved into one of the hardest crisis in the world since WWII. Having started from unknown sources yet, in Wuhan, Hubei Province, China, the pandemic of the new coronavirus has killed more than 1.1 million people all over the world in the past 12 months and has affected tens of millions. The World Health Organization (WHO) declared SARS-CoV-2 pandemic on January 30, 2020. Human life on the entire planet was messed up, billions of people being forced by governments to lock down, to stay at home or isolated in specialized units, as a prevention measure. Without knowing much about the virus, the lockdown approach was at first recommended by WHO in order to prevent the overwhelming of hospitals and the public health systems which otherwise could have become exhausted all of the sudden. Reducing the incidence of the pandemic, distancing people and preventing the contagion have provided some grace time for the governments to prepare a proper response, to supply with health equipment, tests, medicines and trying to develop a vaccine.

But, with lockdowns put into force and frontiers locked, the national economies, the international flows of goods, trade, tourism and transportation were facing downturns. Many affected countries have not met a crisis of such magnitude since WWII. According to the IMF, the global GDP will fall 4.9% in 2020, followed by a partial recovery in 2021, providing that the pandemic showed some positive track. But, many economies will not recover their output levels until 2022. (OECD, 2020) Most countries have exit lockdowns after couple of months, but the pandemic didn't end. Some local lockdowns were reinstated, some economic activities were again put on hold and a second wave of contagion is presumably starting to fold. No one really knows which are the odds to obtain a vaccine or a medical solution needed to cut off the transmission of the disease in a short time. Both the pandemic and the response against it have a tough impact on the economy. Therefore, without knowing the evolution further on, making assessments on the impact is an uncertain job to do. Most studies have lean to analyzing possible scenarios and making forecasts based on different evolutions of the pandemic.

Clearly, the impact of this crisis will last in time for many years, having implications over each and every dimension of the society: social, political, economic, technological or legal. Without really knowing the impact, the decision makers are looking now for optimal decisions to prevent, to mitigate or to adapt the systems to the new context. This is the reason why the study of the state resilience appears of great relevance.

This paper will present a selection of new trends, challenges and transformative factors that started up with the incidence of SARS-CoV-2 pandemic, based on observations at national or global level. Some of these factors are weak signals for the moment, but they present the potential to become drivers of change. Some of these trends could decisively determine future developments in the world economy. As a methodology, the study is based on a qualitative analysis, expert assumptions and STEEPV table. Of course, the study is limited by the ongoing processes, the manifestation of the crisis and misleading information could appear.

2 New trends in the world economy

Before the pandemic erupted, there had been several trends igniting globally, making clear that some major changes would have occurred in the economic ecosystems formed of international, national, or local actors. Some of these trends tended to converge and increase complexity and risks, like climate change, terrorism, cyber-attacks and global value chains. (National Intelligence Council, 2017) Urbanization and information technologies have generated in the last decades many more interactions between humans, companies and states than ever before. Therefore, globalization has reached a level of integration and flows like never before in the human history. (WEF, 2019) But, also, globalization gave birth to new risks and challenges that no single actor could have the readiness and resilience to uphold or mitigate with its own forces. Technology and automatization are also generating new challenges for labor and many people are finding their jobs competed or erased by new developments and innovations.

Once the pandemic started, many changes in this trends which had been considered certain or with a high degree of certainty, in systems, businesses, governance all over the world, have showed up. Some trends accelerated, some other were put on hold and some ceased to be a viable perspective.

The first shock that the pandemic has produced was in the global supply chains. Most of the international trade of goods and services are delivered today with global value chains (GVC's). GVC's were very attractive to companies in the past 30 years, when technology and globalization made possible to outsource their part of production and services in countries that offered better fiscal and economic conditions. GVC's represent 70% of the international trade, involving exchanges of parts and components, intermediary goods, raw materials, services. According to OECD, one-third of the world production is done by multinational enterprises and they account for half of world trade. (OECD, 2020) GVC's have increased productivity for companies, allowed technology transfer, access to knowledge and capital, even in countries that were lower positioned in the supply chain. They created many jobs and welfare. SARS-CoV-2 pandemic, according to some authors, exposed the fragility of the GVC model due to high interdependencies between companies, states and suppliers located across continents. (Fortunato, 2020) This made the supply very vulnerable, at a time when immediate actions and vital products and equipment were required, like masks and ventilators. At the same time, the medical crisis proved that any shortage or barrier in the GVC could broke the production on the entire chain. If a country on the upstream closed its borders, the production in the downstream got stuck and this blockage replicated further on the entire chain.

A second aspect related to GVC's is the high dependence on the production made in China in almost all the economic sectors. China produces most of the intermediary goods in the global economy and is responsible for 20% of the international trade with intermediary goods. This high dependence proved to be a vulnerability, due to the implications on national security of every country dependent on supply from China and the impossibility to substitute rapidly the industrial inputs from China when China got stuck due to the pandemic. (UNCTAD, 2020) Therefore, as UN experts consider, the main trend related to GVC shows that reshoring, diversification and regionalization will drive restructuring of global value chains in the coming years.

The weaknesses in GVC's and the dependence on suppliers abroad determined protectionist and nationalist moves of some governments. It is expected that new economic policies will stimulate local production and reshoring of industries with strategic importance, like sanitary products, health equipment, materials and medicines, in order to reduce the import depedence and GVC's.

Due to shortages in GVC's, the international trade of goods will drop in 2020 in the sectors dominated by GVC's, like automotive industry, electrical devices, electronics and textile. The World Trade Organization (WTO) estimated a 9.2% drop of trade in goods in 2020, main affected areas being North America, Europe and Latin America. (WTO, October 2020)

Most affected economic sectors by the pandemic are part of the tertiary sector, like tourism, air transport, art industry and leisure, hotels and restaurants. Even with most countries opening after lockdown, in these sectors the restrictions were still imposed and they will uphold until the pandemic ends. It is expected these services to recover very late in the following years and probably with some other structure and business models than today. New rules and restrictions will be imposed by governments, related to prevention measures, client services safety rules, density, spaces, which will imply additional costs and rethinking of activities.

Reshoring of GVC's and relocating out of China might offer new opportunities for some other countries that present the same competitive advantages like China: a good position, low cost and skilled labor, good infrastructure and proper logistics. This trend envisages emergent countries like Mexico, Turkey and some other countries in Eastern Europe or Latin America. But the experience and expertise accumulated in China in different industrial sectors for a long period cannot be replaced so easily and in a short period of time.

Even if GVC's will reshore, that will not necessarily lead to a surge of employment in the countries of origin of the capital. And the reason is behind the trend of automatization and digitalization which will continue. This will put additional pressures on labor, with most of the jobs possibly affected by replacing humans with robots. The main tasks in manufacturing sectors in the future will be limited to supervising the machines and processes. This will also imply risks and changes in human skills and business management. (Harari, 2018) The restructuring of international trade and of the main fields of globalization might start a period of transition towards a new framework of international cooperation. This could determine de-globalization and a new shock of supply, which would impact increased prices of merchandise. The main institutions of multilateral cooperation, like WHO, WTO, IMF, are under pressure to reform, both by US's political turmoil or China's new ambitions of world power.

A large amount of money have been poured into the economic systems, in order to compensate the drop in demand and supply. Most countries initiated a fiscal stimulus policies to provide incomes and cash transfers, both to households and businesses who had lost liquidity. As the former Nobel Prize winner Nouriel Roubini stated, this money stabilized the economies and the financial markets, but will eventually increase the public debt of these countries. The policy of monetizing the deficits could bring back inflation, if production and trade do not reach the previous levels of intensity. So, one should find appropriate solutions how to cover all this public debt on a medium and long term. (Business Insider, 2020) If together with inflation the unemployment will persist and the short time jobs will shift to no jobs at all in the tertiary sector, this could give push to a period of stagflation. Stagflation might have tough negative consequences on medium to long term on the standard of living even in the developed countries, with social inequalities at high risk.

There is another worrying signal at horizon that foresees a drop in food supply on a short term. This is very dangerous, because a sudden drop in the trade of food, could leave retailers and groceries with no supply, millions without access to food and vital products, both in the less developed countries or in large cities, which are highly dependent on food supply and imports. There is a weak signal for the moment, indicated by the fluctuations in the price of shipping of bulk carriers in 2020, but must be very carefully addressed by governments due to the huge impact it might have in all aspects of society, if reaches a "red" degree that could drive into a food crisis, in the most pessimistic scenario. (Trading Economics, 2020)

Maybe the strongest driver of change stimulated by the pandemic regards digitalization. Digitalization and a new innovation wave are not new phenomena, but in the context of restrictions, lockdowns and teleworking, these trends accelerated the most. Digitalization is already a process that impact society in each of its dimension. With acceleration of technological breakthroughs in ICT, the integration of platforms, public services, education, health systems, teleworking, all these will bring huge transformations in our society. There are premises that apps and platforms will change the health systems, to provide more predictable management of pandemics, to increase safety of patients and to support prevention, to rise efficiency in hospital care or in emergency services. The integration of digital education with school is generating disruption in school systems, forcing local and central governments to act in order to offer equal chances for students, access to internet, proper devices, educational platforms and good training for teachers in areas that are lagging behind with digital inclusion.

3 New trends in the world politics

In this section, we look unto political turmoil determined by the pandemic. The world economic order is in deep change. The actions and the role of the United States in the world are still uncertain. United States will continue to engage less in global issues, even if they reconsider their attitude towards climate change, WTO or multilateralism. The divide in the American society is proven so deep with the recent evolutions that they will put all their effort to respond mainly to domestic issues, no matter who will be in charge with the administration. It is clear that the American middle class was affected by globalization, by offshoring industry, stagnation of

incomes and losing jobs in the last 30 years. A weak middle class will determine further dissensions, protectionist measures, a slip to disorder and a conflicting attitude that will overflow both inside and outside the US.

The European Union is trying to hold together in the face of the global challenges, but EU was also shattered by inner vulnerabilities, like Brexit, demographic issues, migration, nationalist and protectionist behavior and centrifugal tendencies. In the face of SARS-CoV-2, EU seemed to be stunned, it reacted late and weak. When the pandemic broke in Italy and Spain, the main affected countries, the EU's member states (MS) reacted individualistic and uncoordinated, engaging with protectionist measures rather than in consensus, taking care to protect their own borders and their own national reserves of health materials and equipment. Closing down borders has raised the question about the future of Schengen. After the first wave passed, EU succeeded to find optimal means of cooperation. But, still there is a question if EU is well prepared to assume a higher role at the global level, if US seems incapable to hold its positions.

China is the great challenger now of the US supremacy and is showing up its strength more and more. Even with the pandemic, although it was accused of the wrong way of managing the pandemic at first, of not acting quickly and in a transparent manner, China's capacity to control the pandemic in the provinces was appreciated as an example for other countries. (Burki, 2020) China's ability to play its own card in the global economy has propelled it in the position of a strategic rival for EU and US's biggest threat to national security and world dominance. China's economy continues to emerge, maybe not at the same pace like in the past 20 years, but with good stroke even in the times of crisis, showing high resilience to asymmetric shocks. China marches on its own path to win peacefully the economic competition on the global markets and of the technological race, through commercial and economic cooperation. With de-globalization signals and protectionist moves by US and EU in some aspects regarding China's presence outside its area, China will focus further on consolidating its power, developing internally, not forgetting that it holds the largest market in the world, with a huge demand and a population that still lags behind at most of the human development indicators, if compared with the developed countries. (The World Bank, 2018) In relation to China, the EU's interest is to not losing the innovation wave, with China as a forerunner and challenger of the Industry 4.0 (the 4-th Industrial Revolution), by maintaining the multilateral framework of cooperation, but in the same time, trying to hold unaltered the special relationship with US and the NATO engagement. EU is still missing the main pillars that would confer it the self-reliance and resilience to external shocks, the pillars of security and defense and a political union.

In that context, tensions between countries will continue. Fed with populism and nationalism both at the right and the left side of the political spectrum, political leaders will tend to manage people discontent in this way, either in the US, China, Russia, Turkey or the EU member states. This could bring in other conflicts and threats to Western liberal order. The asymmetric conflicts will diversify due to digitalization, integration of platforms and AI, which will generate other vulnerabilities, like cyber-attacks, the informational war or the digitally controlled weapons. (National Intelligence Council, 2017)

Some political actors at the global level are showing up eager to promote reforming programs that address the main global issues, in the context of the pandemic. It has been called this period as a moment of great opportunities, despite the fact that the world is in deep sufferance and mourning. There are calls of united actions and coordinated public policies "to ensure a durable recovery and resilient future as countries adapt to structural transformations brought on by climate change and the new digital and knowledge economy". In a speech that might be considered visionary, the International Monetary Fund (IMF) Managing Director, Kristalina Georgieva, spoke about "A New Bretton Woods Moment", making a linkage in time to a historical moment in 1944 when the IMF was founded. (IMF, 2020) The plan that the IMF's leader signals is built on three imperatives: the right economic policies, the policies for the people and tackling climate change. The right economic policies refer to making proper policies for each country, according to their specific situation, with a special attention payed on restructuring the public debts. The Fund discusses about a Common framework for Sovereign Debt Resolution. The second imperative discusses health, education, gender equality, investing in young people and digitalization and access to Internet, as a solution for social inclusion. The third imperative addresses the global issue of climate change, as a critical one for the whole planet. The climate action is envisaged as a great opportunity that could bring a "greener" world, but also a prosperous and job-rich world economy. OECD looks also forward to promoting mutual cooperation, as a solution "to fight the virus and laying the foundations for a strong, resilient, inclusive and sustainable recovery". The priorities that OECD identifies are "to restart hard-hit economies, support jobs, promote clean technology development, and sustainable, quality infrastructure while increasing new opportunities for those adversely affected by the pandemic". (OECD, 2020)

4 New trends in society

The pandemic induced transformations in societal behavior, as well. Forced by lockdowns and restrictions, people are becoming more anxious, more careful with health status, with physical activities and reducing contacts. The nature of jobs is changing. Many jobs were moved to teleworking and the digitalization of tasks intensified. This trend implies that people have more autonomy to organize their time, to be effective at work, but also to be more dedicated to their families and household activities.

In the same time, this impact might seem too radical for many people. Nonetheless, the psychological implications are not to be neglected. Together with the changes in lifestyle, relationships and common habits, it grew up a sentiment of loneliness, a loss in self-confidence and alienation from friends, family and relatives. The number of divorces increased during this period, people consume less and are more preoccupied with the basic needs, reducing excess and delaying some planned investments (BBC, 2020).

The changes in education and work are disturbing for most families. Children and students are affected by the temporary shutdown of schools, by the integration of online studies with classical education, which require adaptation and new skills, new learning processes. For that reason, parents need to be more involved in the children's education, to help them pass this transition.

All these effects in society need further analysis from social scientists and psychologists. The behavioral changes of individuals could determine new vulnerabilities in the economy, taking into consideration possible drops in work productivity, the downturn of domestic consumption, a negative perspective of investments which could all sum up in a long term economic depression.

From ecological point of view, the reduction of consumption, especially the decrease of energy consumption as a consequence of the crisis, will induce a positive effect on greenhouse gas emissions reduction. This could be a decisive moment to make a transition to a low-carbon, energy efficient economy. On the other hand, lower transport and lower consumption of energy, oil and gas, implied a record surge in stockpiles for the main producers of oil and gas, negatively influencing the prices, which fell to new minimum on the global markets.

5 STEEPV Analysis

In this section, the information presented above is wrapped up in a table form, for it to be more acknowledgeable for the public.

As it was already mentioned, these trends or weak signals are neither exhaustive, nor certain. There are a lot of factors and determinants that could make things turning other ways, different scenarios for the future can be written, under these unstable circumstances.

Social	Technological	Economic
Teleworking, part time and short	4IR to accelerate, with digitalization and	Global value chains (GCV's) are a
term jobs change the nature of	automatization at forefront	weeakness, need to be reduced
labor, of social relations and	Integration of systems, apps and	World trade of services to adjust.
organizational culture	electronic platforms in healthcare	Tourism, airplane transport, art
Digitalization of education, as an	systems, to provide more predictable	activities and HORECA will
alternative to school education	management of pandemics, increase	restructure
changes the system of education	safety	No health system prove safe, many
with impact on families, teachers	New business models due to	issues of logistics, hospital care,
and school management	reindustrialization and robotization,	intensive care deficits, access to health
Reform of health systems due to	industrial internet, IoT, AI	services for everyone, supply of health
new needs and changes in hospital	New weapons and military devices due	equipment and medicines
care management	to asymmetric conflicts, pandemics and	New models of health care and
The transition determines	digitalization, as drivers of a new Cold	emergency system, hospital
additional costs, unequal access to	War	management, relocation of medical
medical services, social disruptions		staff
and new deaths		Relocation of industry out of China
		E-commerce, e-education, e-
		government, e-services to accelerate

Table 1 New challenges and trends, in the context of SARS-CoV-2

The health private sector increased,		Losses of productivity for companies,
but also the prices of health services		due to increased costs and poor demand
surged		Structural changes in manufacturing,
Social inequality persists,		mainly automotives
vulnerable people are most affected		Unemployment pressure, due to locks
by the crisis, with lower access to		down and automatization
health, education and wellbeing.		Financial stimulation to become more
		regular, no perspective to come out of
		the "zero" zone interest rate and "race
		to the bottom" tax policy
		Intervention plans valuing trillions of
		dollars all over the world will generate
		a new tsunami of public debt.
Ecological	Political	Values
Positive impact of lockdowns on	There are limited options to mitigate	Is lockdown legal? How much and for
environment, lower level of GHG,	epidemics: intervention and lockdown to	how long can the government suspend
due to lower energy consumption	"flatten the curve", to temporize	freedoms and rights?
Large stocks of oil and gas, due to	contagion or do nothing and reach ,, the	People to become more caring,
lower transport, locks down and	herd imunity" faster	concerned for health, physical contacts,
transit restrictions	EU was late to intervene, MS dissensions	less preoccupied by job track and
Higher incidence of pandemics due	on budgets and financial aid,	excessive consumption
to climate change	protectionism. Is Schengen dead?	Teleworking gives people more time to
New opportunities to make	WHO, WTO, IMF, UN in crisis, there	self-organize
transition to a low-carbon economy	are pressures to reform	Divorces increase, more time spent in
and to tackle climate change.	Block China's access to Western	house, less relationships and less time
	markets and reduce dependence on	spent with friends due to social
	import from China of strategic products	distance
	De-globalization: relocate industry out	Psichological implications of
	of China	lockdowns might negatively impact
	Splinternet: Western Internet and	work productivity, medium to long
	Chinese Internet	term investments, domestic demand
	Multipolar world order, with three main	
	blocks: US, China and the EU,	
	Asymmetric conflicts	
	A New Bretton Woods Moment to restart	
	the global order?	

Source: author's compilation

6 Conclusions

This paper presented a brief state of the world, in the context of SARS-CoV-2 pandemic. Based on observations at national and global level, few weak signals and trends were identified that have the potential to determine structural transformations in the world economy and politics.

This exercise can be useful for decision makers to offer them a wide image of the global issues induced by the pandemic, to have a starting point to build a more resilient governance. In the same time, further analysis should be carried out to refine the observations and build upon different scenarios of the future.

As things stand, structural changes of deep magnitude seem to be inevitable on a medium to long term in the world order. Nonetheless, the main priority right now for the entire global system formed by main geopolitical actors is to mitigate the pandemic, to limit the effects until a proper vaccine is obtained.

But, at the same time, the world confronts the same big challenges which tended to converge and to become more significant in the day to day life of each state and each individual. SARS-CoV-2 pandemic and the economic crisis that followed have revealed many vulnerabilities of the social and economic systems, even in the developed countries, although the most affected are still the people which have lower access to health services, to education, to Internet and proper jobs. Digitalization seems to be the big confirmation of a trend during this period. The digital transformation of society, in all its dimensions, has begun. There are instead many vulnerabilities induced by this trend which need to be accounted properly. Many jobs will be lost, many people will suffer of digital

divide and there are difficulties for many families and children to pass this transition. The opportunities that digitalization and "greening" of the economy create are nonetheless disruptive for many systems, businesses, categories of employees and they need to be envisaged with proper policies for them not to become a second generation of losers of globalization. Some political actors at the global level are framing reforming programs that address the main global issues, in the context of the pandemic. They call for united actions and coordinated public policies to stop the virus. In the same time, the climate action is envisaged as a great opportunity that could bring a "greener world", but also a prosperous and job-rich world economy.

References

- [1] BBC. (2020, 9 12). 'Divorce boom' forecast as lockdown sees advice queries rise. Retrieved from https://www.bbc.com/news/uk-england-54117821
- [2] Burki, T. (2020, 10 8). China's successful control of COVID-19. *The Lancet. Infectious Diseases*, pp. Volume 20, Issue 11, November 2020, Pages 1240-1241.
- [3] Business Insider. (2020, 10 19). Nouriel Roubini talks about the future of global economy post COVID-19. Retrieved from https://www.businessinsider.in/business/news/interview-nouriel-roubini-professorof-economics-new-york-universitys-stern-school-of-business-talks-about-the-future-of-globaleconomy-post-covid-19/articleshow/78746518.cms
- [4] Fortunato, P. (2020, 9 2). *How COVID-19 is changing global value chains*. Retrieved from UNCTAD: https://unctad.org/news/how-covid-19-changing-global-value-chains
- [5] Harari, Y. N. (2018). 21 Lessons for the 21st Century. NY: Spiegel&Grau.
- [6] IMF. (2020, 10 15). A New Bretton Woods Moment. Retrieved from https://www.imf.org/en/News/Articles/2020/10/15/sp101520-a-new-bretton-woodsmoment#:~:text=Today%20we%20face%20a%20new,of%20output%20by%20next%20year.&text=A %20durable%20economic%20recovery%20is%20only%20possible%20if%20we%20beat%20the%20p andemic.
- [7] National Intelligence Council. (2017). *GLOBAL TRENDS, Paradox of Progress.* Washington, DC: National Intelligence Council.
- [8] OECD. (2020, 10 29). A STRONG, RESILIENT, INCLUSIVE AND SUSTAINABLE RECOVERY FROM COVID-19. Retrieved from http://www.oecd.org/mcm/C-MIN-2020-7-FINAL.en.pdf
- [9] OECD. (2020). COVID-19 and global value chains: Policy options to build more resilient production *networks*. Paris: OECD.
- [10] OECD. (2020, 10 28). *The Path to Recovery: Strong, Resilient, Green, Inclusive*. Retrieved from http://www.oecd.org/coronavirus/en/
- [11] OECD. (2020). World Economic Outlook 2020. Paris: OECD.
- [12] The World Bank. (2018). *World Develpment Indicators*. Retrieved from http://data.worldbank.org/data-catalog/world-development-indicators
- [13] Trading Economics. (2020, 11 4). *Baltic Exchange Dry Index*. Retrieved from https://tradingeconomics.com/commodity/baltic
- [14] UNCTAD. (2020). World Investment Report 2020. International Production Beyond the Pandemic. Geneve: UNCTAD.
- [15] WEF. (2019). *Global Competitiveness Report 2019*. Davos: WEF.
- [16] WTO. (October 2020). *Trade forecast 2020*. Geneva: WTO. Retrieved from https://www.wto.org/english/tratop_e/covid19_e/covid19_e.htm#reports

Foreign Direct Investments – Key Factors of the Technology Transfer to China*

ANA-CRISTINA BÂLGĂR, PhD. Institute for World Economy, Romanian Academy ROMANIA anacristinabalgar@gmail.com

Abstract: As a result of the political measures adopted at a very early stage by the Chinese central authorities aiming to regulate and guide the inflow of foreign direct investments (FDI) in line with its own industrial modernisation strategies and then to guide outward direct investments (ODI) in accordance with the same national interests, in conjunction with the sustained efforts made in recent years towards supporting and stimulating research, development and innovation (RDI) to create a knowledge-based economy, China gradually bridged the gap that was separating it from the technological frontier, becoming one of the main contenders in the race for global supremacy in the technological field. In the conditions thus described, the analysis conducted in this article seeks to showcase the shift in direction that occurred in recent year in relation to the sectoral scope of Chinese FDI and ODI which, based on well "targeted" national policies seeks to support the new Chinese development model, based on cutting-edge technology and innovation.

Key-words: China, foreign direct investments (FDI), Chinese outward direct investments (ODI), technology transfer, technological progress JEL Classification: F21, O14, O33, O38

1. China's transition towards the top of the global hierarchy in the field of science and technology

The generation and capitalisation of scientific knowledge – materialised in its applicability in the technological sector – represents a key resource for contemporary economies, a central element in the achievement and maintenance of a country's competitiveness, essentially reflected in national economic performances. If, traditionally, international technological development was led by the main developed economies¹ (in particular, the US and the European Union Member States), at present, through China's affirmation as a new powerhouse in science, technology and innovation (STI), we are witnessing a reconfiguration of the world leadership in this field. The stepping-up of scientific and technological progress, poignantly manifest over the last decades, along with its organic integration in the national economy has been a primordial objective of Chinese policies which, using a *top-down* approach, have always been centred on finding the optimum synergies between the acquisition of advanced technologies from abroad and the development of an own technological base.

China's spectacular journey over almost four decades, in its evolution from a country that was a net recipient of technology to the great technological powerhouse of today, having the declared objective of becoming a world leader in the field of innovation (by the 2050s) and of reducing its technological dependence², triggered worldwide concerns and controversies with regard to the

¹Knowledge-based, technologically advanced economies.

^{*} This article is based on a more comprehensive research undertaken by the author within the study prepared by the Institute for World Economy in 2019 and entitled *China - strategii privind obținerea excelenței tehnologice și a dominației globale în sfera tehnologiilor viitorului (China- strategies for obtaining technological excellence and global dominance in the field of future technologies)*, coordinated by Sarmiza Pencea.

² In the conditions in which, in the words of Chinese President Xi Jinping, China has made a goal of becoming the "master of its own technologies" by 2035 [Xi Jinping (2015) apud Atkinson, (2015)].

legislation, policies and practices implemented by the Chinese government in the field of technology, innovation and intellectual property (Atkinson & Foote, 2019). As such, in the opinion of a series of international observers (US Trade Representative, 2018), China has deviated from the traditional parth trodden by other Asian economies – e.g. South Korea, Japan, Singapore or Taiwan – in their transition from the status of *followers* to that of suppliers of new technologies, by using unfair practices in the technological transfer processes and/or when intellectual property rights are acquired by Chinese companies, as well as by applying opaque, discretionary and discriminatory measures in the approval of investments (White House, 2018).

1.1. Strategic actions meant to reconfigure the Chinese development model

As shown by international literature (e.g. Kim, 1997), the classic route that countries embark on in their economic development processes, i.e. the transition from the stage in which they bridge the technological gaps separating them from advanced economies, to the stage where they gain a top position in the field of innovation, entails the completion of a sequence of stages leading to the increase of their national technological capacity (Box 1).

Box 1	1.:	Stages	required	for a	country	to	become a	leade	er in	the	field	of	techn	ologica	ıl inn	ovatio	n
--------------	-----	--------	----------	-------	---------	----	----------	-------	-------	-----	-------	----	-------	---------	--------	--------	---

Stage I	Stage II	Stage III	Stage IV
⇒ Technology transfer through FDI, licencing, or international trade ³ ;	 ⇒ Dissemination of the imported technology to the national industries; ⇒ Increase of the national economy's technological capacity; 	⇒ Local efforts to assimilate, adapt and perfect imported technology in line with national neds, for the development of own technologies;	⇒ Acquiring the status of global innovation leader;

Source: Author's adaptation after Kim (1997).

Only after having obtained, assimilated and then perfected the technologies received from advanced economies, emerging and developing countries are able to build the required internal technological capacity to generate new technologies and acquire the necessary competitive force to approach the relevant external market. However, to achieve this objective, which implicitly entails the development of competitive advantages, China has created its own development strategy which, as it is characterised by a series of recent international reports, is based on mercantile political measures in the field of technological innovation⁴, often in contradiction with international trade rules and traditional competition principles [Atkinson, (2012); Atkinson & Foote (2019); US Trade Representative (2018); White House (2018)].

As such, given the stages that need to be completed to advance in the international technological hierarchy, *a first strategic action* implemented by the Chinese authorities was to "open" the national economy to foreign investments – with the reform policy initiated by Deng Xiaoping at the end of the 1970s – and to apply measures seeking to attract multinational enterprise from developed counties (DMNEs) by stimulating them to transfer certain low- and medium-value manufacturing activities to

³ Analyses conducted internationally showed that acquiring new technologies through the inflow of FDI is the most viable option, not only cost-wise, but also because, in general, these technologies are accompanied by a pool of resources that will be transmitted to the recipient economy: *know how*, the organisational and managerial skills specific to the investing company, etc. (Romer, 1993).

⁴ In this context, in accordance with the reports cited, innovation mercantilism refers to the economic growth strategy applied by China, based on the reduction of imports and the increase of exports of high added value products, by using practices that contravene World Trade Organization (WTO) rules – unfair competition in the field of intellectual property rights (IPR), discriminatory measures against foreign companies, market restrictions, subsidies granted to large state-owned enterprises, etc. (Atkinson, 2012).

China and tap into the country's localisation advantages. By implementing the *Catalogue for guiding foreign investments*, the central government was assuming a key role in encouraging and directing investment flows towards strategic sectors, while at the same time limiting FDI inflows in other industries, either for national political security, or in order to protect from external competition the national industries that were still in their early stages of development. In order to increase the technological contribution of foreign companies, government authorities introduced a system for evaluating and certifying these companies – against a set of specific criteria including, among others, the capital allocated to R&D, the staff involved in R&D, the company's capacity to develop new products, etc., in conjunction with an incentivising policy seeking to grant preferential fiscal or financial facilities to enterprises classified favourably in terms of their potential to generate an inflow of new technologies in China (Liu, Serger-Schwaag, Tagscherer, & Chang, 2017).

Although at the beginning of the 21st century, Chinese decision-makers were still facing a dilemma concerning the optimum pace of assimilating and absorbing new foreign technologies – and the incorporated know-how – to achieve the maximum effectiveness of actions aimed at industrial modernisation and at bridging the gap separating China from Western countries, the line of action chosen by the central government authorities was to step-up the processes of learning/acquiring skills from external companies in order to rapidly develop national technological skills (Walsh, 2003).

Therefore, the *second strategic action* undertaken by China in its efforts to become a technologically advanced nation was to study and replicate the specific production techniques of foreign investing companies. This was a support-stage, meant to facilitate the transition towards the *third dimension of China's technological development strategy*, in which local companies were aided in the process of acquiring new technical knowledge, whether tacit or explicit, of managerial, entrepreneurial, marketing skills and competences etc. (according to the "IDAR" scheme, presented as a synthesis in Figure 1).

Figure 1: Strategic stages in China's technological development process (the "IDAR" scheme)

Introducing ("I")

• The methods of obtaining foreign technologies include: FDI, ODI, technology transfer agreements technology import, the set-up of joint RDI centres, the collection of market information by state entities in the benefit of Chinese companies, etc.;

• "Target" technologies include equipment that cannot otherwise be produced on the internal market, advanced design and manufacturing technologies. However, the Chinese government discourages the import of technologies for which China has internal RDI capacities.

Digesting ("D")

• After acquiring foreign technologies, companies in the internal industry, under the direct coordination of government authorities, collect, analyse and disseminate the information on new technologies collected from the external markets.

Absorbing ("A")

• With government support, national companies apply the technologies thus obtained in their own production activities. To support the absorption and indigenisation of the new technologies, the central authorities established engineering research centres, state-owned laboratories, national technology transfer centres, etc.

Reinnovating ("R")

• In this stage, Chinese companies conduct activities seeking to improve foreign technologies already assimilated in the local production, with the final objective of internally developing new technological products that could be competitive internationally.

Source: Author's adaptation after State Council (2006a, b).

Articulated for the first time in the *Medium and Long Term Plan for National Science and Technology Development 2006-2020 (MLP)*, published by the Chinese government in 2006, the approach based on the "IDAR" scheme was the incorporated in all subsequent development plans, and was also reiterated at the *Third Plenary Session of the Chinese Communist Party (CCP)* of 2013, which set out the priorities of the new administration led by President Xi Jinping in relation to the China's future directions of economic growth, as well as the role assumed by government authorities to continue to guide and support national industry in its path towards furthering technological advances.

The implementation of MLP beginning in 2006 represented a change of paradigm for the Chinese economic growth model, which was until then based on attracting DMNE manufacturing facilities, by shifting towards a new local development stage, centred on internal innovation generated by national companies (Atkinson, 2012). As such, MLP is the *fourth strategic action*, meant to build a domestic environment that could independently encourage the innovative process and promote the transformation of Chinese companies into the main organism generating technological progress. As it can be seen, this time the policy pursued by the central authorities no longer focused only on certain key fields in which China had pre-existing capacities, but it developed a comprehensive strategy that was to be applied to all of the country's sectors, industries and regions, in order to radically boost national competitiveness. The need to move the centre of gravity towards internal innovation was subsequently stated in several programme documents⁵ that outlined the guiding principles meant to contribute to the achievement of the ambitious objective of substituting foreign technologies with new ones, resulting from local production (as per the succession of actions described in the scheme shown in Figure 2).

Figure 2: Key objectives of the new, innovation based Chinese development model



Source: Author's adaptation after Wübbeke et al. (2016).

To achieve the objective of technological self-sufficiency (in the first half of the 21st century) and of acquiring the status of leader in the field of cutting-edge technologies, the internal policy actions were to focus on strengthening the capacity to develop innovative products that would foster the creation of internationally renowned trademark names, as well as on accelerating the industrial modernisation process and the construction of new production capabilities, meant to help boost national competitiveness.

Despite the recent increase of the local technological production capacity – estimated to continue its growth over the near future – the Chinese government continues to pay increased attention to the

⁵ Among which, of major relevance are the *12th and 13th Five-Year Development Plans* (for the period 2011-2015 and, respectively, 2016-2020), and the *Made in China 2025* initiative (MIC 2025), adopted in 2015, with the main objective to turn China into a world leader in the field of smart, technology-intensive production.

transfer of foreign technology, seen as a prerequisite for achieving national progress in this field and for reaching the ambitious objectives set. The absorption of technologies from developed countries is still indispensable in the knowledge-intensive industrial sectors, where we can see a series of gaps between the assumed political ambitions and the internal technological capacity (Wübbeke, Meissner, Zenglein, Ives, & Conard, 2016). This is why the selective strategic planning prioritises these sectors – also included in the MIC 2025 strategy – that will continue to benefit from government support for cross-border technological purchases. The support mechanisms considered by the central authorities and specified in the official documents include: the application of measures encouraging FDI and ODI in cutting-edge technology industries or in industries that are based on smart production, the creation of R&D centres in the developed Western economies, the recruitment of qualified staff from abroad, the conclusion of cooperation agreements with foreign companies specialising in high tech production, etc.

1.2. Foreign direct investments – a recent "bone of contention" between China and Western states

In light of the transforming policies adopted by China over the recent years and of the change in the country's development direction based on the strategic guiding principles comprised by these policies, ample dissentions emerged at international level in relation to the treatment applied by the Chinese national authorities to foreign investing companies. As such, several recent analysis reports published by the US and European bodies competent to monitor the global investment flows [e.g. European Commission, (2019); US Trade Representative (2018); White House (2018)] point out to the existence of regulations and barriers that limit the access of FDI on the Chinese market⁶ – insufficient IPR protection in cutting-edge technology industries, quasi-monopolies held by large state-owned enterprises in sectors of strategic importance, a discriminatory treatment applied in public procurement procedures conducted in state-controlled fields, etc. - in order to guide the transfer of new technologies on the internal market in accordance with national interests. According to the investigations conducted in the reports referred to, while for EU investing companies one of the most significant limiting barriers is the differential treatment they are subjected to in comparison to Chinese companies, US companies see as the main obstacle (and even threat) the fact that the investment flow is conditional upon on the inflow of high technologies. Another limitation noted by both interested parties and, as a result, one which is mentioned in market investigations conducted by the European Commission and by the US government alike, is that in many sectors, foreign investors are not allowed to hold a majority interest in the capital of joint ventures. In these conditions, increased ground is gained by the opinion according to which the policy measures implemented by China are predominantly directed at supporting prioritised industries and at favouring "large national champions", while at the same time pursuing technological advance through the acquisition and re-innovation of foreign technologies (Atkinson & Foote, 2019).

As shown by these analyses, the main instruments the Chinese authorities resort to in order to guide FDI flows towards sectors of national interest or in order to boost the transfer of new technologies to these sectors can take various forms, from i) restrictions on the share of the foreign-held interests in joint ventures, to ii) the introduction of barriers and administrative burdens in the investment authorisation and approval processes. These two aspects reveal the non-transparent and discretionary nature of foreign investment approval procedures in China, which is against international practices agreed upon with the WTO⁷.

Despite the fact that the treatment of foreign investment inflows has been gradually liberalised over the recent decades, China continues to have in place a detailed system for the monitoring, control and management of FDI, in which a central role is held by the *Catalogue for guiding foreign investments*. Depending on the potential of recipient industries, the Catalogue divides FDI into three groups (encouraged, restricted and prohibited), and as a result determines both different degrees of examination for approval, and distinct conditionalities or regulatory levels for those investments. From

⁶ According to the OECD, China has the most restrictive treatment of foreign direct investments among the G20 countries (OECD, 2019).

⁷ If before 2001 China was explicitly using the practice of making market access conditional upon the transfer or import of technology, once the country joined the WTO, national authorities undertook not to resort to such measures.

its very establishment to its last revision (in 2017), the document specifies the sectors in which external partnerships may be entered into (such as joint ventures) and the interest shares permitted to foreign companies so that the Chinese partner may hold control over the newly-created entities. At present, the class for which foreign capital is restricted comprises 35 economic sectors and sub-sectors (some of which are selectively shown in Box 2).

Box 2: Sectors with restricted access for foreign capital is restricted, and in	nterest sł	iares i	mposed
for joint ventures			
(as per the Catalogue guiding foreign investments, revised in	2017)		

Activity sector	Specific requirements
Cultivation of new crop varieties and seed production	In the joint ventures created, the Chinese partner must hold a majority interest, enabling it to have control of the newly established company;
Exploration and exploitation of oil and natural gas	Limited and restricted access: no fully foreign- owned companies may be established, only partnerships with Chinese companies;
Automotive industry	The Chinese share may not be less than 50%;No more than two joint ventures may be established by the same investor;
Aviation industry	In the joint ventures created, the Chinese partner must hold a majority interest, enabling it to have control of the newly established company;
Construction and exploitation of nuclear plants	Same as above.
High added value telecommunication services *	The share of foreign investments may not exceed 50% of the capital of companies created in this field (e-commerce being excluded);
Basic telecommunication services	In the joint ventures created, the Chinese partner must hold a majority interest, enabling it to have control of the newly established company;
Banking	FDI from foreign financial institutions may not exceed 20% or 25% of the joint venture capital, depending on the investment structure;
Healthcare	Limited and restricted access: no fully foreign- owned companies may be established, only partnerships with Chinese companies;
Mapping services	In the joint ventures created, the Chinese partner must hold a majority interest, enabling it to have control of the newly established company;

Note: * According to the classification made by the Chinese authorities, this sector includes a wide range of technological and internet services.

Source: NDRC and MOFCOM (2017).

It could be concluded that by promoting the inflow of capital in certain sectors at the same time with the limitation or total prohibition of such inflow in other sectors, Chinese authorities use the national framework for the treatment of foreign investments to channel FDI towards industries that represent the main pillars for the country's achievement of its political objectives (US Trade Representative, 2018). As such, as signalled in a report prepared by the US Chamber of Commerce (2017), restrictions applied by China in the field of FDI in particular affect foreign companies in the

industries targeted by the MIC 2025 initiative, by either blocking their access on the Chinese market⁸, or by boosting the transfer of technology to the local partners as a condition for approving the inflow of capital. In any case, according to the same report, the pressure in terms of technology transfer was also felt by foreign companies operating in traditional sectors – not included in the objectives of the MIC 2025 strategy – in which China tried to obtain state-of the-art technologies by applying specific conditions to established joint ventures.

Also, another way in which national authorities – at central, municipal or local level – seek to boost technology transfer is the permanent revision of administrative formalities and of investment authorisation procedures that have to be completed by foreign companies in order to establish or expand operations in the Chinese market.

However, to maintain an objective analysis, several clarifications are required in relation to what has been shown above. First of all, it is very difficult and in certain cases even impossible to quantify the effects of applying limitations to FDI flows (Gros, 2019). As regards the limitations applied by the Chinese authorities on the inflows of capital, the compound index calculated by the OECD for measuring the degree of openness of national economies to FDI shows significant improvements over the last decade⁹, even if for this indicator the country continues to be positioned at the bottom end of the hierarchy among the organisation's member countries (OECD, 2019). Also, the term "forced" – in the phrase *forced transfer of technology*, used in all reports prepared by the US authorities cited – suggests certain constraints that are incompatible with the economic definition of the investment act. If in the past China was for the companies in the developed countries a destination where they could

capitalise their property assets, such as superior technological and innovating capabilities, while competing local companies were in a position of inferiority, at present Chinese enterprises have become significant contenders in many sectors and fields of activity (Liu, Serger-Schwaag, Tagscherer, & Chang, 2017).

2. Elements of economic theory regarding foreign direct investments as vectors of technology transfer

2.1 Ways in which technology transfer is propagated through FDI

The role, position and potential that multinational enterprises (DMNEs) have worldwide in the process of creating, distributing and controlling technology designate them as main suppliers of advanced technologies and knowledge necessary and indispensable for host economies to be able to improve their own production base. As a result, they can play a significant part both in increasing the degree of technologization and competitiveness of the companies in the markets they penetrate, and in the process of mitigating the technological gaps between countries. Technology can be incorporated in the production process in various products (e.g. capital assets comprising embedded technologies) and usually involve cross-border flows of physical assets and/or of tacit or explicit technical knowledge, such as organisational, managerial or other skills.

Among the methods that allow countries to "import" this technology one way or another – namely FDI, licencing and international trade – the most viable option is represented by foreign direct investments, not only because of costs¹⁰, but also because of other related benefits, which are not present with other types of transfer:

a) FDI comprises both the technology itself, and the full set of complementary resources necessary (managerial experience, entrepreneurial skills, etc.), which may be transferred and learned either

⁸ In the sectors in which China has overcome the development gap separating it from developed economies and has already acquired technological self-sufficiency. The purpose of restrictive barriers in these cases is the protection of national industries from external competition.

⁹ The index of China's restrictive treatment applied to FDI reached 0.251 in 2018, compared to 0.427 in 2009.

¹⁰ Because in terms of costs and international trade it may represent a viable alternative.

through training programmes, or by hands-on learning, since direct investments are based on the explicit transmission of technology;

b) Many of the technologies and the technical knowledge entailed by their use are not available on the recipient market because they represent intangible assets held by DMNEs on an exclusive basis and offering them property advantages over the local competition;

c) Even in the event of market availability, certain technologies and the related *know-how* become more effective if applied by the company having developed them. This effect is visible in particular with technologies that DMNEs create precisely in order to achieve specific objectives, or when the human resources available to these companies have skills that enable the particularised use of those technologies;

d) Also, technology exchanges via FDI is accompanied by a complex "package" of features specific to multinational enterprises – such as, for example, marketing and sales experience, secured access to regional and global markets, trademark names, economies of scale, etc. – enabling a more efficient exploitation of the technologies thus received.

In light of the above, international studies conclude that FDI represents a major driver for technological exchanges, with a direct contribution to the efficient use of new technologies, resulting from the three main lines of action imposed on the host country's economy (shown synthetically in Box 3).

0		
	FDI	
Bringing in technologies that	FDI incorporating	The transfer of new ideas and
were not previously used in	technological components	knowledge stimulates the
the beneficiary economy, thus	that determine the	degree of internal innovation
determining the production	introduction or development	and the increase of national
and consumption of new	of new skills required for the	technological creativity, seen
goods.	respective technologies to	in the companies' capacity to
	become operational (with all	generate new ideas driving
	related externalities).	increased productivity.

Box 3: Effects of foreign direct investments on the host country's technological progress

Source: Author's adaptation after Romer (1993).

As regards effects on national companies, they are propagated directly and voluntarily¹¹ in the relation with upstream companies, given the specificity of the parent company, i.e. the undeniable interest of transnational companies to benefit from highest-quality inputs from their suppliers (Javorcik, 2004).

A series of indirect effects also exist, and they appear in the interaction with local downstream companies (i.e. in related industries, enabling vertical integration), which may benefit from the high quality or low prices of intermediary assets they then include in their own production processes. Another category of indirect consequences occur in the process of technology dissemination via horizontal "links" (i.e. the links between the subsidiaries of multinational enterprises and the local competitors), also comprising the so-called "demonstration effect"¹² that results from the initiative of local competitors to adopt, through imitation, certain technologies successfully used by DMNE subsidiaries.

¹¹ A potential involuntary consequence of technological transfer is the tendency of local companies to imitate the specific technologies of transnational corporations present on the market. Although the reverse engineering practice is more frequently used in developed countries, certain analyses (Blomström, Kokko, & Zejan, 2000) show that this process may lead to the growth of the national technological level, favouring the production of high-quality goods.

¹² In the economic literature, the concept of "demonstration effect" describes the possible reaction of internal competitors who, being exposed to the superior technologies of transnational companies, will try to improve their own production methods, often by imitation (Saggi, 2000).

A catalyst for the propagation of technology exchanges is the emergence of regional industrial production systems (Slaughter, 2002). Within these, through the interaction established between the subsidiaries of multinational enterprises and local companies, the latter benefit from a facilitated access to a wide range of specialised intermediary inputs incorporating advance knowledge which, when acquired, increases the total factor productivity (TFP) of local manufacturing companies (Rodriguez-Clare, 1996). Also, national companies in the same industrial sector may receive and "learn" technological information from the DMNE local subsidiaries, as a result of informal connections.

As a consequence, with respect to the potential impact of technology transfer on receiving companies, most analyses are of the opinion that on the short term, these companies may benefit from increased productivity, from the diversification of production or from the decrease of production costs, while on the long term, the results obtained will depend on the individual ability to develop and improve own technological capacities.

2.2 ODI contribution to the inflow of technology

The growing tendency of investment flows from emerging and developing economies towards developed countries, manifested more poignantly during the last decade (UNCTAD, 2017) generated a worldwide need to study this phenomenon and the motivations behind it. As multinational enterprises from emerging markets (EMNEs) do not have technological resources similar to those of DMNEs – which makes it impossible to consider that their motivation for internationalisation is to exploit competitive advantages on external markets (as explained by classic theories) – the main determining factor for their decision to invest abroad is to obtain strategic assets. As a result, in order to acquire knowledge, EMNEs invest in economies that are rich in technological resources, from where they purchase strategic assets which they then use on their markets of origin (reverse technology transfer – Figure 3) (Huang & Zhang, 2017).



Figure 3: Ways in which technology transfer is propagated from developed economies towards

emerging economies: the traditional channel and reverse technology transfer Source: Author's adaptation after Amann & Virmani (2014) and Govindarajan & Ramamurti (2011).

Most often, external investments in search of technology seek to gain explicit knowledge – as opposed to the tacit or observation-based methods of learning¹³ – from developed economies, because it includes informal skills and competences the learning of which requires the presence in the host

¹³ Which can be more easily acquired from technology markets (e.g. by licencing).

countries, with hands-on learning from the advanced skills and experience of the staff involved in research and development.

The reverse propagation of technology, through acquisition from the host (producing) country and transfer to the investing company's country of origin may take place through several mechanisms:

> The purchase of new technologies related to the EMNE's basic activity or to compensate technical disadvantages may take place through merges and acquisitions. External partnerships provide access to a wide range of knowledge resources;

> The conclusion of strategic alliances related to the innovation infrastructure with suppliers, distributors, customers and sometimes even with competing companies, as a specific method for companies in technology-intensive industries. Alliance partners may obtain resources through joint learning and sharing processes, thus reducing both the time required for creating a new product, and the costs generated by its development or the investments in the fixed assets required for production;

> The internationalisation of the EMNE research and development activity to benefit from the localisation advantages offered by the host country¹⁴ in the field of science and technology. As such, through their subsidiaries, companies acquire diversified technological inputs, organise inter-cultural teams and obtain a series of other complementary resources enabling them to organise labour division at international level;

 \succ The imitation of and learning from local companies, by means of interactions with the downstream and upstream companies in the host county.

The instrument that has a catalyst effect for knowledge transmission channels towards EMNEs is represented by the competition effects that encourage the innovation processes implemented by these companies both directly, and indirectly, through production techniques or management skills.

3. Particularities and recent trends in the evolution of investments received by China

As China advances in its new development cycle and in its reform process, the need to absorb FDI has been increasingly felt at national level – both in terms of financial capital, and in terms of advanced technologies, managerial expertise and quality production – as a way of facilitating the industrial development process and supporting the transition towards an innovation-intensive and consumption-dominated economy.

Given that there is an awareness of the need for foreign entrepreneurial capital to achieve all these objectives, at the launch of the 13^{th} Five-Year Plan – (2016-2020), the Chinese government proposed the development and launch of new policies to contribute to the "full openness" of the national economy and to stimulate FDI inflows, by facilitating their access to new economic sectors and by relaxing the restrictive barriers existing on the market (NDRC, 2016). Concrete actions in this direction were implemented by the national authorities one year later (2017), in two distinct stages: *i*) with the publication of the *Circular of the State Council on Several Measures Concerning the Expansion of Opening Up and Active Use of Foreign Capital* (State Council of the People's Republic of China, 2017a); and *ii*) by enhancing FDI scope as a result of introduction of new *Measures to Boost the Growth of Foreign Investment* (State Council of the People's Republic of China, 2017b).

The two documents comprise a package of measures aimed at improving the tax framework, the tax support policies and the national business environment, and at developing platforms to strengthen China's cooperation with other countries. Later on, the same year, at the 19th CCP National Congress, the Chinese policy-makers emphasized the major role FDI has in stepping up technological modernisation and in obtaining the status of a country with an innovation-based economic growth,

¹⁴ Localisation advantages result from the use of an investing company's property advantages in foreign country, where the assets (regardless of their nature) are specific to that location and are available to all companies participating in that market (country-specific advantages).

reiterating at the same time the need of implementing additional measures meant to contribute to: a) the increased openness of the services sector; b) the defence of the rights and interests of foreign investors; c) the stimulation of foreign investments in the Western part of the country; d) the offering of more autonomy to free trade areas; e) the application of a non-discriminatory treatment to foreign companies. Through the change of paradigm and the gradual evolution of national policies and of the national legislation on investment inflows, from restrictions to the encouraging of FDI inflows and the promotion of an active selection, funding from foreign investors became both a major vector in supporting China's technological and industrial modernisation, and a favourable factor for maintaining a dynamic competition environment.

Given its immense market potential, the relatively low cost of labour and the increasingly comprehensive policy encouraging foreign investment inflows applied by the national authorities over the recent years, FDI flows grew gradually since 2012 (with the exception of 2016, when they stalled), with China now being the second largest recipient of FDI worldwide, after the US¹⁵ (UNCTAD, 2019).



Graph 1: Evolution of FDI flows received by China in the period 2008-2018*

As a result of the favourable evolution of flows over the recent years, in 2017 (the latest data published by the Chinese National Statistics Office in an international language), China's foreign direct investment stock exceeded the USD 2,000 billion ceiling, totalling approximately USD 2,011 billion (MOFCOM, 2018).

The active policy led by the Chinese government for promoting the development of modern services and state-of-the art production techniques, in order to improve the structure of national industry, was reflected accordingly in the FDI flows. As such, in the period 2008-2017, foreign direct investments in the processing industry registered a negative average growth rhythm (-1.5%), while the average rhythm in the tertiary sector was of 12% (Table 1). Also, as it can be seen from the analysis of the data presented, after 2015 (the year when the MIC 2025 strategy and the related policy measures were adopted), the share of FDI in the IT&C sector saw spectacular increases.

	Processing industry	Total services	Real estate transaction	Education	Finance
			S		
2008	22.1	24.7	8.8	12.2	122.5
2009	-6.3	-1.6	-9.7	-63.0	-20.3

Table 1. FDI growth filvtinn in the main economic sectors in China in 2000-2017 \ 70	Table 1: FDI g	growth rhythm in	the main ecor	nomic sectors in	China in	2008-2017 (%)
--	----------------	------------------	---------------	------------------	----------	-------------	----

Note: * The latest available data in the database cited. Sources: Statistical Yearbook drawn up by NBSC (various years).

¹⁵ Beginning in 2013, China was permanently among the first countries receiving FDI. In 2017, it overcame the United Kingdom which held the second position in this top.

2010	6.0	29.5	42.8	-39.4	146.3
2011	5.1	18.7	12.1	-51.7	70.0
2012	-6.2	-0.3	-10.3	770.1	11.0
2013	-6.8	17.0	19.4	-4.0	10.0
2014	-12.3	13.2	20.2	15.1	79.5
2015	-1.0	10.2	-16.3	38.0	258
2016	-10.2	3.7	-32.2	224.1	-31.3
2017	-5.6	5.0	-14.2	-17.9	-26.7
Average 2008/20 17	-1.5	12.0	2.0	84.1	61.9
	Transport, storage and postal	Scientific research and	Wholesale and retail	Informatio n technology	Leasing and commercia
	services	technical		and	l services
	services	technical services		and communica tions	l services
2008	services 42.1	technical services 64.2	65.6	and communica tions 86.8	l services
2008 2009	services 42.1 -11.4	technical services 64.2 11.2	65.6 21.6	and communica tions 86.8 -19.0	l services 25.9 20.2
2008 2009 2010	services 42.1 -11.4 -11.2	technical services 64.2 11.2 17.5	65.6 21.6 22.4	and communica tions 86.8 -19.0 10.7	l services 25.9 20.2 17.3
2008 2009 2010 2011	services 42.1 -11.4 -11.2 42.2	technical services 64.2 11.2 17.5 25.0	65.6 21.6 22.4 27.7	and communica tions 86.8 -19.0 10.7 8.6	1 services 25.9 20.2 17.3 17.6
2008 2009 2010 2011 2012	services 42.1 -11.4 -11.2 42.2 8.9	technical services 64.2 11.2 17.5 25.0 26.0	65.6 21.6 22.4 27.7 12.3	and communica tions 86.8 -19.0 10.7 8.6 24.4	l services 25.9 20.2 17.3 17.6 -2.0
2008 2009 2010 2011 2012 2013	services 42.1 -11.4 -11.2 42.2 8.9 21.4	technical services 64.2 11.2 17.5 25.0 26.0 -11.2	65.6 21.6 22.4 27.7 12.3 21.7	and communica tions 86.8 -19.0 10.7 8.6 24.4 -14.2	1 services 25.9 20.2 17.3 17.6 -2.0 26.2
2008 2009 2010 2011 2012 2013 2014	services 42.1 -11.4 -11.2 42.2 8.9 21.4 5.7	technical services 64.2 11.2 17.5 25.0 26.0 -11.2 18.3	65.6 21.6 22.4 27.7 12.3 21.7 -17.8	and communica tions 86.8 -19.0 10.7 8.6 24.4 -14.2 -4.4	l services 25.9 20.2 17.3 17.6 -2.0 26.2 20.5
2008 2009 2010 2011 2012 2013 2014 2015	services 42.1 -11.4 -11.2 42.2 8.9 21.4 5.7 -6.5	technical services 64.2 11.2 17.5 25.0 26.0 -11.2 18.3 39.2	65.6 21.6 22.4 27.7 12.3 21.7 -17.8 27.1	and communica tions 86.8 -19.0 10.7 8.6 24.4 -14.2 -14.2 -4.4 39.2	l services 25.9 20.2 17.3 17.6 -2.0 26.2 20.5 -19.5
2008 2009 2010 2011 2012 2013 2014 2015 2016	services 42.1 -11.4 -11.2 42.2 8.9 21.4 5.7 -6.5 21.6	technical services 64.2 11.2 17.5 25.0 26.0 -11.2 18.3 39.2 44.0	65.6 21.6 22.4 27.7 12.3 21.7 -17.8 27.1 32.0	and communica tions 86.8 -19.0 10.7 8.6 24.4 -14.2 -4.4 39.2 120.1	l services 25.9 20.2 17.3 17.6 -2.0 26.2 20.5 -19.5 60.5
2008 2009 2010 2011 2012 2013 2014 2015 2016 2017	services 42.1 -11.4 -11.2 42.2 8.9 21.4 5.7 -6.5 21.6 9.8	technical services 64.2 11.2 17.5 25.0 26.0 -11.2 18.3 39.2 44.0 5.0	65.6 21.6 22.4 27.7 12.3 21.7 -17.8 27.1 32.0 -27.7	and communica tions 86.8 -19.0 10.7 8.6 24.4 -14.2 -14.2 -4.4 39.2 120.1 147.8	l services 25.9 20.2 17.3 17.6 -2.0 26.2 20.5 -19.5 60.5 3.8

Source: NBSC, Statistical Yearbook (various years).

These trends indicate that FDI flows are being redirected from traditional production towards technology-intensive manufacturing process and towards modern services. Foreign companies therefore adapted the sectoral structure of their investment flows in China to be able to tap into the new industrial development trends and into the growth generated by these changes, focusing their investments towards high added value industries, to enhance the profitability of their operations on the Chinese market. Also, of all foreign companies that invested in China in 2017, around 40% (14,000) operate in high tech industries, the value of investments made reaching around USD 719 million and accounting for approximately 27.4% of all annual flows.

Table 2: Statistics on	FDI flows	s in the field	of high	technologies in 2017
1 abic 2. Statistics on	I DI HUWS	s m une neiu	or mgn	technologies in 2017

	Number of investing companies		Investments made	
	No.	%	Value (USD	%
			mil.)	
TOTAL, of which:	35,662	100	1,310	100%
High tech industries	7,022	19.7	359.6	26.4

High tech production	1,032	2.9	98.9	7.3
High tech services	5,990	16.8	260.7	19.1

Source: MOFCOM (2018).

4. Chinese external investments: points of reference, influencing factors and recent trends

Strategic motivations that supported the advance of Chinese external investments evolved gradually, from the simple concern for ensuring the natural resources required by national industries and the access to new outlets for the local production, to the finding of new RDI resources, capable of favouring the rapid absorption of cutting-edge technologies and higher national standards in terms of skills and competences, determining the increased international competitiveness of national companies. In other words, two imperatives – a higher degree of production sophistication and obtaining a high position in the global value chains – became strong incentives for the internationalisation by means of ODI of the activity of Chinese companies which in this way were able to access a series of intangible assets impossible to replicate, such as intellectual property, internationally renowned trademark names or human resources with global operating skills, etc. (Rosen & Hanemann, 2009).

At present, based on the new strategic direction of economic development adopted by China – focused on innovation in all production fields and on increased quality as opposed to quantity – as well as based on the sustained efforts made by the Chinese authorities to achieve these objectives, the country's internationalisation policy entered a new stage. At the same time, the increased market power of national companies not only supports the global distribution of Chinese capital, but also China's industrial transformation process from a follower to a future high-end technology and innovation leader. As such, over the recent years, outward Chinese investments were mainly channelled towards high added value production activities or towards those that encompass the entire production chain, thus being able to generate a reverse technology transfer resulting in the modernisation of the related industries in the national economy (EY, 2019).

After 2000, with the launch of the outward openness policy, according to which government authorities launched an ample action of encouraging and supporting the internationalisation of local companies, China rapidly became a major source of global investments. As such, Chinese outward investment flows significantly increased for 14 consecutive years (Graph 2), and in 2018 the country achieved the performance of accounting for around 13% of global ODI flows¹⁶ (compared to the share of only 0.5% it had in 2002).





Notes: * The latest data available in the database cited; the Department for the Collection of Foreign Investment Data within China's National Bureau for Statistics (NBSC) was established only in 2002 – until then the data were not centralised at

¹⁶ In 2018, total ODI flows worldwide amounted to USD 1,014 billion (UNCTAD, 2019).

national level. In accordance with the statistical methodology used by the NBCS and the MOFCOM, until and including 2006 the data related to outward investment flows and stocks did not comprise FDI in the financial sector (MOFCOM, 2011). Sources: Statistical Yearbook prepared by the NBSC (various years).

Furthermore, in this interval, China achieved two major performances: *i*) in 2014 the country managed for the first time to obtain the status of net investor – a status that it still holds today – with a value of investments generated higher than that of investments received (Graph 1 and Graph 2); and *ii*) in 2016, it outperform Japan and for the first time ranked second in the hierarchy of world investors after the US. China lost this position in 2017, being again outperformed by Japan (UNCTAD, 2018), but regained it in 2018, this time ranking after Japan who ranked first in the top of main worldwide investing economies (UNCTAD, 2019).

As shown by the data presented in Graph 2, in 2018, Chinese investment flows slowed down by around 10% compared to the preceding year, a trend that was determined by the aggregated action of both internal, and external factors:

First of all, beginning with the second half of 2016, Chinese authorities applied new regulatory measures in order to persuade national companies to manage in a more "reasonable" way their investments on external markets, by prioritising strategic fields. In August 2017, the central government adopted a document comprising a series of additional restrictions aimed at foreign investments in assets from the real estate sector, the hotel industry, entertainment, etc., encouraging in exchange the cooperation with foreign companies in the field of high-end technologies and the "judicious" expansion of investment flows targeting the services, commerce and logistics fields (State Council of the People's Republic of China, 2017c).

 \succ Secondly, a stricter regulatory framework and the introduction of more comprehensive procedures for the monitoring and verification of investments in economies that were traditional favourites for Chinese ODI (e.g. in the US, the EU, Japan), caused the reduction of the number of Chinese mergers and acquisitions in these countries;

➤ *Thirdly*, uncertainties persistent worldwide weakened the confidence of Chinese companies in the international business environment, lowering their investment appetite (EY, 2017).

In 2017 (the last year for which China's National Bureau for Statistics published data in an international language), mergers and acquisitions continued to be the main method chosen by the Chinese companies for accessing foreign markets¹⁷. In accordance with the national statistical data (MOFCOM, 2018), the 431 transactions operated by Chinese companies targeted 56 countries (regions), and M&A totalled USD 119.6 billion, decreasing by around 11.6% compared to the preceding year on account of the effects of the factors listed above (Table 3).

Table 5. Value of Chinese mergers and acquisitions in the period 2013-2017			
	Value of mergers	Annual changes	Share** in total
	and acquisitions	(%)	ODI flows
	(USD bn.)		(%)
2015	54.4	-4.3	25.6
2016	135.3	148.6	44.1
2017	119.6	-11.6	21.1

Table 3: Value of Chinese mergers and acquisitions i	n the	e period	l 2015-2017*
--	-------	----------	--------------

Notes: *The last year for which the Chinese National Bureau for Statistics published data in an international language; **Beginning with 2012, the NBSC calculates the total value of mergers and acquisitions by including the financing of foreign companies (through the increase of their capital), and therefore the share refers to the share of direct investments in total ODI flows.

Sources: MOFCOM (2018).

¹⁷ The prevalence of mergers and acquisition over "greenfield" projects is a trend that has been visible since as early as 2008 in relation to Chinese ODI flows (with the exception of year 2014), indicating that Chinese companies aligned themselves to the worldwide trend in terms of internationalisation through ODI, and also that the country's investment model reached a level of maturity (KPMG, 2018).

In concrete terms, of this total value, direct investments amounted to USD 33.5 billion (accounting for 28% of the annual value of mergers and acquisitions and 21.1% of annual ODI flows in 2017), while approximately USD 86.2 billion (72% of the annual value of mergers and acquisitions) were allocated to the financing of foreign companies (through capital increases), which again saw a historic high.

As regards the M&A distribution at sector level, both in terms of value of transactions, and in terms of number of projects, the processing industry was the most attractive sector for Chinese investors in 2017 (Table 4).

According to the value of transactions	According to the number of transactions
1. Processing industry: USD 60.7 bn (50.8% of the total)	1. Processing industry: 163 projects (37.8% of the total)
2. Mining industry: USD 11.4 bn (9.5% of the total)	2. Wholesale and retail: 45 projects (10.4%)
3. Production and distribution of electricity, gas and water: USD 10.2 bn (8.5% of the total)	3. ITC, software and IT services: 42 projects (9.7%)

Table 4: Sectoral focus of Chinese mergers and acquisitions in 2017

Source: MOFCOM (2018).

According to the statistical information published by international databases (MergerMarket, 2019), which enable a more detailed breakdown, in 2017, the transactions with the highest value were concluded in the following sectors: *i*) automotive and transport; *ii*) production and distribution of energy and utilities; and *iii*) technology, media and communication (TMC), the three accounting for over 75% of the China's total external mergers and acquisitions (Graph 3).

Graph 3: Sectoral distribution of China's external mergers and acquisitions according to the value of transactions, in the period 2016-2017



Source: MergerMarket (2019).

As shown by the data presented in Graph 3, the increased depth of structural adjustments and reforms implemented by government authorities over the recent years contributed to an adjustment of

the preferences of Chinese investing companies, whose interest focus more on foreign companies that have the capacity to support the national economy's modernisation process and, implicitly, its advancement in the global value chains.

In fact, in accordance with the data published in the national statistics, in 2017, ODI flows focused on four sectors that cumulated around 70% of total Chinese external investments: leasing and business services (34.3%), processing industry (18.6%), wholesale and retail (16.6%) and the financial brokerage sector (11.9%). An atypical evolution was seen in terms of ODI flows towards the extracting industry, which not only decreased by around 3% compared to 2016, but for the first time had negative values, as a result of a divestment process that was started in this sector. Significant reductions were also noted in the case of Chinese investment flows in the IT&C sector (of approximately 76%) and real estate transactions (around 56%), caused in the first case by the increased difficulty in concluding transactions in this field as a result of measures implemented by the EU and the US and, in the second case, by the perceived effects of new regulations imposed by China to limit "irrational" real estate acquisitions.

5. Conclusions

For approximately two decades, foreign direct investments in China were mainly motivated by the localisation advantages resulting from the low cost of production factors, and were mainly focused on industrial and processing sectors located at the bottom end of the global value chain. With the improvement of the economic structure and, implicitly, of the advantages held, investing companies changed their approach both in terms of sectors of destination, and in terms of how the investments were carried out.

At the same time, foreign companies established collaboration relations with the central and local authorities, both in order to better satisfy the requirements of the internal market, and to be able to adjust their traditional production model – "Made in China" and "Made for China" – towards one that could better fit with the current economic reality, namely "Made with China". The current change of paradigm was materialised not only through the quantitative increase of foreign investments in China, but also through a qualitative increase, in the sense that investments were reoriented towards high value added sectors, research and development, trademark names, robotics, etc. This new trend is also reflected in the decisions of certain large multinational enterprises to transfer their regional offices – or even global offices in certain cases – to China, placing investments in the Chinese economy at the core of their global operational and investment strategy.

Although Chinese companies gradually adapted to the processes required by the carrying out of operations on external markets, they have now began making more rational assessments of their investments, placing increased focus on the need to acquire international high-quality assets. This change in the reason for investment was manifested in the shift of interest towards new regions and economic sectors which had the resources required for the fulfilment of the strategic objectives proposed.

"Focus on quality" was the main strategic target of the Chinese government policies, in particular after the 18th CCP National Congress (2012), when the development model based on cuttingedge technologies and innovation was introduced as a central element of the national medium- and longterm approach. Since then, the central authorities published a series of policies meant to guide investment flows towards accessing high-quality operational resources which are able to facilitate the country's industrial modernisation, the improvement of the local innovation capacity, in order to better contribute to a higher quality of consumption. By approaching external markets, Chinese investing companies acquire new technological capacities, which will enable them to advance in the global value chains.

References:

- [1] Atkinson, R. D. (2012). *Enough is Enough: Confronting Chinese Innovation Mercantilism*. Washington D.C.: The Information Technology and Innovation Foundation.
- [2] Atkinson, R. D., & Foote, C. (2019). *Is China Catching Up to the United States in Innovation?* Washington D. C.: Information Technology & Innovation Foundation.
- [3] European Commission. (2019). *China: Challenges and Prospects from an Industrial and Innovation Powerhouse*. Brussels: European Commission, Joint Research Center.
- [4] Gros, D. (2019). This is not a trade war, it is a struggle for technological and geo-strategic dominance. *CESifo Forum, No. 1, Vol. 20, 20-26.*
- [5] Huang, Y. X., & Zhang, Y. (2017). How does outward foreign direct investment enhance firm productivity? A heterogeneous empirical analysis from Chinese manufacturing. *China Economic Review, Vol. 44, No 1*, 1-15.
- [6] Javorcik, B. S. (2004). Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers through Backward Linkages. *American Economic Review, Vol.* 94 (3), 605-627.
- [7] Kim, L. (1997). *Imitation to Innovation: The Dynamics of Korea's Technological Learning*. Boston: Harvard Business School Press.
- [8] KPMG. (2018). *China Outlook 2018: A new era, a new paradigm of globalization*. Beijing: KPMG.
- [9] Liu, X., Serger-Schwaag, S., Tagscherer, U., & Chang, Y. A. (2017). Beyond catch-up—can a new innovation policy help China overcome the middle income trap? *Science and Public Policy*, *Vol. 44, Issue 5*, 656-669.
- [10] MOFCOM. (2018). 2017 Statistical Bulletin of China's Outward Foreign Direct Investment. Beijing: The Ministry of Commerce of the People's Republic of China (MOFCOM).
- [11] NDRC. (2016, December 7). The 13th Five-Year Plan for Economic and Social Development of the People's Republic of China. Retrieved from The National Development and Reform Commission of the People's Republic of Chin: http://en.ndrc.gov.cn/policyrelease/201612/P020161207645766966662.pdf
- [12] NDRC; MOFCOM. (2017). Catalogue of Industries for Guiding Foreign Investment (2017 Amendment). Beijing: NDRC; MOFCOM, Order 4/28 June 2017.
- [13] OECD. (2019). *OEDC Regulatory Restrictivness Index*. Retrieved from Oecd: https://data.oecd.org/fdi/fdi-restrictiveness.htm
- [14] Rodriguez-Clare, A. (1996). Multinationals, Linkages, and Economic Development. *The American Economic Review, Vol. 86, Issue 4*, 852-873.
- [15] Romer, P. M. (1993). Two Strategies for Economic Development: Using Ideas and Producing Ideas. *World Bank Annual Conference on Development Economics 1992* (pp. 63-91).
 Washington D. C.: The International Bank for Reconstruction of Development/World Bank.
- [16] Rosen, D. H., & Hanemann, T. (2009). China's Changing Outbound Foreign Direct Investment Profile: Drivers and Policy Implications. *Peterson Institute for International Economics, Policy Brief (PB) 09-14*, 1-21.
- [17] Saggi, K. (2000). *Trade, Foreign Direct Investment, and International Technology Transfer: A Survey.* Washington D.C.: World Bank, Policy Research Working Paper No. 2349.
- [18] Slaughter, M. J. (2002). Skill Upgrading in Developing Countries: Has Inwar Foreign Direct Investment Played a Role? Paris: OECD Development Centre, Research Programme on: Global Independence and Income Distribution Working Paper No. 192.
- [19] State Council of the People's Republic of China. (2017a, January 17). *Circular of the State Council on Several Measures Concerning the Expansion of Opening Up and Active Use of Foreign Capital*. Retrieved from State Council of the People's Republic of China: <u>http://www.gov.cn/zhengce/content/2017-01/17/content_5160624.htm</u>
- [20] State Council of the People's Republic of China. (2017b, August 16). Circular of the State Council on Several Measures to Boost the Growth of Foreign Investment. Retrieved from State Council of the People's Republic of China: http://www.gov.cn/zhengce/content/2017-08/16/content_5218057.htm
- [21] State Council of the People's Republic of China. (2017c, August 18). Opinions on Further Guiding and Regulating the Direction of Overseas Investments. Retrieved from State Council of the People's Republic of China: http://www.gov.cn/zhengce/content/2017-08/18/content_5218665.htm
- [22] UNCTAD. (2018). World Investment Report 2018: Investment and New Industrial Policies. Geneva: United Nation Publication.
- [23] UNCTAD. (2019). *World Investment Report: Special Economic Zones*. Geneva: United Nations Publications.
- [24] US Chamber of Commerce. (2017). *MADE IN CHINA 2025: Global Ambitions Built on Local Protection*. Washington D.C.: US Chamber of Commerce.
- [25] US Trade Representative. (2018). Findings of the Investigation into China's Acts, Policies, And Practices Related to Technology Transfer, Intellectual Property, And Innovation Under Section 301 Of The Trade Act Of 1974. Washington D. C.: Office of the United States Trade Representative; Executive Office of the President.
- [26] Walsh, K. (2003). Foreign High-Tech R&D: Risks, Rewards, and Implications for US-China Relations. Washington D. C.: Henry L. Stimson Center.
- [27] White House. (2018). *How China's Economic Aggresion Threatens the Technologies and Intellectual Property of the United Stats and the World*. Washington D. C.: White House Office of Trade and Manufacturing Policy.
- [28] Wübbeke, J., Meissner, M., Zenglein, M. J., Ives, J., & Conard, B. (2016). *Made in China* 2025: The making of a high-tech superpower and consequences for industrial countries. Berlin: Mercator Institute for China's Studies (MERICS)

Testing Correlations on Tourism Competitiveness in the EU

DANIEL BULIN The Institute for World Economy – Romanian Academy 13, Calea 13 Septembrie, 6th district, Bucharest ROMANIA daniel.bulin@yahoo.com

> MANUELA LILIANA MURESAN Bucharest University of Economic Studies 6 Piata Romana, 1st district, Bucharest ROMANIA manumuresan@gmail.com

> GEORGICĂ GHEORGHE Bucharest University of Economic Studies 6 Piata Romana, 1st district, Bucharest ROMANIA georgica.gheorghe@com.ase.ro

Abstract: - This paper proposes an analysis of the tourism competitiveness and of the correlations between its components and the general country competitiveness, tourism-specific macroeconomic indicators, international tourism flows- for EU member states. To achieve this objective, the authors use secondary data from the World Economic Forum (Travel and Tourism Competitiveness Index, Global Competitiveness Index) and World Travel and Tourism Council (governmental investments, capital investments, international tourism receipts, and expenditures). The main results show that there is a direct correlation between visitor exports, on the one hand, and tourism competitiveness index, in general, respectively with natural, cultural and business resources, in particular, for the EU countries.

Key-Words: tourism competitiveness, global competitiveness, tourism exports, European Union JEL Classification: L83, Z30, C19, F14

1 Introduction

Before the coronavirus crisis, in the European Union, the tourism sector had over 10% contribution to the Union's GDP, creating jobs for about 26 million people, most of them for socially vulnerable people: young people, women, and even immigrants. Although globally, there have been several events that have affected the social and economic life of people (economic and financial crisis, terrorism, covid-19 pandemic), Europe maintains its leading position on the global tourism market, tourism not being affected by these events (global warming, economic crises, terrorism, etc.), demonstrating the flexibility to adapt every time (WTO, 2018).

This paper focuses on the competitiveness indicators of tourism and aims to test the correlation between tourism competitiveness, global competitiveness, and tourism indicators. The distribution of inherited tourism resources, together with the provision of productive resources and the correlations between them are the determining elements of the capacity of an economy to produce added value and, therefore, to boost its economic development.

According to WEF analysis, the relationship between travel and tourism competitiveness and international arrivals shows that low-to-lower-middle income countries seem to have a stronger relationship than high-income countries, in terms of tourist arrivals correlation with some main TTCI pillars, such as Human Resources, Business Environment, Infrastructure, ICT Readiness or International Openness (WEF, 2019). As a consequence, the WEF experts said that these areas can give a boost for international tourist flows to lower-income countries, more than in developed ones. Instead, natural and cultural resources are more important as a competitiveness

factor for advanced countries. Moreover, the correlation between natural and cultural resources and the T&T capital resources sub-index shows that those assets (natural and cultural resources) are more likely to attract investments (WEF, 2019)

In this context, the question may be asked whether if the WEF Travel and Tourism Competitiveness Index is a useful tool for strategy and decision-makers and business investors. How European Union is the most important tourist destination, we may wonder if the global competitiveness index and the T&T indices and sub-indices can be the basis for analysis for future decisions to develop tourism for EU member states. In this regard, our paper proposes to analyze the tourism competitiveness and correlations between its components and general country competitiveness and tourism specific macroeconomic indicators and international tourism flows for EU member states.

2 Literature review

Dwyer & Kim (2003) together with several researchers of the 21st century (Ritchie & Crouch (2000), Hudson (2001) through their scientific work, focused on the development of models which measure with various empirical methods, the competitiveness of tourist destinations, emphasizing the main existing indicators of tourism competitiveness, which are used internationally. Furthermorein economic literature, we identify researchers like Dwyer, Forsyth & Prasada Rao (2000), as well as Hong (2009), who proposed several indicators of the competitiveness of tourist destinations. The first statement (Dwyer, Forsyth & Prasada Rao) analyzed a number of 19 tourist destinations, identifying more than 150 indicators of competitiveness of destination tourists, grouped into different categories such as:

- inherent resources;
- created resources;
- complementary factors and resources;
- destination management;
- local conditions;
- the conditions of the demand;
- other indicators of a macroeconomic nature and socio-economic prosperity.

Hong (2009) proposes a number of 68 elements and evaluation indicators in the model of measuring the destination competitiveness of tourism.

Pulido & Sanchez-Rivero (2009) analyzed the development of indicators to assess the various dimensions of sustainability, but it cannot be claimed that there is a list of indicators unanimously accepted in this regard, especially since we know that an indicator describes a specific control process (and not exclusively numerical information) while its scope is closely linked to that process. Thus, the proposals in this regard were on the construction of indicators to assess separately one or more of the different dimensions of sustainability.

In 2001, the WTTC, in collaboration with the Christel DeHaan Tourism and Travel Research Institute (TTRI) of the University of Nottingham, developed a Competitiveness Monitor (CM) with 65 tourism competitiveness indicators to measure the degree of tourism competitiveness of almost 200 of the countries, which are classified into 8 dimensions (Pulido & Sanchez-Rivero, 2009):

- price competitiveness;
- human tourism;
- infrastructure;
- environment;
- technology;
- tourism openness;
- social development;
- human resources.

In addition to the economic literature, some international organizations have stressed the need to provide data for the construction of tourism competitiveness indicators, including the World Travel and Tourism Council (WTTC) and the World Economic Forum (WEF). The WEF's Tourism Competitiveness Reports compile the Tourism and Travel Competitiveness Index (TTCI) as a general measure of the competitiveness of the tourist destination for approximately 130 economics globally. If we analyze the destination from the point of view of

tourism management, then a measure such as TTCI must be a tool in explaining and predicting the tourism performance of countries around the world (Mazanec & Ring, 2011).

Table 1 - Annex 1 presents the tourism competitiveness indicators as analyzed by the WEF, so the tourism competitiveness index analyzes "the set of factors and policies that allow the sustainable development of the tourism and travel sector, which in turn contributes to the development and competitiveness of a country" (WEF, 2019). Thanks to this index, the states of the European Union can work together to improve the competitiveness of the industry in their national economies.

Ritchie and Crouch (2000) define as competitive a tourist destination in relation to another by the ability to attract visitors, together with the increase of total tourist expenses, offering satisfactory experiences to tourists. These authors specify the need to improve the well-being of the residents of the tourist destination, as well as the continuity of the sustainability of the natural capital of the destination for future generations. A European Union country that ranks first in the Tourism and Travel Competitiveness Index (TTCI) indicates that it has a developed infrastructure adapted to market demand, as well as the stability of residents' jobs, but also the existence of well-protected natural resources, along with other facilities that make it attractive to visitors and to make significant contributions to local and national economies.

We observe a large number of studies that have investigated the causes that determine the competitiveness of tourist destinations, this analysis often means the ability of certain countries to attract more visitors. Thus, it is not easy to evaluate the competitive indicators of a tourist destination, because we distinguish certain differentiable factors such as natural resources and their management in a sustainable way. That is why the essential role of the economic growth and development of a destination is related to the economic income that tourism generates in such destination. Pablo-Romero, Gómez-Calero & Sánchez-Rivas (2016) emphasize the importance of studying several indicators of tourist competitiveness of destinations, including economic variables such as public, private, and human capital; tourism is often measured according to the income or number of visitors, emphasizing that economic growth is affected by the tourism sector and the development of a sustainable infrastructure for the competitiveness of the tourist destination.

3 Methodology

3.1 Data collection

In order to collect data, the authors have used statistics from the World Economic Forum and World Travel and Tourism Council, as is shown in the following table:

Indicator	Measurement unit	Year / Period	Source
Travel & Tourism	Index $(1 - low to 7 -$	2019 edition	World Economic Forum
Competitiveness Index	best)		
Global Competitiveness Index	Index $(0 - low to 100 -$	2019 edition	World Economic Forum
	best)		
Travel & Tourism	Index (scale 1-7 or 0-	2019 edition	World Economic Forum
Competitiveness Index	100)		
components (Sub index)			
International tourism	Billion dollars	2018 data	World Travel and Tourism
expenditures			Council
International tourism receipts	Billion dollars	2018 data	World Travel and Tourism
(visitor exports)			Council
The share of tourism government	% of total government	Series (2009-2018) and	World Travel and Tourism
individual expenditure	individual expenditure	Average (2009-2018)	Council
The share of tourism capital	% of total capital	Series (2009-2018) and	World Travel and Tourism
investment	investment	Average (2009-2018)	Council
The share of visitor exports	% of total exports	Average (2009-2018)	World Travel and Tourism
(Foreign spending)			Council

 Table 1: Data collection - indicators, units, period, and sources

Source: Authors, based on their research.

3.2 Method

- The analysis and interpretation of data were carried out in two phases:
- 1. Empirical data analysis for:

1a) the share of tourism government individual expenditure in total government individual expenditure, the share of tourism capital investment in total capital investment, the share of visitor exports (Foreign spending) in total exports;

1b) visitor exports (bn \$), outbound expenditures (bn\$) and tourism balance (bn\$);

1c) Global Competitiveness Index, Travel & Tourism Competitiveness Index, Tourism competitiveness pillars (Business Environment, Human Resources & Labor Market, ICT Readiness, Prioritization of T&T, Price Competitiveness, Air Transport Infrastructure, Ground & Port Infrastructure, Tourist Service Infrastructure, Natural Resources, Cultural Res. & Business Travel).

2. Testing correlation:

2a) Travel & Tourism Competitiveness Index with: Global Competitiveness Index, Capital investment, Government individual expenditure, visitor exports (%), Exports (bn\$);

2b) Visitor Exports (bn\$) with: Business environment & human resources, ICT Readiness, Prioritization of T&T, Price Competitiveness, General infrastructure, Specific infrastructure (tourism services), Natural, cultural and business Resources.

To test how strongly related are the variables analyzed, we have used the CORREL function on Microsoft Excel, which returns a value between -1 and +1: i) a correlation coefficient of +1 indicates a perfect positive correlation, ii) a correlation coefficient of -1 indicates a perfect negative correlation and iii) a correlation coefficient near 0 indicates no correlation. The analysis of indicators and the output graphs were also performed using Microsoft Excel.

4 Results and discussion

4.1 Empirical analysis

Looking at the average share of tourism in total government individual expenditure (2009-2019), we note the following aspects:

- The Mediterranean islands, Cyprus and Malta, register an average of 11.4%, respectively 9.3% the highest in the EU;
- Estonia and Greece exceed 8%, far from the following ranked a group of countries in Central and Eastern Europe (Hungary, Slovenia, Czech Republic);
- Bulgaria, Latvia, Lithuania and, the only one from Western Europe, Germany, are slightly above the EU average (2.85%);
- Portugal or Spain, important European tourist destinations, allocate to tourism only 1.4-1.5% of total government expenditures;
- The smallest shares are allocated in Romania and, surprisingly given the share of tourism in its economy, Croatia.

In the 2009-2018 periods, the EU average share of tourism in total capital investment is higher than government expenditure (6.2% compared to 2.85%):

- In only four countries the relative level of government spending on tourism is higher than capital investment (Czech Republic, Estonia, Hungary, and Malta);
 - Greece is on first place, with almost 15%, followed by Ireland (with 11.4%, a level much higher than in the case of government spending), Croatia, with a similar situation (10.5%), and islands countries form the Mediterranean Sea, Cyprus, and Malta (over 10%);
- Romania, with an average of 7.7%, is above the European average and also above the top destinations, France and Spain;
- The countries of Western and Northern Europe, mainly, are at the bottom of the rankings.

In terms of the average share of tourism services in total exports for the 2009-2018 periods:

- the differences between European countries are extreme from a record of almost 40% in Croatia, to 3% or even less in Germany, Romania, Slovakia, and the Netherlands;
- Mediterranean countries register extremely high shares of tourism in total exports: Greece 25% Cyprus and Portugal- 20%, Spain 16%

- it is necessary to mention the level of tourist exports of Bulgaria, which reach 13%; Malta, Estonia, and Austria are above the EU average (slightly over 9%);
- France and Italy, strong economies, reach important shares of about 7.5% of tourist exports in total exports.

	Tourism government expenditure (%)*	Tourism capital investment (%)*	Visitor Exports (Foreign spending) (%)**
Austria	1.0	4.7	9.8
Belgium	0.6	2.2	3.4
Bulgaria	3.3	6.7	12.8
Croatia	0.2	10.5	39.0
Cyprus	9.3	10.6	20.1
Czech Republic	3.7	3.5	4.9
Denmark	0.4	4.4	4.3
Estonia	8.2	6.9	9.9
Finland	0.6	3.3	4.6
France	0.6	6.6	7.6
Germany	2.9	3.9	3.0
Greece	8.0	14.7	25.2
Hungary	5.2	4.4	5.2
Ireland	0.8	11.4	3.6
Italy	0.8	3.2	7.4
Latvia	3.1	5.1	6.8
Lithuania	3.1	3.1	4.0
Luxembourg	0.6	7.8	3.8
Malta	11.4	11.0	10.3
Netherlands	0.4	2.7	2.7
Poland	2.7	3.2	4.8
Portugal	1.5	8.6	19.4
Romania	0.3	7.7	3.0
Slovakia	2.2	3.7	2.9
Slovenia	4.3	8.8	7.9
Spain	1.4	6.6	16.2
Sweden	0.4	2.9	5.6

Table 2: Tourism investments and visitor exports in EU member states, 2008-2019 average, %

Source: Authors, based on WTTC data; Notes: * in total investments; ** in total exports

The two indicators developed by the World Economic Forum have different scales: TTCI from 1 - low, to 7 - best results, GCI - 0 - low, 100 - best result. Looking at comparisons to the results for 2019, we see the following:

- The countries from Southern Europe and, to a lesser extent, Western Europe, dominate the top of competitiveness in tourism, while Western and Northern Europe leads the top of global competitiveness;
- The Baltic and Eastern European countries are the least competitive in tourism, among them being, paradoxically, destinations that have a significant share of tourism in the economy and exports, such as Cyprus or Bulgaria remains important destinations, at a regional level at least;
- In terms of global competitiveness, Eastern European countries are in the second half of the ranking, but essential is that the last places are occupied by Greece and Croatia, two countries with average competitiveness in tourism;
- While Germany is in second place in both rankings, France and the Netherlands are in both tops among the first;
- Highly competitive in tourism, Italy is below the EU average in terms of global competitiveness; a similar situation, but in the opposite direction, is observed in the case of Finland.



Fig. no. 1: TTCI (left) and GCI (right), 2019

Source: Authors, based on WEF data

Looking briefly at the country score for Tourism competitiveness pillars (Annex – tables 2.1. and 2.2.), we observe the following aspects:

- Business Environment less sought tourist destinations, Luxembourg or Finland, score with the highest index, while Italy, Greece or Croatia, important tourist markets, record the worst values;
- Human Resources & Labour Market Germany the most dynamic European tourism market (if we look at the total exports + imports) has the best result, followed by the countries from the north of the continent, while Central and Eastern Europe countries, but also Italy, register the lowest values;
- ICT Readiness Northern Europe leads the top (Denmark, Sweden), while in the southeast region of the continent are recorded the lowest values (Bulgaria, Croatia, Greece, Romania);
- Prioritization of T&T island countries Cyprus and Malta, are on the top of the list, followed by other Mediterranean coast destinations (Spain, Portugal, Greece), while tourism seems not to be a priority for CEE destinations, especially in Czech Republic, Lithuania, Slovakia, Poland or Romania;
- Price Competitiveness Eastern Europe destinations are competitive through the prices/tariffs -Bulgaria, Latvia, Lithuania, Poland, Romania; instead, the Nordic countries (Sweden, Denmark), but also ones of the top destinations - France and Italy, are the most expensive;
- Air Transport Infrastructure The Netherlands, Spain or Sweden have the strongest air transport infrastructure, while the Baltic countries (Estonia, Lithuania) and the Slovak Republic are the worst in this area;
- Ground & Port Infrastructure Western Europe (Netherlands, Germany) have the most developed ground and port infrastructure, at the opposite pole being important holiday destinations, Croatia and Greece, but also Bulgaria and Romania;

- Tourist Service Infrastructure Austria scores, in particular, in this category, followed by the countries of the Iberian Peninsula and Croatia; northern Europe (including the Baltic countries, except Estonia), but also Poland or the Slovak Republic are the last in the EU;
- Natural Resources the most visited European countries (France, Italy and Spain) are on the first
 positions, while the Baltic countries are grouped at the bottom of the ranking;
- Cultural Res. & Business Travel the countries with the highest revenues from international tourism (France and Spain) are in the first two places; The Baltic states, Lithuania and Latvia, are in the last place.

4.1 Testing correlations

The first set of correlations were done between tourism and travel competitiveness index and: Global Competitiveness Index, Capital investment (%), Government individual expenditure (%), Tourism exports (% in total country exports and bn \$).

Variable 1	Variable 2	R ² value
TTCI	GCI	0.3737
TTCI	Capital investment	0.0042
TTCI	Government individual expenditure	0.1151
TTCI	Exports share	0.0076
TTCI	Visitor exports	0.8091

 Table 3: TTCI Correlations

The results show that there is a direct relationship between TTCI and GCI, of medium to low intensity. Also, the R² values shown do not demonstrate a relationship between the tourist competitiveness, expressed by TTCI, and the average share of tourism government individual expenditure between competitiveness and tourism capital investments or TTCI and tourism exports share in total country exports. Instead, the average volume of exports in 2009-2018 and the tourism competitiveness index in 2019 are in a strong direct relationship (R² value = 0.8091).





Source: Authors, based on WEF and WTTC data.

Going forward, we have tested the correlation between visitor exports (in bn \$) with different TTCI subindexes: Business environment & human resources (as an average of the two sub-indexes), ICT Readiness, Prioritization of T&T, Price Competitiveness, General infrastructure, Specific infrastructure (tourism services), Resources (an average of natural and cultural & business resources and, separately on WEF calculated indexes).

Source: Authors, based on their research.

Variable 1	Variable 2	R ² value
Visitor exports	Business environment & human resources	0.0008
Visitor exports	ICT Readiness	0.0121
Visitor exports	Prioritization of T&T	0.045
Visitor exports	General infrastructure	0.3737
Visitor exports	Specific infrastructure (tourism services)	0.2355
Visitor exports	Price Competitiveness	0.203
Visitor exports	Resources (natural, cultural, business)	0.8968
Visitor exports	Natural Resources	0.5389
Visitor exports	Cultural Res. & Business Travel	0.9322

	Table 4:	Visitor	exports	correlations
--	----------	---------	---------	--------------

Source: Authors, based on their research.

The results show that there are no correlations between visitor exports (volume of foreign expenditures) and the following TTCI components: Business environment & human resources, ICT Readiness, Prioritization of T&T. Instead, tourist exports are directly correlated with the level of infrastructure development to a medium to a low extent, but also with price competitiveness. Between the average volume of exports in 2009-2018 and the level of resources (natural, cultural, and business) appreciated by the TTCI sub-index in 2019 is in a strong direct relationship (R^2 value = 0.8968). Furthermore, the direct relationship between the volumes of exports is average with natural resources and extremely strong with cultural and business resources.



Fig. no. 3: Visitor exports correlations



Source: Authors, based on WEF and WTTC data

5 Conclusions

First of all, our finding confirms the World Economic Forum conclusions from the Travel and Tourism Competitiveness Index report – there is a correlation between tourism competitiveness and global competitiveness, the relationship between travel and tourism competitiveness and international arrivals have a medium intensity in the case of EU member states (the assumption was that lower-middle-income countries seem to have a stronger relationship than high-income countries), and natural and cultural resources are essential competitiveness factor for advanced countries.

Secondly, there is a very high direct relation between tourism competitiveness and foreign spending for tourism services in EU countries, and also stronger between those (visitor exports) and natural, cultural, and business resources. However, for the EU member states, visitor exports are more related to cultural and business travel resources than natural resources. Moreover, visitor exports seem to be more related to the general infrastructure (ground, air, port) than the specific tourism infrastructure.

In these pandemic times, we appreciate that will be some changes on the degree of importance of competitiveness factors. The safety and security, health and hygiene, sustainability, human resources & labour market or tourist infrastructure, could be more important in order to reshape the future of tourism destinations and give them the competitive advantage to attract the tourists of tomorrow. In this background, as future research directions, we may reconsider the relationship between same tourism competitiveness dimensions and the new-normal of tourism industry in a post-pandemic world.

References:

- [1] Dwyer L. & Kim C. (2003), Destination competitiveness. Determinants and indicators. Current Issues in Tourism, 6, 369-414.
- [2] Dwyer L., Forsyth P. & Prasada Rao D.S. (2000), The price competitiveness of travel and tourism: a comparison of 19 destinations. Tourism Management, 21(1), 9-22.
- [3] Hong W. (2009). Global competitiveness measurement for the tourism sector. Current Issues in Tourism, 12(2), 105-132.
- [4] Mazanec J.A. and Amata R. (2011), Tourism destination competitiveness: second thoughts on the World Economic Forum reports. Tourism Economics, 17(4), 725-751.
- [5] Pablo-Romero M., Gómez-Calero P. & Sánchez-Rivas J. (2016), Tourism, Competitiveness and Economic Growth: A New Analytical Model, Tourism - From Empirical Research Towards Practical Application, Leszek Butowski, IntechOpen, Available from: https://www.intechopen.com/books/tourism-fromempirical-research-towards-practical-application/tourism-competitiveness-and-economic-growth-a-newanalytical-model.

- [6] Pulido J.L & Sanchez-Rivero M. (2009), Measuring tourism sustainability: proposal for a composite index. Tourism Economics, 15(2), 277-296.
- [7] Ritchie J.R.B. & Crouch G. (2000), The competitive destination: a sustainability perspective. Tourism Management, 21 (1), 1-7.
- [8] Ritchie J.R.B., Crouch G.I. & Hudson S. (2001), Developing operational measures for the components of a destination competitiveness/sustainability model: consumer versus managerial perspectives. In, Mazanec J.A., Crouch G.I., Ritchie J.R.B. and Woodside A.G. (Eds.), Consumer Psychology of Tourism, Hospitality and Leisure, 1-17: Oxon, UK: CABI Publishing.
- [9] The Travel & Tourism Competitiveness Report (2017). Crotti, R & Misrahi, T (eds.), World Economic Forum, Switzerland. https://www.weforum.org/reports/the-travel-tourism-competitiveness-report-2017;
- [10] World Economic Forum (2019), The Global Competitiveness Report 2019, http://reports.weforum.org/global-competitiveness-report-2019/
- [11] World Economic Forum (2019), Travel & Tourism at a Tipping Point, accessed https://reports.weforum.org/travel-and-tourism-competitiveness-report-2019/travel-tourism-at-a-tippingpoint/
- [12] World Economic Forum (2019), Travel & Tourism Competitiveness Index2019 edition, Country profiles, accessed <u>http://reports.weforum.org/travel-and-tourism-competitiveness-report-2019/country-profiles/</u>
- [13] World Tourism Organization (2018), European Union Tourism Trends, UNWTO, Madrid
- [14] World Travel and Tourism Council (2020), WTTC Data Gateway, base of date accessed http://wttc.org/Research/Economic-Impact/Data-Gateway

Annexes

 Table 1: TRAVEL & TOURISM COMPETITIVENESS INDEX (TTCI)- Composition of the Subindexes

 of the Travel and Tourism Competitiveness Index

Sub index A	Sub index B	Sub index C	Sub index D
Enabling Environment	Policy & Enabling	Infrastructure	Natural & Cultural
	Conditions		Resources
Business Environment	Prioritization of T&T	Air Transport	
Safety and Security	International Openness	Infrastructure	Natural Resources
Health and Hygiene	Price Competitiveness	Ground and Port	Cultural Resources &
Human Resources and	Environmental	Infrastructure	Business Travel
Labour Market	Sustainability	Tourist Service	
ICT Readiness		Infrastructure	

Source: The Travel & Tourism Competitiveness Report (2019).

Table 2.1:

Country	Business	Human Resources	ICT	Prioritization of	Price
	Environment	& labour Market	Readiness	T&T	Competitiveness
Austria	4.8	5.3	6.1	5.3	4.7
Belgium	4.8	5.3	5.8	4.4	4.8
Bulgaria	4.4	4.6	5.2	4.7	5.7
Croatia	3.8	4.1	5.2	4.9	5
Cyprus	4.9	5.1	5.9	6.2	4.8
Czech Republic	4.5	4.9	5.7	4.3	5.4
Denmark	5.5	5.6	6.4	4.7	4.4
Estonia	5.1	5.1	6.1	5.4	5.4
Finland	5.7	5.5	6.1	5	4.7
France	4.8	5.1	5.9	5.1	4.5
Germany	5.4	5.7	6	5	4.6
Greece	3.9	4.7	5.2	5.6	4.9
Hungary	4.3	4.6	5.3	5.1	5.3
Ireland	5.2	5.3	5.7	5.5	4.6
Italy	4	4.6	5.5	4.8	4.4

Latvia	4.6	5	5.7	4.6	5.7
Lithuania	4.7	5.1	5.6	4.3	5.7
Luxembourg	5.8	5.4	6.2	5.1	5
Malta	5	4.8	5.8	6.2	4.9
Netherlands	5.5	5.6	6.3	4.8	4.6
Poland	4.3	4.8	5.5	4.2	5.7
Portugal	4.7	5.1	5.5	5.7	5.1
Romania	4.4	4.5	5.2	4.1	5.6
Slovak Republic	4.1	4.7	5.7	4.3	5.4
Slovenia	4.3	4.9	5.5	5.1	5.1
Spain	4.5	4.9	5.8	5.9	5
Sweden	5.3	5.5	6.4	4.5	4.3

Source: The Travel & Tourism Competitiveness Report (2019).

Table 2.2:

Country	Air Transport	Ground & Port	Tourist Service	Natural	Cultural Res. &
	Infrastructure	Infrastructure	Infrastructure	Resources	Business Travel
Austria	4.2	5.2	6.7	4.1	3.2
Belgium	4.1	5.5	5.2	2.5	3.7
Bulgaria	2.7	3.2	6	3.7	2.1
Croatia	3.6	3.9	6.5	4.4	2.8
Cyprus	3.7	4.4	5.7	2.5	1.7
Czech Republic	3.4	4.9	5.2	2.5	2.4
Denmark	4.5	5.3	4.8	3.3	2.3
Estonia	2.5	4.5	5.4	2.4	1.6
Finland	4.9	4.5	4.7	2.9	2
France	4.8	5.6	5.7	4.9	6.8
Germany	4.9	5.7	5.9	4.1	6.5
Greece	4.8	3.8	5.8	3.5	3.3
Hungary	3.4	4.2	4.8	2.7	2.3
Ireland	4.5	4.5	5.8	2.6	2.9
Italy	4.4	4.7	6	4.9	6.5
Latvia	3.5	4.2	4.5	2.4	1.4
Lithuania	2.5	4.3	4.4	2.3	1.4
Luxembourg	3.7	5.5	5.9	2.8	1.6
Malta	3.9	4.8	5.5	2.8	1.5
Netherlands	5.2	6.1	4.8	2.7	3.4
Poland	3.2	4.3	4.5	3.2	3
Portugal	4.7	4.2	6.7	4	4.1
Romania	2.7	3.1	4.6	3.2	2.3
Slovak Republic	2	4.2	4.4	3.4	1.6
Slovenia	2.6	4.8	5.4	4.1	1.7
Spain	5	5.2	6.6	4.8	6.7
Sweden	5	4.7	4.8	3.2	2.9

Source: The Travel & Tourism Competitiveness Report (2019).

Natural Gas - the Friendliest Fossil Fuel for Combating Climate Change and a Key to Sino-Russian Cooperation

PAUL CALANTER European Studies Center, Institute for World Economy Romanian Academy ROMANIA paul.calanter@yahoo.com

Abstract. Natural gas is the fossil fuel that is the most friendly for the environment, because is less polluting and more efficient than other conventional fuels. Although it is not as clean as wind or solar energy, the natural gas is considered a key energy source as the world moves towards a cleaner future. In this context, and also taking into account the current economic outlook, Russia and China have developed the "Power of Siberia" pipeline. The new pipeline is the largest gas infrastructure in Russia and one of the most important successes in the relationship between the two major powers. However, the relationship between Moscow and Beijing is not as strong as it seems at first glance. China, whose economy is eight times that Russia's and increasingly technologically advanced, is the main partner of this tandem, and Russia must accept its subordinate role. The main objective of the paper is assessing the importance of the "Power of Siberia" pipeline for the Sino-Russian economic cooperation. The methodology used is mainly qualitative, based on consulting the literature, studies and articles published by established specialists.

Keywords: natural gas, climate change, greenhouse gases emissions (GHG), "Power of Siberia"

JEL classification: Q43, Q48, Q54

1. Natural gas and the environment

Natural gas is an important source of energy which can make a significant contribution to reducing pollution and protecting the environment. In addition for being an internal source of abundant and safe energy, the use of natural gas also offers some environmental advantages compairing to other energy sources, especially other fossil fuels.

Natural gas is the cleanest of all fossil fuels, according to studies elaborated by the Environmental Protection Agency (EPA, 2020). Composed mainly of methane, the main products of natural gas combustion are carbon dioxide and water vapors, the same compounds that humans exhale while breathing.

Oil and coal have either much more complex molecules, or higher carbon proportions and higher nitrogen and sulfur content. Then, when burned, coal and oil emit higher levels of harmful emissions, including higher proportions of sulfur dioxide, carbon and nitrogen oxides. By combustion of coal and fuel oil ash particles are emitted in the atmosphere, contributing to pollution. Natural gas combustion releases only small amounts of sulphur dioxide and nitric oxide, virtually no ash or particulate matter and low levels of carbon monoxide, carbon dioxide and other reactive hydrocarbons.

Pollutants emitted particularly by the combustion of fossil fuels, have led to a number of urgent environmental problems in the US. Natural gas, which emits fewer chemicals harmful to the atmosphere than other fossil fuels, can help mitigate some of these environmenal problems, including greenhouse gas emissions, smog, acid rain, emissions due to industrial and electricity generation, and pollution from traffic.

Global warming or the "greenhouse effect" is an environmental problem that addresses the potential of global climate change due to rising levels of atmospheric "greenhouse gases." There are certain gases in our atmosphere that are used to control the amount of heat that is kept close to the Earth's surface.

According to science, the increase in greenhouse gases will result in increased temperatures around the world, resulting in a number of catastrophic environmental impacts. In fact, the Intergovernmental Panel on

Climate Change (IPCC) predicted in the "fourth assessment report" that global average temperatures are expected to rise during the 21st century (IPCC, 2007).

Greenhouse gases include water vapours, carbon dioxide, methane, nitrogen oxides and some artificially produced chemicals, such as chlorofluorocarbons. While many of these gases occur naturally in the atmosphere, levels are increasing due to widespread burning of fossil fuels in growing human agglomerations. Reducing greenhouse gas emissions has become a major target of environmental programmes in countries around the world.

The most common greenhouse gas is the carbon dioxide. Although carbon dioxide does not capture heat as efficiently as other greenhouse gases, the amount of carbon dioxide released into the atmosphere is very high, especially due to the burning of fossil fuels.

Because carbon dioxide represents such a high proportion of the greenhouse gases from US, reducing carbon emissions can play a key role in mitigating the greenhouse effect and global warming. Natural gas combustion emits nearly 30% less carbon dioxide than oil and just under 45% less carbon dioxide than coal.

With regard to natural gas and the greenhouse effect, the fact emerged that methane, the main component of natural gas, is itself a strong greenhouse gas. Methane can capture heat almost 21 times more efficiently than carbon dioxide.

According to the EIA, although methane emissions account for only 1.1% of total US greenhouse gas emissions, it accounts for 8.5% of global greenhouse gas emissions based on global warming potential. Sources of methane emissions in the United States include leaks and emissions from the waste management and operations industry, the agricultural industry, and the oil and gas industry (EIA, 2017).

A major study by the Environmental Protection Agency (EPA) and the Institute for Gas Research (GRI) sought to respond if the reduction in CO_2 emissions due to increased use of natural gas would be offset by any increase in methane emission levels. The study concluded that emission reductions from increased natural gas use outweigh the harmful effects of increased methane emissions more strongly (EPA, GRI, 2006).

In addition, researchers at Carnegie Mellon University have published a report entitled "Marcellus Slate Gas Life Cycle Greenhouse Gas Emissions", which compares greenhouse gas emissions from the Marcellus Slate region with emissions if coal is used to generate electricity. The authors found that wells in the Marcellus region emit between 20 and 50% less greenhouse gases than coal used to generate electricity (Carnegie University, 2016).

2. "Power of Siberia" natural gas pipeline

2.1. Pipeline details

The "Power of Siberia" is a Gazprom-operated pipeline in Eastern Siberia that transports natural gas from Russia to China. The reasons behind the construction of this pipeline are primarily economic, having strong implications for the energy security in both China and Russia in the short term. But also the reasons include environmental protection issues, being designed to reduce China's dependence on coal, which is more carbon intensive and causes more pollution than natural gas. For Russia, the pipeline allows another economic partnership in the face of resistance to pipelines being built in Western Europe.

So, the project is a unified gas transport system (GTS) that involved the development of a 4,000 km long pipeline to transport natural gas from the gas production centers of Yakutia and Irkutsk in eastern Russia to the Far East and China. The project is being developed by Gazprom, a Russian state-owned company, the world's largest natural gas producer.

Construction of the "Power of Siberia" pipeline began in September 2014 with the welding of the first joint. The first phase of the pipeline connecting the Yakutia gas production center with the Russian-Chinese border town of Blagoveshchensk was expected to begin operations in 2018. In fact, the pipeline opened in early December 2019.

"Power of Siberia" supplies gas from the gas production centers of Irkutsk (Kovyktinskoye field) and Yakutia (Chayandinskoye field) to Vladivostok through Khabarovsk. Kovyktinskoye and Chayandinskoye are the two largest gas fields in east Russia, and maintain 1.2 trillion and 1.5 trillion cubic meters of natural gas reserves, respectively (Hydrocarbons Technology, 2014).

As shown in Figure 1, the pipeline passes through five regions of Russia, namely the Irkutsk region, the Sakha Republic (Yakutia region), the Amur region, the Jewish Autonomous Region and the Khabarovsk region.



Source: Gazprom, 2020 (https://www.gazprom.com/projects/power-of-siberia/)

The system includes two natural gas pipelines: the 3,200 km line - Yakutia - Khabarovsk - Vladivostok and the 800 km line connecting the Kovyktinskoye gas field in the Irkutsk region with the Yakutia gas production centre. Designed to work at an operating pressure of 100 absolute atmospheres (Ata) from a 1.4 m diameter pipe, the GTS can deliver up to 61 billion cubic meters of natural gas per year.

In May 2014, Gazprom signed a \$400 billion contract with China National Petroleum (CNPC) to supply 38 billion cubic meters of natural gas over the next 30 years. Of the total value of the contract, about \$55 billion will be invested in the construction of new production and transportation facilities.

The first phase of the project involved the construction of a 2,200 km pipeline between the Chayandinskoye field in Yakutia and the city of Blagoveshchensk on the Russian-China border. The next phase of construction was an 800 km pipeline connecting the Kovyktinskoye field in the Irkutsk region with an integrated natural gas production center near the Chayandinskoye field. The 1000 km pipeline from Svobodny to Khabarovsk in the Amur region includes the last section of the natural gas pipeline.

The Yakutia-Khabarovsk-Vladivostok transmission line was built in parallel with the crude oil pipeline in eastern Siberia in the Pacific to reduce infrastructure and electricity costs.

Gazprom is the first company in Russia to use helium separation technology through membranes in the Chayandinskoye field. The technology is used to separate the helium component at the site, and only the required amount of helium can be sent through the pipe.

The pipeline project employs efficient design concepts, energy-saving technologies and advanced pipeline monitoring systems due to complex geological and climatic conditions along its route. For this reason, the longitudinally welded tubes were made of cold-resistant K60 steel with a corrosion-resistant outer lining and a smooth inner lining. High-strength tubes have been used in areas prone to intense seismic activity and tectonic continuities.

Gazprom Transgaz Tomsk, a wholly owned subsidiary of Gazprom, was responsible for the construction of the "Power of Siberia" pipeline. VNIPIgazdobychá was hired as general designer of the project.

2.2. China-Russia relations in the context of the construction of the "Power of Siberia" pipeline

The strategic partnership between Moscow and Beijing, a key feature of contemporary global policy, has been reinforced by significant improvements in energy cooperation between the two states. With its official release on December 2, 2019, the Siberian pipeline has become a reality.

The presidents of Russia and China saw through a remote video link what Vladimir Putin of Russia "described as a historic event, not only for the global energy market, but mainly for you and me: Russia and China". China, for its part, referred to Power of Siberia as an "initial bilateral energy cooperation project" that will serve as an "example of deep integration and mutually beneficial cooperation" between countries (Sassi, 2019).

The signing of the treaty was announced in Shanghai in May 2014, a few weeks after the annexation of Crimea to the Russian Federation. Many observers were happy to portray the event as a critical point when Moscow finally headed to Beijing to defend itself against Western diplomatic and economic defeat in the early stages of the Ukrainian crisis. Indeed, Russia's plans to export oil and gas to the Asian market, going back to the long-term goals of the Kremlin, Boris Yeltsin's first presidency.

Therefore, under the 2014 contract, Gazprom will supply 38 billion cubic meters of natural gas to China National Petroleum Corporation (CNPC) over the next 30 years. By comparison, this is more than Brazil's annual gas consumption and is slightly below France's total consumption.

Exports of Russian natural resources are economically vital. According to the Federal Customs Service, between August 2018 and September 2019, they accounted for 65.38% of the total volume of Russian exports. Exports of natural resources are also an important component of the Russian state budget. In 2018, the crude oil and gas sector accounted for 46.35% of budget revenues, a sharp increase from 39.57% in 2017, mainly due to rising oil prices and the introduction of a new pipeline in China in January 2018.

Russia is the largest exporter of natural gas, surpassing 247 billion cubic meters in 2018. The European market is the main recipient, with around 200 billion cubic meters sent last year.

However, China is the world's largest market for natural gas imports, and the International Energy Agency expects China's growth to account for more than 40% of global gas demand by 2024, driven by government policy to improve gas quality. and reduce coal use in electricity generation (currently around 58%). A key element in the implementation of the Blue Sky War 2018-2020 Action Plan, published in July 2018, is to accelerate the conversion of industrial facilities and appliances from coal to natural gas, especially in northern China. As a result of Beijing's policies, in 2018, natural gas consumption increased by 17% compared to the previous year, while imports increased by 30.8%.

Russia in particular must benefit from this growing demand. One confirmation is that the Washington-Beijing trade war has stopped all Chinese imports of liquefied natural gas (LNG) from the United States since May. The chairman of the publicly traded CNPC state group, PetroChina, said last August that "if there had not been a trade war there, the United States would have been a very promising source of growth in China's gas supply."

The Kremlin considers the construction of a new pipeline network and the production of new fields in the Russian Far East as a cornerstone of the development of these regions. After the disintegration of the Soviet Union, the population here fell by an average of 20%, reaching an astonishing 70% in some regions, and many citizens moved to western Russia.

Currently, the Far Eastern Federal District, which is the largest but also the least populated in the Federation, has an average gas network coverage of 13%, while the Federal District of Siberia, more than 7 times larger than France, has only 6.8% covered. Nationally, Russia covers 67.2% in this regard.

Thus, infrastructure development in the Russian Far East not only aims to improve access to Asian markets, but the Kremlin also sees industrial and social development across the region as a necessary initiative. In 2015, Putin reaffirmed that the future of the Far East remains "a key center for Russia's socio-economic development and a region that must be effectively integrated throughout the Asia-Pacific region."

The development of Eastern Siberia and the Russian Far East is deeply linked to the integration of the Russian Federation with northeast Asian markets. This means not only China, but also Japan and South Korea, and could then extend to Southeast Asia.

For Nikolai Patrusev, secretary of the Russian Security Council, strengthening dialogue with China is an "absolute and long-term priority" that seeks to ensure "national security and stable social and economic development."

Increasing energy interdependence between Moscow and Beijing is the key to understanding the longterm relationship between the two governments. However, the energy partnership is not limited to "Siberia's power", as Beijing is an exceptional partner in developing Moscow's efforts to leverage its Arctic resource base.

Investments and technologies provided by China were essential for the timely implementation of the Yamal LNG project. Chinese companies, along with French company Total and a Japanese consortium, also joined the Arctic LNG-2 project, managed by Russian company NOVATEK, and ignored US and European sanctions on the Russian energy sector.

Russia is currently in talks with China on new supplies for the same areas that now supply natural gas to European markets. Faced with European difficulties, Putin has already said that Russia will "easily change the flow east."

2.3. "Power of Siberia 2"

The obvious benefits led to the "Power of Siberia" agreement, which exports natural gas from the far east of Russia to northern China. In addition to this success, Gazprom and Moscow promoted Pipeline 2 of the "Power of Siberia" project from Western Siberia to China's Xinjiang region. The proposal was accepted by Beijing because the region is already supplying Central Asian natural gas, and now the "Power of Siberia 2" project is gaining ground due to the coronavirus epidemic and Gazprom's tight plan (Meliksetian, 2020).

Russia's relations with the West have cooled since the Ukraine crisis and the annexation of Crimea. Since then, Moscow has confirmed that it is not politically isolated, increasingly involved in projects with its neighboring Asian giant. However, the problem is that much of Gazprom's export capacity is running low in Europe. Thus, turning to China was key to reducing dependence.

Gazprom's first proposal for a pipeline to western China through the Altai region was replaced by a "Mongolian alternative" (Figure 2) with an annual capacity of 50 billion cubic meters. Russia's recent insistence stems from Moscow's claim that its position in a key European market is in danger. The coronavirus epidemic further increased pressure. Alexander Gabuev, chief investigator at Carnegie Moscow Center, said: "Gazprom believes that its position in the European market will deteriorate in the long run due to increased competition and pressure from some countries to reduce their dependence on Russia. Gazprom should sell natural gas to Jamal and western Siberia." and China is in the immediate vicinity of the big market."



Figure no. 2: "Power of Siberia 2" pipeline

Source: ICIS, 2020 (https://www.icis.com/explore/resources/news/2020/03/31/10488588/gazprom-s-plans-forpower-of-siberia-2-pipe-to-china-move-forward)

China is a key element for Russia, which can be seen at first glance when examining Gazprom's investment in pipeline expansion. These investments have recently been made and, despite quarantine measures, there were nearly 3,000 employees infected with coronavirus who have worked at gas stations and compressors.

Russia is more willing to reach an agreement between the two sides. In theory, Beijing has more options because of its relative proximity to large gas producers and the size and opportunities of the Chinese market. However, since Donald Trump arrived at the White House, U.S.-China relations have deteriorated dramatically, pressuring Beijing and Moscow of each other.

Economic relations between Russia and China have already had the potential to improve due to the complementary nature of the economies of the two states. The pandemic highlighted the upward and downward trends in relations with Russia and the United States.

According to Lin Boqiang, dean of China's Energy Policy Research Institute at Xiamen University,

"Before the current situation between China and the United States, China planned to buy a lot of energy from the United States as a result of the trade agreement. But now the situation seems uncertain, which will certainly encourage China to cooperate more closely with Russia. "

Beijing alternatives are represented by increased imports from Central Asia. None of these alternatives are attractive for a variety of reasons. LNG is shipped from politically hostile countries, e.g. U.S. and Australia, or goods have to cross blockades, like the Strait of Malacca.

Despite the favourable environment, it remains to be seen whether an agreement will be reached. In the case of the "Power of Siberia 1" pipeline, it took four years from the signing of the terms and conditions to the signing of the contract. In addition, construction lasted five years since the signing of the contract. "Power of Siberia 2" could take a similar amount of time, meaning it could work around 2030.

Another advantage is the flexibility of Gazprom when considering the route to Mongolia. Russian gas can be transported to the highly polluted capital, Ulan Bator, which is one of the most polluted cities in the world. Poverty and a relatively small state budget exclude large energy projects that would bring cleaner fuel to Mongolian cities. Therefore, the "Power of Siberia 2" line is a unique opportunity.

However, the biggest beneficiaries would be China and Russia, as the pipeline could further strengthen the political and economic integration of the world's second-largest economy and the world's largest energy producer.

3. Conclusions

Natural gas is a fossil fuel, but cleaner and more efficient than other conventional fuels. By burning, it produces 45% less carbon dioxide than coal, 30% less than oil, and 15% less than wood. During combustion, it produces heat, carbon dioxide and water vapors. It is not as clean as wind or solar energy, but natural gas is the cleanest fossil fuel and many consider it a key element as the world moves towards a cleaner future.

The "Power of Siberia" project is a unified gas transport system developed to transport natural gas from the gas production centers of Yakutia and Irkutsk in eastern Russia to the Far East and China. The construction began in September 2014 with the welding of the first joint. The first phase of the pipeline connecting the Yakutia gas production center with the Russian-Chinese border town of Blagoveshchensk opened in early December 2019.

However, the relationship between the two states is not as strong as it seems at first glance. China, whose economy is eight times that Russia's and increasingly technologically advanced, is the main partner of this tandem. Russia is reconciling its subordinate role with mixed emotions, recognizing the power difference on the one hand and hoping to benefit from closer ties to the world's most dynamic economy on the other.

Like the relationship between Russia and China, the actual version of the "The Power of Siberia" project may be less positive than the official version. Mikhail Krutikhin, of the Carnegie Center in Moscow, said concisely: he is in a favorable negotiating position. The details of the contract have not been made public, but we assume that Russian gas to China is marketed with a lower margin than European shipments. "

Finally, while it is an important project for Russia and China, the consequences of the agreement are not as promising as originally thought. However, Moscow's warm relations with Beijing are the result of "comfort conditions" and, at the same time, of a deep and mutual distrust of the Western-led global order. By anchoring China through the "Power of Siberia" pipeline, Russia is closing many doors and threatening its own energy trade - and energy security in the long run.

Acknowledgement: This paper has been financially supported within the project entitled: "Support Center for IEM research - innovation projects competitive in Horizon 2020", ID 107540. This project is co-financed by the European Regional Development Fund through Competitiveness Operational Programme 2014 - 2020.

References:

- [1] Carnegie Mellon University. 2016. Marcellus Slate Gas Life Cycle Greenhouse Gas Emissions. Available at: https://www.researchgate.net/publication/310459357_Life_cycle
- [2] Environmental Protection Agency. 2020. Energy Resources for State and Local Governments. Available at: https://www.epa.gov/statelocalenergy/state-co2-emissions-fossil-fuel-combustion

- [3] Gazprom. 2011. Sakhalin–Khabarovsk–Vladivostok Transmissions System. Gazprom Projects. Available at: https://www.gazprom.com/production/projects/pipelines/shvg/
- [4] Intergovernamental Panel on Climate Change. 2007. IPCC Fourth Assessment Report. Available at: https://www.ipcc.ch/assessment-report/ar4/
- [5] Hydrocarbons Technology. (2014). The Power of Siberia Gas Transmission System (GTS). Available at: https://www.hydrocarbons-technology.com/projects/the-power-of-siberia-gas-transmission-system-gts/
- [6] Meliksetian, V. (2020). Russia Eyes Another Massive Gas Pipeline To China. Available at: https://oilprice.com/Energy/Natural-Gas/Russia-Eyes-Another-Massive-Gas-Pipeline-To-China.html
- [7] Sassi, F. (2019). What the 'Power of Siberia' Tells Us About China-Russia Relations. Available at: https://thediplomat.com/2019/12/what-the-power-of-siberia-tells-us-about-china-russia-relations/
- [8] U.S. Energy Information Agency. 2017. Projected carbon dioxide emissions are sensitive to factors driving fossil fuel use. Available at: https://www.eia.gov/todayinenergy/detail.php?id=30172
- [9] U.S. Environmental Protection Agency, Gas Research Institute. 2006. Methane Emissions from the Natural Gas Industry. Available at: https://www.epa.gov/natural-gas-star-program/reports-and-technical-resources

Financing Sustainable Development through State Aid. Evidence from the SAM Reform¹

ANDREEA - EMANUELA DRĂGOI, PhD. Center for European Studies Institute for World Economy, Romanian Academy ROMANIA andreeadragoi@iem.ro, http://iem.ro/en/

Abstract: - The current EU state aid policy has constantly evolved from a tool created to control and assess the efficiency of direct subventions granted in the Member States for their economic sectors to a complex set of regulations enabling sustainable and smart development especially through the so called horizontal objectives (environment protection, energy efficiency, renewable energy and RDI). Given the fact that the complexity of SAM Reform has influenced the effectiveness of state aid law and its enforcement in the Member States, this article examine its effects on two state aid categories (energy aids granted under General Block Exempted Regulation (GBER) and environmental aids) aiming to highlight the main achievements in boosting such aids across the EU. The research methodology combines selected evidence from the latest EU State Aid Scoreboard with relevant case studies (key schemes and measures granted at EU level). The final objective of our research is to assess the SAM Reform impact on the adequate implementation of the state aid policy to support the Member States for reaching the 2020 climate targets while providing sustainable and secure energy. The limitations of the current paper are given by the fact that there is not yet available a 2020 State Aid Scoreboard, but our purpose is to extend the current research based on the future statistics of state aid notified and approved by Member States during the next years.

Key-words: state aid, sustainable development, SAM Reform, state aid in the EU JEL Classification: K10, K19, K29

1 Introduction

As stated in some analysis (Colombo, 2019) the SAM Reform has strengthened the Commission's dominance on state aid control while enhancing the instruments of administrative integration in the competition field. Although such evidence is undeniable, our paper aims to emphasize that SAM Reform has also increased the number of state aid granted without notification under the General Block Exempted Regulation (GBER), given the fact that one of the indisputable effects of the reform was the notable increase of state aid for horizontal objectives (that could be granted by the Member States without prior notification to the Commission).

In order to boost sustainable development the Member States have prioritized the environmental aids in their schemes and measures while also granting many aids for energy efficiency and renewable energies. Some papers (Brandtner, Vidoni, 2018) have argued that granting of the state aid under GBER may be considered one of the pillars of the SAM Reform, thus enabling Member State to accelerate the process of funding innovation projects without prior notification. In the context of limited resources and competing spending needs it is our believe that SAM Reform proved to be a great success for achieving the sustainable growth in all Member States, hence the main objective of this paper is to assess how the Member States have used the tools of the reform in order to finance green energies and environmental protection, while also underlining the challenges ahead.

Understanding the possibilities of state aid policy in the current economic environment is all the more important since, as the adoption of New Temporary Framework has proven that this policy may be an essential

¹ SAM reform (State Aid Modernization Reform) started with the adoption of Communication Reform (EU State Aid Modernisation, COM 2012) aiming to boost a new framework for granting more horizontal state aid, those aids being considered vital for sustainable development and in line with Europe 2020 Strategy objectives (environment, energy efficiency, RDI) while having a minim distortion effect on the free competition on the internal market.

tool in boosting recovery in a post-pandemic world (Drăgoi, 2020). It is also important to note that the SAM Reform has proven the flexibility of EEAG (Guidelines on State aid for environmental protection and energy) as an instrument to achieve the objectives of the <u>European Green Deal</u> (EC, 2020). EEAG has successful supported the funding of green energies projects hence being one of the most successful regulations enforced during the SAM Reform. This flagship initiative has created for all Member States a framework to support the shift towards a resource-efficient and low-carbon economy, many state aids schemes and measures being granted through EEAG for supporting the "green" economy. In the following sections of our paper we will present through a comparative analysis key examples of state aids granted during the SAM Reform both under EEAG and GBER, aiming to assess what were the preferred tools and types of aids across EU.

2 Types of state aid for sustainable development granted in the EU. Main goals and tools

As shown in the latest State Aid Scoreboard² (EC, 2019) the success of SAM Reform in shifting the objectives of state funding toward "green" economic growth is undeniable, being strongly supported by three main pillars (Figure 1).



Source: Author based on State Aid EU Scoreboard (2019).

Presently it is widely accepted that one of the cornerstones of the reform is the revision of the General Block Exemption Regulation (GBER), which simplifies aid-granting procedures for Member States by empowering Member States to authorize aid without prior notification³ especially for horizontal objectives (Pillar III). This is possible for a wide range of measures fulfilling horizontal common interest objectives and many Member States have used the New GBER (adopted through SAM Reform) to boost their sustainable development.

While the SAM Reform was key in modernizing many sectoral guidelines, the latest EU State Aid Scoreboard shows us that the reform had achieved its three main goals: to foster growth in a strengthened, dynamic and competitive internal market; to focus on sustainable growth-enhancing policies while encouraging budgetary consolidation; to limit distortions of competition while keeping the single market open.

Moreover, on the basis of the problems identified in achieving the 2020 energy & climate targets and the state aid policy objectives laid down in the SAM reform, there are two important achievements for environmental state aid: assisting in achieving the 2020 renewable energy targets while minimizing the distortive effects of

² The Scoreboard is the European Commission's benchmarking instrument for State aid. It provides a transparent and publicly accessible source of information on the overall State aid situation in the Member States but also on the Commission's State aid control activities.

³ It should be noted that similar block exemption regulations have been adopted in the agricultural sector (ABER) and for fisheries (FIBER) all those regulations boosting the granting of such sectoral aids.

support schemes and reducing distortions to competition and trade resulting from the financing of support schemes to renewable energy sources, while limiting negative impacts on the competitiveness of EU firms.

Along with the mentioned EEAG, through the SAM reform the New GBER also devoted significant attention to environmental protection and the transition towards renewable energy sources. Section 7, Articles 36 to 49, of the GBER allows Member States to grant aid without prior Commission scrutiny for a variety of policy objectives. These include among others investment aid for energy efficiency and high-efficiency cogeneration (Arts. 38-39), operating and investment aid for the promotion of energy and electricity from renewable sources or small scale installations (Arts. 41, 42 and 43), aid in the form of reductions in environmental taxes (Art. 44) or investment aid for energy efficient district heating and cooling (Art. 46).

According to the latest EU State Aid Scoreboard, State aid spending for environmental and energy aid corresponded to 55% of total State aid spending in 2018. Environmental protection and energy savings is the prime objective in 20 Member States. Over the last 10 years, Member States have spent around 342 billion EUR on environmental protection and energy saving measures under GBER and Environmental protection and energy Guidelines. This corresponds to around 41.1% of total State aid expenditure in the same period for the whole EU.

State aid expenditure was primarily directed towards environmental protection measures (around 333 billion EUR or 97 % of the total) while only around 8.2 billion EUR (2.4% of the total) concerned energy saving measures, and 0.7 billion EUR (0.2% of the total) were dedicated to renewable energy.

State aid spending supporting 'green' projects still mostly takes the form of notified State aid measures. The share of notified State aid spending for the last ten years corresponds to around 231 billion EUR or 67.5 % of the total, against around 81,5 billion EUR for GBER measures. However, despite the still predominantly notified nature of State aid measures for environmental and energy projects, block-exempted State aid has significantly grown since its introduction in 2008 and reached around 22.6% of total State aid spending for environment and energy measures in 2018, corresponding to around 15 billion EUR.

Overall, State aid spending in this area has remained highly stable between 2008 and the end of 2013 and relatively balanced between block-exempted and notified measures. After the 2014, we see a much more pronounced and sharp increase in spending for environment and energy measures. The total amount spent more than doubles in only one year, a +135% change on an annual basis, from around 15.8 billion EUR in 2013 to 37.3 billion EUR in 2014, reaching around 66.5 billion EUR in 2018. When looking at the number of active measures for which spending was reported in 2018, block exempted measures are around three times as many as notified measures and amount to 376 active GBER measures against 121 approved measures.

3 The impact of SAM reform on state aid for sustainable development in the Member States

Despite the impressive total State aid amounts at EU level, big differences between Member States remain, with around 79.7% of the total nominal State aid spending for environmental protection and energy projects highly concentrated in only five Member States: Germany remains the biggest spender with around 189 billion EUR over the last 10 years, followed by Sweden (26.6 billion EUR), the United Kingdom (24 billion EUR), France (19.7 billion EUR) and Denmark (13 billion EUR). However, Romania has also a good performance ranking 10th in the EU hierarchy (see Graph 1).





Source: Author, based on EU State Aid Scoreboard.

At EU level there are several spending 'sub-categories' for the two main policy objectives of 'Environmental protection' and 'Energy saving' under SAM by classified after GBER articles under which expenditure was reported. Accordingly, aid for energy savings, whose total GBER spending from 2014 to 2018 amounts to around 2.5 billion EUR, is mainly disbursed under two GBER articles: Article 38 - 'Environmental investment aid for energy efficiency measures' (61% or around 1.53 billion EUR) and Article 46 – Investment for energy efficient district heating and cooling' (30% or around 0.75 billion EUR).

These articles allow Member States to support the cost of investments aimed at complying with Union energy efficiency standards and building production plants to operate energy efficient district heating and cooling systems.



Graph 2: Share of spending for energy saving from total GBER (%)

Source: Author, based on EU State Aid Scoreboard.

As the latest Scoreboard shows aid for environmental protection has also been largely channeled via GBER. The amounts spent for this objective are much bigger than those devoted to aid for energy savings and correspond to around 57.6 billion EUR (from 2014 until 2018). State aid spending for environmental protection under the GBER is highly concentrated (Graph 3). Around 90% of the total is spent under two articles both entailing tax reductions and exemptions for energy intensive users. These articles are Article 44 – Aid in the form of reductions in environmental taxes under Directive 2003/96/EC' (2014 GBER) absorbing around 41.8 billion EUR or 72.5% of the total spending and Article 25 - Environmental aid in the form of tax reductions (2008 GBER) corresponding to around 9.7 billion EUR or 17% of the total.



Graph 3: Share of spending for environmental protection from total GBER (%)

Source: Author based on State Aid Scoreboard.

When we look at the success of SAM Reform we may see that Investment aid for high efficiency cogeneration (Art. 40, GBER) and Environmental aid in the form of tax reductions (Art. 25, GBER) have both been boosted. Spending under Article 25 instead is significant, with around 28.3 billion EUR over the period 2009 – 2018, while the use of tax measures varies before and after SAM.

In the pre – SAM context, only 18.6 billion EUR were paid out under Article 25 – Environmental aid in the form of tax reductions. In the post – SAM period, the use of Article 25 continued (9.7 billion EUR) while aid under Article 44 (41.8 billion EUR) increased remarkably. Out of 60.1 billion EUR spent over the period 2014 – 2018, around 70% of total GBER aid for environmental protection and energy saving was paid out under this latter article in the form of reductions in environmental taxes. By means of comparison, the second most widely used State aid instrument, direct grant or interest rate subsidy, covers around 10.6 billion EUR between 2014 and 2018, corresponding to only 17.6% of the total.

3.1. Case study – Romania

According the latest Scoreboard, in Romania the total number of active measures corresponded to 35 in 2018, of which 24 under GBER and 11 notified. In 2018, the share of GBER measures in Romania reached 69% of the total, with 87.5% of all newly implemented measures falling under the GBER, against the European average of 94.7%. State aid spending in terms of GDP in Romania in 2018 was below the EU average, 0.52% against 0.76%.

Around 90% of State aid spending in Romania was concentrated in two main policy objectives (Graph 4). Around 67% of the spending was directed towards 'Environmental protection including energy savings', while 23% of spending was used for 'Regional development' and only 4% was used for the financing of 'research, development and innovation'. Romania devoted around 3% to 'sectoral development'.



Graph 4: State Aid in Romania in 2018 – Objectives (% from total)

Source: Author based on State Aid Scoreboard.

As shown by national data in Romania GBER spending is mostly concentrated in three key articles that absorb 85% of total GBER spending. The most widely used is 'Regional aid - investment aid (Art. 14) for scheme' (39%), followed by 'Aid in the form of reductions in environmental taxes under Directive 2003/96/EC (Art. 44)' (30%). 'Regional aid - scheme (art. 13)' accounts for 16% of total GBER spending. The remaining amounts are evenly distributed across a variety of articles. In terms of State aid instruments, Romania privileged the use of direct grant/interest rate subsidies (around 448 million EUR, corresponding to 42% of total State aid spending). **3.2** SAM main achievements in fostering sustainable development. Challenges ahead

3.2. SAM main achievements in fostering sustainable development. Challenges ahead

Among SAM achievements the most important ones are as follows: fostering smart and inclusive growth in a competitive internal market; focusing on the Commission's ex ante scrutiny on cases with the biggest impact on the internal market whilst strengthening the Member States cooperation in State aid enforcement and enabling

faster decisions in the member states. When discussing GBER achievements, as key part of SAM reform, one must notice the following progresses: increasing state aid as tax reduction for energy and environment, providing new criteria to assess whether State aid measures for environmental protection can be declared compatible with the internal market. Despite the important progresses of SAM Reform many challenges are laying ahead. Energy investments undertaken today will still be in use up to and beyond 2030. Investors therefore need already today certainty over the energy and climate framework a goal that will be difficult to achieve in the current economic framework considering the new challenges brought by the pandemic crisis.

Apart from setting long-term goals with its 2050 Roadmap, if to success in further achieve its Green Deal targets the Commission need to emphasize new features as follows: an EU-wide energy efficiency target and the review of the Energy Efficiency Directive; other elements such as key indicators (e.g. energy price differentials with the major trading partners of the EU) to prepare for a potential policy response if necessary, in order to ensure a competitive, secure and affordable energy at European level. According to the analysis of the European Commission regarding the SAM success (launched in January 2019), it is important to see that SAM has created a framework with rules that fit to purpose. Based on all the evidences from the Member States SAM was a big success regarding the "fitness check"⁴, enabling an important growth of aids for sustainable development while cutting the red tape and granting more autonomy at the national level.

The importance of SAM Reform is undeniable in order to achieve the true sustainable development at EU level, especially because the European Green Deal is considered by some studies the prelude and the foundation of a daunting, but necessary, environmental-centric industrial revolution (Verschuur, Sbrolli, 2020). However when discussing the future of state aid reforms at EU level we must take into consideration the COVID-19 crisis impact. As stated by some analysis (Sierra, 2020) the sudden onslaught of **COVID-19** has already made a huge impact in the world of state aid in a manner not seen since the banking crisis of 2008, and is bound to surpass it in severity. Although key recovery is essential, in our opinion sustainable development must also remain a key focus of state aid policy, hence the objectives of SAM Reform remain as important as ever especially because the flexibility of state aid policy can be used for fostering green transition and sustainable development. Moreover, the specificity of some regulation as GBER and EEAG may prove in fact to be a solution enabling many Member States to adopt the necessary aids for boosting the green economic development (Delarue, 2019).

4 Conclusions

Our analysis on the use of environmental and energy State aid in the EU has shown some key insights on the use of this type of aid. While it currently represents one of the most widely pursued policy objectives in the European Union, both in 2018 spending and as spending trend over the last ten years, it still remains highly concentrated in only five Member States, with more than 50% of the total spending in Germany. In addition, the same spending concentration in one country (Germany) drives most of the increase in total spending for this policy objective since the SAM enforcement.

The analysis has also revealed a marked preference of Member States for the use of tax measures, progressively replacing direct grants, for GBER environmental and energy measures. As long as market and regulatory failures persist, Member States are likely to continue using State aid to meet the Union's environmental, energy and climate policies. The Commission, which has exclusive competences in State aid control, should however ensure an effective and efficient State aid control framework.

An important challenge lay ahead in order to transform the state aid policy in a tool for fostering the achievement of environmental objective in EU: while the existing regulation does not include compatibility criteria on measures aimed at compensating undertakings for the costs of financing renewable energy policies, many Member States are confronted with legal uncertainty.

In order to become more effective, state aid for environmental and energy should focus on creating such clear criteria and on competitiveness issues such as those that arouse from financing renewable energy, otherwise as a result of electricity price increases, certain industrial sectors may relocate their production outside the EU.

It is our opinion that SAM Reform may still support clean energy and environmental protection in the near future in EU especially because long-term political commitments and robust administrative planning for a successful transition to low-carbon economy requires supportive measures, of which some may qualify as state

⁴ The progress of the fitness check can be followed on the Better Regulation Portal: https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-6623981_en.

aid. Such measures may include: compensation for the closure of coal facilities; efforts to achieving a fair and just transition in regions dependent on coal mining or coal use; and adequate interventions to ensure security of electricity supply. Smaller states such as Romania have reoriented their state aid policy to cope with Union standards, but especially in the current economic crisis (created by the pandemic economic consequences), more exemptions should be allowed, if such positive trend is to be maintained.

The New Temporary Framework should allow, not only aids for affected SMEs, but also for renewable investors affected by the crisis. SAM reform has proven that state aid policy can be a flexible tool for supporting the future economic challenges in the EU as a whole, while also pursuing ambitious environmental targets. While the future of a post-pandemic world will most certainly create new and complex challenges state aid policy can prove itself a vital tool for supporting both economic recovery and sustainable development across the Member States.

Acknowledgement

This paper has been financially supported within the project entitled: "Support Center for IEM research - innovation projects competitive in Horizon 2020", ID 107540. This project is co-financed by the European Regional Development Fund through Competitiveness Operational Programme 2014 - 2020.

References:

- [1] Brandtner, B., Vidoni, D. (2018). *State Aid Evaluation*. European State Aid Law, Quarterly <u>https://heinonline.org/HOL/LandingPage?handle=hein.journals/estal2018&div=64&id=&page</u>
- [2] Colombo, C., M. (2019). State aid control in the modernization era: Moving towards a differentiated administrative integration? <u>https://onlinelibrary.wiley.com/doi/pdf/10.1111/eulj.12324</u>
- [3] Delarue, J. (2019). *State Aid Perspectives on the Coal-to-Clean Transition*. Report on the Conference held at the Club de Warande, Brussels, 14 November 2019. https://estal.lexxion.eu/article/ESTAL/2020/1/27
- [4] Dragoi, A. E. (2020). <u>Supporting the EU Economy through State Aid during COVID-19 Crisis. A</u> <u>Comparative Approach</u>, <u>Global Economic Observer</u>, "Nicolae Titulescu" University of Bucharest, Faculty of Economic Sciences; Institute for World Economy of the Romanian Academy, vol. 8(1), pages 11-18, May
- [5] European Commission (2020). Communication from the Commission Guidelines on State aid for environmental protection and energy 2014-2020. <u>https://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=CELEX%3A52014XC0628%2801%29</u>
- [6] European Commission (2019). *State Aid Scoreboard*. https://ec.europa.eu/competition/state_aid/scoreboard/index_en.html
- [7] European Commission (2020). Communication from the Commission Temporary Framework for State Aid Measures to Support the Economy in the Current Covid-19 Outbreak (Consolidated Version). https://ec.europa.eu/competition/state_aid/what_is_new/TF_consolidated_version_amended_3_april_8 _may_29_june_and_13_oct_2020_en.pdf
- [8] Sierra, J. L. B. (2020). *State Aid in the Time of Cholera*. European State Aid Law Quarterly. Vol 19. <u>Issue 1</u>. https://estal.lexxion.eu/article/ESTAL/2020/1/3
- [9] Verschuur, S., Sbrolli, C. (2020). *The Guidelines on State Aid for Environmental Protection and Energy towards the Future*. European State Aid Law Quarterly. <u>Volume 19 (2020)</u>, <u>Issue 3</u>. Pp. 284 289

The European Pillar of Social Rights. Implementation and effects in the EU Member States¹

ALINA LIGIA DUMITRESCU Centre for European Studies Institute for World Economy of the Romanian Academy Calea 13 Septembrie No.13, Bucharest ROMANIA

alinaligia1@yahoo.com

Abstract: The article focuses on the research into the European Pillar of Social Rights, as well as the challenges of applying the basic principles in the Member States, in order to identify the best measures for their implementation in the European Community. This analysis is structured on the 3 main categories, respectively: (1) the equal opportunities and access to the labour market, (2) the fair working conditions, (3) the social protection and social inclusion. The conclusions of the study will highlight the important role that the European Pillar of Social Rights has in the more efficient solution of the economic and social problems facing the EU, being a step forward towards " a better governance of social policies at Community level". The study aimed to add value through the research methodology used, based on a multidisciplinary approach. This involves analysing social policies from the perspective of accelerating the process of European integration, in order to reduce socio-economic disparities between the Member States. The research is based on the consultation of the specialized literature and of the studies and articles published by well-known specialists, on the analysis of official documents of the European institutions and the latest Eurostat data. Therefore, the European Pillar of Social Rights seeks to provide a single and coordinated response to the main challenges facing the EU: inequality, poverty, unemployment, social exclusion, economic and social disparities. How its principles will be put into practice in all Member States will influence the future of the EU architecture, as an area of "European values", in which the social rights of all citizens are equally respected. The Member States with "critical situations" concerning the access to the labour market and social protection, including Romania, will have to step up their efforts to implement the European Commission recommendations and attract the EU funds by using examples of good practice from performers in this field.

Key-Words: European Union, European pillar, social rights, social scoreboard, equal opportunities, labour market

JEL Classification: J16, J18, H75, I38, O52

1. The development of the concept of the European Pillar of Social Rights

The idea of a European Pillar of Social Rights (EPSR) was launched on September 9th, 2015 by the former president of the European Commission, Jean-Claude Juncker, in his speech on the state of the European Union, entitled "The moment of honesty, unity and solidarity" (Juncker, 2015). But this idea did not turn into a concrete project until 2017, the year that marked the 60th anniversary of the European Union and thus represented a good time to redefine the European social model.

The new vision on social rights was presented by the European Commission in April 2017, and on 17th November 2017, during the Social Summit in Gothenburg, the EU leaders adopted the Proclamation on the European Pillar of Social Rights, in order to promote job creation and stimulate inclusive growth (EU Council, 2017).

According to the EU experts, the labour market is changing rapidly, providing new opportunities, but it is also accompanied by the new challenges, generated by globalization, digital revolution, changing labour

¹ - The article is based on the results of the author research carried out as part of the study coordinated by Dr. Alina Ligia Dumitrescu on "6.13.8 **The European Pillar of Social Rights. Implementation and effects in the EU Member States**, elaborated within the Strategic Domain No.6. - Research for Sustainable Development of the Country (Economic, Social, Legal, Environment), included in the research program of the Romanian Academy in 2020.

patterns and demographic developments. In the future, 9 out of 10 jobs will require digital skills. At the same time, 169 million Europeans between the ages of 16 and 74 or 44% of the total EU population did not have basic digital skills (European Commission, 2017a). At present, people change jobs up to 10 times in their entire careers, and more and more employees are working on non-standard contracts. The good news is that in 2019, in the European Union, four in five young people (the age between 16 and 24), about 80% of them had basic or above basic digital skills; this was 24 percentage points higher than the share of individuals aged between 16 and 74 (56%). Among the EU Member States, Croatia had the highest share of individuals aged 16 and 24 with basic or above basic overall digital skills (97%), followed by Estonia, Lithuania and the Netherlands (all three with 93%) as well as Greece (92%). By contrast, the lowest shares were observed in Romania (56%), Bulgaria (58%), Italy (65%), Hungary (68%), Latvia and Luxembourg (both with 75%) (Eurostat, 2020a).

A major demographic challenge is the ageing and declining population, and under the current conditions, by 2080 the EU population will shrink by about 8.5 million people (Eurostat, 2018). However, social inequalities remain significant, and many difficulties persist, such as disparities in terms of social protection between workers employed on a full-time basis and those with part-time contracts, the pay gap between women and men and unequal access to goods and services for people with disabilities and other vulnerable groups. There is also concern about whether innovation, technological change and the benefits that accompany open markets and societies are evenly distributed in the actual society.

The proclamation on the European Pillar of Social Rights underlines the common commitment of EU leaders to promote the full implementation of the 20 principles and rights enshrined in the Pillar in all Member States. Through this social pillar, the EU aims to ensure social equity and reduce disparities so that the economy works for the benefit of all.

In the opinion of Karlson and Wennerberg (2018), "many of the principles and rights regulated under the social pillar have not yet materialized as mandatory rules at EU level." The authors point out that the impact of the social pillar will be minimal in the short term, but the effects will be positive in the long term, because when the EU proclaimed the social pillar, it set unitary social goals for Member States and clear principles to implement. On this basis, an opportunity has been created for the EU to work up new legislation in the field of labour market policies. Rather than "supporting and complementing" the social and labour market policies of the Member States, the EU can now, with the help of the European Pillar of Social Rights, replace these national policies with the "best objectives" of the Union, in an effort to implement fully the 20 unique principles (Karlson and Wennerberg, 2018).

2. The main action areas the European Pillar of Social Rights

The basic principles of the European Pillar of Social Rights are in line with Article 9 of the Treaty on the Functioning of the European Union, which governs that in defining and implementing its policies and actions, the Union shall take into account the requirements of promoting a high level of employment, guaranteeing adequate social protection, combating social exclusion, as well as the requirements of high levels of education, training and the protection of human health. The article 151 of the Treaty on the Functioning of the European Union also provides that the Union and the Member States, aware of the fundamental social rights as set out in the European Social Charter (signed in Turin on 18 October 1961) and in the Community Charter of the Fundamental Social Rights of Workers (adopted in 1989), will aim to promote employment, improve living and working conditions (European Parliament, Council of the European Union and European Commission, 2017).

The European Pillar of Social Rights is meant to provide new and more effective rights for citizens. It is based on 20 essential principles, structured in three main areas of action (see figure 1).



Figure 1: The European Pillar of Social Rights- the main areas of action

Source: Author based on European Union's literature (2017)

3. Equal opportunities and access to the labour market

3.1. Equal opportunities and access to the labour market for young people

Based on the April 2013 EU Council Recommendation, all Member States have committed themselves to implementing the "Youth Guarantee". The EU Council (2013) proposed to state a set of measures that are summarized in Figure 2.

Figure 2: The measures to support the integration of young people into the labour market as recommended by the EU Council



Source: Figure developed by the author based on the EU's literature (EU Council, 2013).

A particular attention is paid to identifying the relevant public authorities responsible for setting up and administering the youth guarantee system and to developing partnerships between public and private employment services, education and training institutions, vocational guidance and training services, other youth services (non-governmental organizations, youth centres and associations).

In this regard, with regard to the integration into the labour market of young people who do not have a job and who are not involved in vocational education or training (NEET systems, for aged 15-24) the progress has been made in a number of Member States. The Joint Annual Employment Report (JER), which was published on 8 April 2020, notes that several Member States have stepped up their efforts to increase equality and integration of young people into the labour market (see Table 1).

Fable 1: Progress towards e	qual opportunities for you	ung people in a numbe	r of Member States
------------------------------------	----------------------------	-----------------------	--------------------

MEMBER STATE	APPLIED MEASURES		
SPAIN	In Spain, the Youth Employment Plan for 2019-2021		
	aims to increase the number of consultants by 3000		
	employees to ensure the integration of young people		
	and the long-term unemployed.		
CYPRUS	In Cyprus, an information project is underway which		
	In Cyprus, an information project is underway which aims to help 4000 young NEETs and provides support		
	for finding a job by personalized counselling and		
	training according to their specific needs. Also, ir		
	Cyprus, a communication campaign aims to attract		
	young people to the Public Employment Service so		

that they can benefit from the Youth Guarantee.			
	that they can benefit from the Youth Guarantee. The		
government's campaign aims to involve ye	ung		
NEETs from disadvantaged groups exposed	to		
poverty, disability, poor vocational training	or		
belonging to ethnic minorities or migrants.			
IRELAND In Ireland, the Youth Employment Support Sch	eme		
(YESS) promotes job placements for years	ung		
applicants who are long-term unemployed or fa	applicants who are long-term unemployed or facing		
barriers to employment. Through the YESS sch	me,		
participants gain skills and experience while actu	ally		
working.	•		
FRANCE In France, a training and employment scheme	for		
young people have been launched involving at	east		
10000 companies, offering training, apprentices	ips,		
or jobs. The main objective of these measures	s to		
develop public / private cooperation in order to re-	uce		
unemployment rates for young people	in		
disadvantaged urban areas.			
PORTUGAL In Portugal, young people benefit from internshi	In Portugal, young people benefit from internships to		
gain work experience and facilitate their entry interest of the second	the		
labour market Subsequently these traineeships	can		
	labour market. Subsequently, these traineeships can		
be transformed into permanent employment. with	be transformed into permanent employment, with the		
be transformed into permanent employment, with help of grants for the employment of young pe	the ple		

Source: Author based on data provided by the European Commission (2020a).

4. Fair working conditions

The European Commission (2020a) appreciates the progress made in 2019 on the social pillar on promoting dynamic labour markets and fair working conditions in the EU; on average the situation has improved on all indicators, in particular employment and declining unemployment. Thus, the following developments were mentioned:

Croatia, Greece, Italy and Spain face critical situations" in the *employment rate indicator*, compared to the Czech Republic, Estonia, Germany and Sweden as "best performers";

☐ Italy registers critical situations" regarding the *unemployment rate*, while the Czech Republic registers as "the best performer";

☐ Italy faced critical situations" in the *long-term unemployment rate*, this indicator did not record the "best performers" while 15 Member States were identified that are "better than average";

At the indicator of disposable income of households "the situations were critical" in Greece, Cyprus and Italy, compared to Lithuania, Poland and Romania are "the best performers";

The situation of the net earnings of a full-time employee without children earning the average salary is considered critical in Romania and Slovakia, while Austria, Germany, Ireland, Luxembourg, the Netherlands and the United Kingdom are "the best performers".

4.1. The employment rate in the European Union

In 2010, the European Council adopted the Europe 2020 Strategy. The focus was on strengthening the EU economy and preparing for the challenges of the next decade. One of the main objectives of this strategy at EU level is to increase, by 2020, the employment rate of the population aged 20-64 to at least 75%.

According to Eurostat (2020b), the highest employment rate in the EU (for people aged 20-64) since 2005 was recorded in 2019 at 73.1%. Although the EU-27 as a whole has not yet reached its target in 2019, only 17 EU Member States have reached or even exceeded the target of the Europe 2020 Strategy. These countries include three Nordic Member States (Sweden, Denmark and Finland), the three countries Baltic Member States (Estonia,

Lithuania and Latvia), as well as the Netherlands, Germany, the Czech Republic, Slovenia, Portugal, Cyprus, Hungary, Malta, Ireland, Austria and Bulgaria. The United Kingdom, as well as Iceland, Switzerland and Norway, also had occupancy rates above 75%. At the other end of the scale, the employment rate was far from the EU target, below 70%, in Croatia, Italy, Spain and Greece, the country with the lowest rate among EU Member States (61.2%) (Figure 3).





Source: Author based on Eurostat data (2020b)

4.2. The unemployment rate in the European Union

In 2020, the Covid-19 pandemic caused an unprecedented decline in economic activity around the world, not least in the EU. The supply chains were disrupted, altering the industrial production. Many economic activities, especially in the services sector, have been disrupted by administrative restrictions on social distancing. Associated revenue losses, albeit amortized by various types of government intervention and increased uncertainty, have diminished demand and led to additional production losses.

According to macroeconomics expert Andrew Watt (2020), production in the European Union fell in the first quarter of 2020 by more than 3%, and fall in the second quarter by another 11.4%, setting a record. In particularly the most affected Member States, the losses were even more dramatic. Andrew Watt (2020) points out that this decline in production should have led to a sharp rise in unemployment, but the employment decline has remained modest, given the scale of the shock.

Thus, in August 2020, the seasonally adjusted unemployment rate in the Euro area continued to rise for five consecutive months, reaching 8.1%, and the same trend was applied to the EU-27, which reached 7.4% in August 2020, with only 0.6 percentage points and 0.7 percentage points above their levels a year earlier (see Figure 4).

In August 2020, Eurostat (2020c) estimated that 15.603 million men and women in the EU-27, of which 13.188 million in the Eurozone (EA-19), were unemployed. Compared to July 2020, the number of unemployed people increased by 238,000 in the EU and by 251,000 in the Eurozone (Eurostat, 2020c).

Figure 4: Unemployment rates in the EU in august 2020



Emergency (SURE)

Source: Author based on Eurostat data (2020c)

4.3. European Instrument for Temporary Support for Mitigating Unemployment Risks in an Emergency (SURE)

The EU Commissioner for Employment and Social Rights, Nicolas Schmit stressed that "the EU is currently facing the worst recession in history as a result of the COVID-19 pandemic, and to ensure that this economic contraction does not turn into a social crisis, the community bloc must address issues such as job security, the granting of the minimum wage and the extension of youth guarantee opportunities". Commissioner Nicolas Schmit also said that "in order to ensure resilience, solidarity and cohesion, the EU response must prioritize employment, reduce inequalities and ensure equal opportunities, and the effective implementation of the European Pillar of Social Rights will serve as a guide".

The European Commission President Ursula von der Leyen said: "Only the strongest responses will allow us to deal with this coronavirus crisis. We must use all the means at our disposal. Every euro available in the EU budget will be redirected to overcome the crisis, every rule will be relaxed to allow funding to flow quickly and effectively. Through the new Solidarity Instrument (SURE) we will mobilize €100 billion to maintain jobs and businesses. Through this instrument, we join forces with the Member States to save lives and protect livelihoods. This is what European solidarity looks like. "

The European Commission emphasizes that SURE will support partial unemployment programs and similar measures to help Member States protect the unemployed, employees and the self-employed against the risk of dismissal and loss of income. The companies will be able to temporarily reduce the working time of the employees or to completely interrupt the activity, the state offering income support for the hours not worked. Self-employed workers will receive income replacement assistance for the current emergency (European Commission, 2020b). Specifically, the SURE instrument acts as a second line of defence, supporting short-term work schemes and similar measures, to help Member States protect jobs and thus employees and the self-employed against the risk of unemployment and income losses.

The European Commission has proposed 87.8 billion euros in financial support to 17 Member States under SURE (see Table 3.1).

MEMBER STATE	AMOUNT ALLOCATED
SURE TOTAL	87.8 billion euros
BELGIUM	7.8 billion euros

Table 2: SURE - European Temporary Support Instrument for Emergency Risk Mitigation

BULGARIA	511 million euros
CZECHIA	2 billion euros
GREECE	2.7 billion euros
HUNGARY	504 million euros
SPAIN	21.3 billion euros
CROATIA	1 billion euros
ITALY	27.4 billion euros
CYPRUS	479 million euros
LATVIA	192 million euro
LITHUANIA	602 million euros
MALTA	244 million euros
POLAND	11.2 billion euros
PORTUGAL	5.9 billion euros
ROMANIA	4 billion euros
SLOVAKIA	631 million euros
SLOVENIA	1.1 billion euros

Source: European Commission (2020b).

5. Social protection and social inclusion (SPSI)

The European Commission (2020a) considers that in terms of the European Pillar of Social Rights (EPSR) relating to social protection and social inclusion, in 2019 the situation has improved in terms of both the availability of institutions for the care of preschool children and the share of the population with basic general digital skills. However, the situation of indicators on the impact of social transfers on poverty and rapid access to good quality and affordable preventive and curative healthcare have slightly worsened.

Regarding the stage of implementation of the SPSI actions in 2019:

- Spain, Italy, Lithuania, Latvia and Romania face "*critical situations*" when it comes to their ability to secure their social transfers to reduce the risk of poverty. On the other hand, Hungary and Ireland are considered to have performed the best;
- The Czech Republic, Poland, Romania and Slovakia recorded "*critical situations*" at the number of children under the age of 3 in nursery-type care systems, compared to Belgium, Spain and Luxembourg who are the "best performers";
- Estonia and Latvia face "critical situations" in terms of rapid access to good quality and affordable preventive and curative healthcare. The "best performers" identified through the social scoreboard methodology were not reported, while nine countries are "better than average;
- Bulgaria, Croatia and Romania face "*critical situations*" in the share of the population with basic general digital skills, while Finland, Luxembourg, the Netherlands and Sweden have performed best.

5.2. EU social protection spending

In the EU-27, social security revenues exceeded social expenditures each year in the period from 2008 to 2017. In 2017, this social income/expenditure gap was 1.0% of GDP, given that expenditures with social protection in the EU-27 accounted for 28.2% of GDP in 2017 (Eurostat, 2020d) (see Figure 5).

Figure 5: The Social spending as a percentage of GDP in the EU in 2017



Source: Author based on Eurostat data (2020c)

Of all the EU Member States, this ratio was highest in France (34.1%), while Denmark and Finland also reported levels of over 30.0%, and Germany (29.7%). In contrast, social protection expenditures accounted for less than 17.0% of GDP in Bulgaria, Malta, Estonia, Lithuania, Ireland and Latvia, *with the lowest ratio among Member States registered in Romania (14.4%) (see Figure 5).*

6. The stage of European Pillar of Social Rights implementation in Romania

The 2020 Country Report on Romania states that "the Social Scoreboard, which supports the European Pillar of Social Rights, highlights a number of social and employment challenges. *Strong economic growth has made it possible to improve social conditions, but nevertheless, poverty and social exclusion, as well as the poverty of the employed, remain at very high levels, and income inequalities have deepened, given that social transfers have had a limited impact on poverty reduction*" (European Commission, 2020c).

The main conclusion regarding the evolution of the implementation of *EPSR* in Romania is that the active policies in the field of labour market, mainly employment subsidies, have a low impact on reducing unemployment. In this regard, the European Commission emphasizes that:

- the share of persons employed in the total number of participants in the training, at 6 months after participating in the measure, was only about 40%. There is still significant room for improvement in the effectiveness of activation measures, in particular as regards the provision of personalized services to vulnerable groups, such as the low-skilled, the elderly and people with disabilities. Although the employment rate of people with disabilities is below the EU average of 43.7% compared to 50.6%, the legal framework does not effectively stimulate their employability and the public employment support services are limited;
- The access to the labour market remains limited for certain groups. In 2018, the share of long-term unemployment in the total unemployment rate increased to 44.1%, after falling from 50% in 2016 to 41.4% in 2017. Currently, approximately 100,000 long-term unemployed are register with the public employment services; 88% of them come from rural areas, about 9% are Roma and over 90% are identified as having a low level of employment.

6.1. The impact of COVID-19 on Romanian labour market

The Council's recommendations on Romania's National Reform Program for 2020, which includes a Council opinion on Romania's Convergence Program for 2020 (European Commission, 2020c), state that in the

context of the COVID-19 epidemic, the existing challenges are very likely to increase, amid rapidly rising unemployment and inactivity. The Commission forecasts that the unemployment rate is expected to rise to 6.5% in 2020 and then fall to 5.4% in 2021.

According to Romanian National Institute of Statistics, the COVID-19 pandemic affected the labour market by moderately decreasing the employed population and the employment rate and increasing the number of unemployed and the unemployment rate in the 6 months of 2020 (INS, 2020). According to official statistics, in Q2 2020, the employment rate of the population aged 20-64 was 70.4%, with 0.4 percentage points over the national country target of 70% set in the context of the Europe 2020 Strategy, at the level of the analysed periods, the active population of Romania was 8.987 million people, of which 8.505 million people were employed and 482,000 were unemployed. Also, the employment rate was higher for men - 73.6% compared to 56.4% for women and people in urban areas (66.1%, compared to 64% in rural areas) (Figure 6).



Figure 6: The employment rate in the second quarter of 2020 in Romania

Source: Author based on INS data (2020a)

According to data provided by the National Institute of Statistics (INS), the unemployment rate in Romania was 5.4% in the second quarter of 2020, increasing by 1.1 percentage points compared to that recorded in the previous quarter. The employment rate of the working age population (15-64 years) was 65.2%, decreasing by 0.2 percentage points compared to the I / 2020 quarter, according to the National Institute of Statistics (INS). By sex, the gap between the two unemployment rates was 0.5 percentage points (5.6% men compared to 5.1% for women) and by residential area, 0.6 percentage points (5.7% in rural areas, compared to 5.1% in urban areas). *At the same time, by age group, the unemployment rate among young people aged between 15 and 24* years *has reached the highest level (15.4%) from all,* in 2020 (Figure 7).





Source: Author based on INS data (2020a)

6.2. Measures to combat the social effects of the COVID-19 pandemic in Romania

One of the most important measures taken by the Romanian government to reduce the social effects caused by the Covid-19 pandemic is the Kurzarbeit Law, which was recently introduced into Romanian legislation by Emergency Law no. 132/2020. This law aims to make the work schedule more flexible for employees, representing a measure of support for both employees and employers in the conditions of restricting economic activities caused by the epidemic of Coronavirus. The model was taken from the Germany. They first developed this type of program more than 100 years ago, especially for periods of recession or economic crisis.

The Emergency Law no. 132/2020 provides the following:

- employers may order the reduction of employees' working time by no more than 50% of the duration provided in their individual employment contract. The employer may order for an employee with a norm of 8 hours of work per day to reduce it to a maximum of 4 hours per day;
- employers may decide to reduce the working hours of employees for a period of at least 5 consecutive working days;
- during the reduction of working time, the affected employees can benefit from an indemnity of 75% of the difference between the gross salary provided in the employment contract and the gross salary related to the hours actually worked.
- the 75% allowance will first have to be borne by the employer. This allowance will be paid to the employee on the date of payment of the salary for that month, to be reimbursed to the employer by ANOFM from the unemployment insurance budget.
- the indemnity settled by the state will not benefit from a special fiscal treatment, it represents income of salary nature and is subject to taxation, both with income tax and with the obligatory social contributions, according to the law.
- this indemnity will be taken into account when establishing the contribution period of at least 12 months for the unemployment indemnity.

7. Conclusions

The existence of unique indicators at EU level to monitor progress under the European Pillar of Social Rights represents a decrease in the subsidiarity of social policies and an increase in the EU's role in creating more integrated and unitary social policies, which play a key role in increasing social cohesion and quality of life in all Member States. This involves the establishment of a European process for the coordination of social policies in general and employment policies in particular, which will periodically assess and monitor progress in implementing the basic principles of the EPSR and of the indicators of the Social Scoreboard. This is linked to the second method of EU governance: Open Method of Coordination.

Addressing the issue of unemployment and especially long-term unemployment is a priority at EU level, achieved through the promotion of regulations and directions for action, as well as examples of good practice among Member States. Active employment policies focused on disadvantaged groups have also been promoted at Member State level. It should not be neglected that there is a shortage of labour in many Member States and that the integration of young people, women, the elderly, minorities or immigrants can cover the shortage of labour, which has been reduced mainly by the demographic decline of the population in the EU.

At the level of each Member State, increasing employment can also be an important means of reducing budget deficits by reducing social costs related to social benefits, but also by increasing the funds collected from social security contributions.

In conclusion, it should not be overlooked that active employment policies that include investment in training and improving human resources and skills development, as well as career guidance, can bring invaluable benefits to the Community labour market, contributing to economic growth and development of the EU. *However, it must not be neglected that active policies are not without costs and must be effective in justifying the high public spending allocated at EU and Member State level. Therefore, both a focus on disadvantaged and socially marginalized groups and a permanent recalibration according to macroeconomic developments and the requirements of the business environment in each Member State are needed.*

In my opinion, in EU the implementation of youth employment programs has undoubtedly had positive effects on facilitating their integration into the labour market and significantly reducing youth unemployment (to around 16% today compared to 24% before the introduction of Youth Guarantee (YG). *However, the success of*
these programs has objectively depended on the existing institutional framework in each Member State, with clear differences between these countries in terms of cooperation of key actors in the labour market and the effective management of these programs.

On the other hand, there are situations in which due to a weak capacity to attract European funds and limited expertise in the development of eligible projects at EU level, some Member States have benefited to a lesser extent from the YG scheme, although they had high unemployment rates among young people. The opinion of many experts, which I fully share, is that the limitations of the YG impact are related to the limited period of development of these programs, deficiencies in establishing clear eligibility criteria, institutional bureaucracy or lack of focus on socially marginalized categories among youth.

Romania will have to comply with the EC recommendations in the latest "Country Report 2019" on overcoming the "critical situations" registered in the indicators of the Social Scoreboard, which include the school dropout and the limited access to the labour market of young NEETs.

Member States with "critical situations" in access to the labour market for young NEETs, including Romania, will have to step up their efforts to implement the "Youth Guarantee" and attract EU funds by using examples of good practice from performance for better results in this field.

Romania must also consider "zero priority" the development of national strategies for the integration of young people into the labour market by providing financial incentives to companies, such as salary subsidies, bonuses, exemption from social security contributions or tax exemption, by programs for the creation of new jobs in the public domain for young people and through the development of entrepreneurship and start-up companies among them.

The last, but not the least the SURE (**European Temporary Support Instrument for Emergency Risk Mitigation**) financial support of 4 billiard euros allocated to Romania, together with the Romanian government program on flexible work (**Kurzarbeit**) could play an important role in the reducing of the effects of the crisis caused by the Covid-19 pandemic and the diminution of unemployment rate, in Romania. These are two important instruments that can be used, but in order that the efforts have success, it is important to have a less bureaucratic national system, a digitized system, a simplification of payment procedures, a good communication with the companies and a much more efficient administrative capacity in attracting European Union funds.

In conclusion, Table 3 presents the summary of the SWOT analysis on the impact of European Pillar of Social Rights' implementation in the European Union.

STRONG POINTS:	WEAKNESSES:			
 Increasing equal opportunities and access to the labour market in the EU; Ensuring dynamic labour markets and fair working conditions in the EU; Strengthening social protection and social inclusion in the Member States. 	 The different levels of development and financing of social protection systems in the Member States; The weak EU fundraising capacity and the limited expertise in developing EU-eligible projects in some Member States; A high level of bureaucracy, together with a low level of digitization in some Member States. 			
OPPORTUNITIES:	THREATS:			
• Addressing the issue of unemployment and	• The growth of unemployment and social			
especially long-term unemployment by promoting	spending if the integration of beneficiaries into the			
regulations and directions for action as well as	labour market is not effective;			
examples of good practice among Member States.	• The increase number of people at risk of poverty			
 Increasing the labour supply; 	and social exclusion if the EU recommendations on			
 Increasing the employment rate; 	the implementation of the EPSR objectives are not			
 Increasing labour productivity; 	implemented in the Member States;			
• Increasing the competitiveness of European	• The marginalization and the extension of the			
products.	difficulties of the integration in society of			
	unemployed from disadvantaged categories			
	(young people, women, minorities, migrants).			

Table 3. The SWOT analysis of the impact of EPSR's implementation in the EU

Source: Author based on the specialized literature consulted

References:

- [1] Eurostat (2020a), *Do young people in the EU have digital skills*, available at: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/EDN-20200715-1
- [2] Eurostat (2020b), Employment rates and Europe 2020 national targets, available at: <u>https://ec.europa.eu/eurostat/statistics-</u> <u>explained/index.php/Employment_rates_and_Europe_2020_national_targets#Persistent_increase_of_th</u> e_employment_rate at EU_level
- [3] Eurostat (2020c), *Unemployment statistics*, available at:: <u>https://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment statistics,https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset =une_rt_m&lang=en</u>
- [4] Eurostat (2020d), Social protection statistics, available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Social_protection_statistics, 27 October 2020.
- [5] EU Council (2017). European Pillar of Social Rights: Proclamation and signature, press release, 17 November, available at: <u>https://www.consilium.europa.eu/en/press/press-releases/2017/11/17/european-pillar-of-social-rights-Proclamation-and-signing /</u>
- [6] [6] EU Council (2013). Council Recommendation on the establishment of a Youth Guarantee (2013 / C 120/01), available at: https://eur-lex.europa.eu/legal -content / RO / TXT / PDF /? uri = CELEX: 32013H0426 (01) & from = EN
- [7] [7] European Commission (2020a). Joint Employment Report 2020. Directorate-General for Employment, Social Affairs and Inclusion, As adopted by the EPSCO Council on 8 April 2020
- [8] [8] European Commission (2020b). *Support to mitigate Unemployment Risks in an Emergency (SURE)*, available at: <u>https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/financial-assistance-eu/funding-mechanisms-and-facilities/sure_en</u>
- [9] [9] European Commission (2020c). Commission staff working document 2020 Country Report on Romania, accompanying the Commission communication document to the European Parliament, the European Council, the Council, the European Central Bank and the Eurogroup European Semester 2020: assessing progress on structural reforms, prevention and correction macroeconomic imbalances, as well as the results of in-depth assessments carried out under EU Regulation) no. 1176/2011. COM (2020) 150 final, available at: https://eur-lex.europa.eu/legalcontent/RO/TXT/DF/?uri=CELEX:52020SC0522&from=EN
- [10] [10] European Commission (2019), *Joint Employment Report 2019*. Directorate General for Employment, Social Affairs and Inclusion, <u>available at: https://ec.europa.eu/info/publications/2019-european-semester-draft-joint-employment-report_en</u>
- [11] [11] European Parliament, Council of the European Union and European Commission (2017), The European pillar of social rights, available at: https://ec.europa.eu/commission/sites/betapolitical/files/social-summit-european-pillar-social-rights-booklet_en.pdf.
- [12] [12] Karlson, N., Wennerberg, F. (2018), *The European Social Pillar: A Threat to Welfare and Prosperity?* The Ratio Institute Stockholm, available at: <u>http://ratio.se/app/uploads/2018/05/the-european-social-pillar.pdf</u>.
- [13] [13] INS (2020a). Employment and unemployment, available at: https://insse.ro/cms/ro/content/ocuparea-%C8%99i-somajul-23
 - https://insse.ro/cms/sites/default/files/com_presa/com_pdf/somaj_tr2r_20.pdf
- [14] [14] Juncker, J.C. (2015), *State of the Union 2015: Time for Honesty, Unity and Solidarity, European Commission Strasbourg*, available at: <u>http://europa.eu/rapid/press-release SPEECH-15-5614_en.htm</u>.
- [15] [15] Watt, A. (2020). The good news is that unemployment has only risen modestly so far; the bad news is that hours worked have plummeted. *Social Europe*, available at: https://www.socialeurope.eu/eu-labour-markets-in-the-pandemic-unemployment-only-part-of-the-story

The Integration of Romanian Stock Market in European Union: An Empirical Analysis

ELENA RADU (GRIGORIE) PhD Candidate, School for Advanced Studies of Romanian Academy National Institute of Economic Research "Costin C. Kiritescu", Romanian Academy helena222@yahoo.com

Abstract: This paper uses a dynamic conditional correlation model to depict the degree of integration of Romanian stock market with other 22 stock markets from the European Union. Analyzing the results, we noticed that the dynamics of Romanian stock market integration varies, both in the analyzed periods and in relation with other markets. Also, the degree of Romanian stock market integration with other EU markets is quite low. In the case of most markets, the trend of Romania's integration follows a similar pattern. More exactly, the integration starts from low values in 2004-2007, reaches higher values during the global financial crisis and the sovereign debt crisis and, after 2012, descends and stabilizes around equilibrium values. The results obtained in this study are useful for investors and for the supervisory authorities, in order to adopt measures necessary to increase the degree of integration of the financial market in Romania.

Key-words: Romanian stock markets, integration, crisis, development, developed markets. *JEL Classification:* D53, G12, G23

1 Introduction

The global financial crisis and the European sovereign debt crisis have exacerbated financial, economic, and social disparities between the Member States of the European Union (EU). Of all the problems facing the EU in the post-crisis years, the most worrying and dissatisfying is the substantial development differences between emerging and developed countries. In addition, in the last decade, the financial system faced risks that have significantly diminished the degree of stability. In this context, financial integration has become increasingly important within the EU.

In this study, I intend to analyze Romania's financial integration with other EU member states over the last two decades. Assessing the degree of financial integration is important for several reasons. First, knowing the degree of integration allows us to correctly assess market risk, credit risk, counterparty risk, and systemic risk. Second, the integration of financial markets is relevant for investors and authorities. For example, financial integration is important from the perspective of portfolio diversification and risk management, with the degree of financial integration allowing investors to adjust their trading strategies and manage risks. Third, assessing the integration of financial systems is important from a financial stability perspective. Fourth, the assessment of the degree of integration of the financial market in Romania will allow us to identify the viability of adopting the single European currency. A single currency can only function when the financial systems are integrated. Fifth, the degree of financial integration of Romania will allow us to evaluate the sustainable development of the Romanian financial system. Finally, in addition to those mentioned above, my analysis will show both the current degree of integration of Romania and how the global financial crisis and the European sovereign debt crisis have influenced the degree of integration.

The importance of financial integration is also highlighted by the fact that studies that have analyzed the synchronization and interconnection of financial systems have grown exponentially in the last decade. In the analysis of the existing literature, I'll focus on studies investigating the integration of stock exchanges, and, in particular, those from the Central and Eastern Europe (CEE).

Gilmore and McManus (2002) examined the short- and long-term relationships between the US stock market and three emerging CEE markets (Hungary, Poland, and Czechia) in the period of 1995-2001. They found that there were short-term correlations between the CEE and US markets, while the application of the Johansen cointegration procedure indicated that there is no long-term relationship between these markets. In addition, Scheicher (2001) determined a limited interaction between some CEE markets and major markets in terms of daily stock market volatility. Using daily data from 2006 to 2011, Horváth and Petrovski (2013) analyzed the correlations of stock markets in both the CEE (Czechia, Hungary, and Poland) and South-Eastern Europe (Croatia, Macedonia, and Serbia) and their correlations with euro area countries. Their results indicate a high degree of integration between the CEE countries and the euro area (correlation values fluctuate around 0.6) and a low degree of integration between the South-Eastern Europe countries and the euro area (correlations fluctuate around 0). Among the CEE markets, Croatia is showing an increasing trend in stock market correlations. Finally, their results suggest that the financial crisis has not substantially altered the degree of stock market correlations.

Kasch-Haroutounian and Price (2001) investigated the interdependence between four stock markets in the CEE, using two different multivariate GARCH approaches - the constant conditional correlation (CCC) and the BEKK model from 1994 to 1998. Using the CCC model, the authors found a coefficient of a positive and statistically significant correlation between the Czech and Hungarian stock markets (0.22), and between the Hungarian and Polish stock markets (0.13). For the other pairs, the correlations were very small and statistically insignificant.

Scheicher (2001) examined the components between three emerging European markets (Czechia, Poland, and Hungary) in 1995-1997, using a vector autoregression model (VAR) - the CCC model. The results indicated externalities both regionally and globally in terms of yields, but only regional externalities in terms of volatilizers. This result suggests that global shocks are transmitted to CEE stock markets through yields rather than volatility shocks.

Syllignakis and Kouretas (2011) used a DCC model with weekly data from 1997 to 2009 to investigate the correlations of the stock market between CEE (Czech Republic, Estonia, Hungary, Poland, Romania, Slovakia and Slovenia) compared to the USA, Germany and Russia. The authors noted that the correlation of the stock market increases over time and argued that this increase reduces the benefits of diversification in CEE markets. The authors suggested that the change in correlation coefficients could be explained mainly by a greater degree of financial openness, followed by an increased presence of foreign investors in the region and, finally, entry into the EU.

Syriopoulos (2004) documented the existence of a long-term relationship between the USA, Germany and four CEE stock markets (Hungary, Poland, Czechia, and Slovakia), using the Johansen cointegration methodology from 1997 to 2003, arguing that in the CEE tend to have stronger ties with their mature counterparts than with their neighbors.

Voronkova (2004) showed the existence of long-term links between the United Kingdom, Germany, France and the stock markets in three CEE countries (Hungary, Poland and Czechia), using daily data for the period 1993–2002, provided that, structural changes to be properly accounted for. In a similar vein, Syriopoulos (2004, 2007) documented the existence of a long-term relationship between the USA, Germany and four CEE stock markets (Hungary, Poland, Czechia and Slovakia), using the Johansen cointegration methodology from 1997 to 2003, he argud that EEC markets tend to have stronger links with their mature counterparts than with their neighbors.

Other relevant studies in the literature with similar objectives are those of: Hamao et al., 1990; Theodossiou and Lee, 1993; Longin and Solnik, 1995; Meric and Meric, 1997; Goetzmann et al., 2001; Cappiello et al., 2006; Kim et al., 2005, Bekaert, 1995; Bekaert and Harvey, 1995; Chen et al., 2002; Yang, 2005; Chiang et al., 2007; Phylaktis and Ravazzolo, 2005.

As we can see, most studies in the literature have highlighted the financial integration of the EEC countries that joined the EU in 2004. In fact, to our knowledge, the Romanian stock exchange has not been studied as a unit in relation to the stock exchanges in the EU member states. Under these conditions, our approach, to study the integration of the Romanian stock exchange, is an innovative one and completes the literature.

2 Methodology and Data

To study the integration of the Romanian stock market with EU member states, I will use a DCC-MIDAS model, conceptualized by Colacito et al. (2011). The model will be applied to stock market returns. The main advantage of this model is that it allows the extraction of a short-term and long-term component for the series of correlations. In order to estimate the DCC-MIDAS model, in general, two steps must be completed. First, using a uni-varied GARCH-MIDAS model, volatility is estimated. Second, to obtain standardized residues, observations are deflated using average volatility. The GARCH-MIDAS model is estimated using the specifications proposed by Engle et al. (2013).

The integration of the Romanian stock exchange, in relation to that of the EU member states, will be investigated by separately estimating a series of bivariate DCC-MIDAS models. More precisely, each model will include Romania, on the one hand, and on the other hand, in turn, one EU member state. In this way, one can obtain a degree of synchronization of the Romanian capital market with the other EU member states.

The data, consisting of the daily closing prices of the most liquid stock indices in our sample countries are fully denominated in euro, for which daily logarithmic returns were calculated. The adjustment of the price series, in order to maintain an equal number of observations, was made by repeating the price from the previous day. The data set used includes daily observations for capital market indices, for the period January 3, 2001 - July 3, 2018, which involves a total of 4565 observations. The first three years correspond to the MIDAS period. Consequently, the dynamics of the integration stages in the European Union is analyzed between January 5, 2004 and July 3, 2018.

The selected sample comprises 22 EU countries, grouped into two sub-categories based on economic and regional criteria, as follows: old EU Member States (Germany, France, Belgium, the Netherlands, Austria, Finland, Greece, Spain, Italy, Portugal, Ireland, UK, Sweden, and Denmark), and new EU Member States (Czech Republic, Hungary, Poland, Estonia, Latvia, Lithuania, Bulgaria and Croatia). The degree of financial integration of Romania will be investigated in relation to each of these countries. Due to the lack of data availability during the analyzed period, I did not include in the estimates the stock exchanges of Cyprus and Slovenia. For these markets, data were available from 2004. Also, due to very low liquidity, I did not include in the analysis the stock exchanges in Slovakia and Malta. Finally, given the particular nature of the financial system in Luxembourg, I have chosen to give up this country.

3 Results

The estimated model allowed me to obtain a dynamic conditional correlation (DCC) for Romania, in relation with other 22 EU states. Table 1, Graphs 1, and 2 list the findings. Table 1 presents the average of the conditional dynamic correlations of the Romania's stock market, in relation with other EU Member States, by time intervals.

The results indicate a number of particularly interesting aspects. Throughout the analysis range, i.e. January 5, 2014 - July 3, 2018, the correlations vary between 0.12 and 0.35. Although the positive values of the correlations indicate a positive synchronization, they reflect a low level of integration, given that, in general, the values of the correlations of developed markets in the EU exceed 0.70 (Virk and Javed, 2017). The level of integration is low, if we compare it with other CEE countries. Analyzing the average correlations, we can see that, in general, the more developed the markets, the higher the correlations.

	Total	05 jan./04	09 aug. 07	09 aug/07	05 nov. 09	27 jul. 12	
	sample	08 aug.'07	26 jul.'12	2 apr.'09	26 jul.'12	3 jul.'18	
Germany (DE)	0.30	0.07	0.40	0.32	0.42	0.36	
Netherlands (NL)	0.31	0.07	0.41	0.35	0.44	0.37	
Austria (AT)	0.33	0.11	0.44	0.37	0.47	0.38	
France (FR)	0.30	0.07	0.40	0.33	0.43	0.35	
Belgium (BE)	0.31	0.08	0.42	0.33	0.46	0.36	
Finland (FI)	0.28	0.07	0.38	0.28	0.43	0.33	
Italy (IT)	0.28	0.06	0.40	0.33	0.41	0.31	
Spain (ES)	0.28	0.08	0.38	0.32	0.39	0.32	
Ireland (IE)	0.28	0.07	0.37	0.29	0.41	0.32	
Portugal (PT)	0.29	0.10	0.40	0.36	0.41	0.30	
Greece (EL)	0.24	0.07	0.41	0.40	0.39	0.21	
United Kingdom (UK)	0.28	0.11	0.37	0.33	0.38	0.31	
Sweden (SE)	0.25	0.04	0.37	0.29	0.40	0.27	
Denmark (DK)	0.29	0.08	0.43	0.37	0.46	0.30	
Estonia (EE)	0.24	0.11	0.31	0.26	0.35	0.27	
Lithuania (LT)	0.20	0.06	0.31	0.26	0.32	0.19	
Latvia (LV)	0.12	-0.02	0.17	0.13	0.19	0.15	
Poland (PL)	0.30	0.12	0.41	0.31	0.46	0.32	
Czechia (CZ)	0.35	0.12	0.47	0.39	0.49	0.39	
Hungary (HU)	0.30	0.11	0.41	0.32	0.46	0.31	
Bulgaria (BG)	0.16	0.09	0.24	0.19	0.26	0.14	
Croatia (HR)	0.26	0.13	0.41	0.35	0.42	0.21	
Mean	0.27	0.08	0.38	0.31	0.40	0.29	
No.obs.	3782	938	1296	431	711	1548	

Table	1: /	Averages	of the	DCC	between	Romania	and	other	EU	Member	States
		I CI CI CI CO		200	Nee II Cell	Tround the		o chi ch		1,10,110,01	Nº44000

Source: Author's analysis

In order to have a more accurate picture of how integration has evolved, I have chosen to highlight the average correlations over several time intervals: the period before the global financial crisis (05 Jan.'04: 08 Aug.'07); the period of the global financial crisis and the European sovereign debt crisis in the euro area (09 Aug.'07: 26 Jul.'12); the period of the global financial crisis (09 Aug'07: 02 Apr.'09); the period of the European sovereign debt crisis in the euro area (05 Nov.'09: 26 Jul.'12); and, finally, the period following the European sovereign debt crisis (27 Jul.'12: 03 Jul.'18). Time intervals reflect disparities in correlation values. In the run-up to the financial crisis, the average correlation indicates extremely low integration.I can also explain this result by the fact that Romania joined the EU only in 2007. During the global financial crisis and the European sovereign debt crisis, I see a significant increase in correlations, more pronounced during the latter. After the European sovereign debt crisis, the correlations decreased significantly, approaching the equilibrium values, reflected by the macroeconomic fundamentals.

Graphs 1 and 2 reflect the dynamics of the DCC, in the short term - daily and in the long term - quarterly, of the Romanian stock market, with each Member State included in the analysis. I have chosen to present the results for the old EU Member States and new EU Member States separately. Graph 1 depicts the DCC of the Romanian stock market wih old EU Member States stock markets. The first figures reveal the DCC with the core euro area Member States, i.e. Germany, Netherlands, Austria, France, Belgium and Finland. The findings show that the integration of the Romanian capital market is low in the first period. Until 2007, I noticed low correlations between 0 and 0.1 which reveal the lack of integration. In some situations, daily correlations are negative, revealing financial divergence. During the global financial crisis and European sovereign debt crisis, the correlations increased to about 0.50. These were times when investors traded similarly in all markets, for reasons related to fear, panic, herd behavior, not meaning an increase in the integration of Romania's stock market. After the sovereign debt crisis, I observed a slow decrease of the correlations (0.30) and a return to equilibrium values, determining the fundamentals of the markets. In my opinion, they are determined by the increase of Romania's integration in the EU.





Notes: the blue line reflects short-term, daily correlations; the red line reflects long-term, quarterly correlations; the gray hatched period corresponds to the period of the international financial crisis (August 2007 - April 2009); the period shaded in yellow corresponds to the sovereign debt crisis in the euro area (November 2009 - July 2012) Source: Author's own analysis

Compared to core euro area countries, the short-term correlations of the Romanian market with Italy, Spain and Ireland are more volatile. I noticed many episodes that follow an evolution in the shape of the letter "V", with ample movements. In my opinion, these developments were determined by the internal crises that the three

countries had gone through. The same is true for Portugal and Greece. Analyzing the charts, one may observe a high volatility, both of short-term correlations and of long-term correlations. In fact, at the beginning of the analysis period, one may observe negative daily correlations, signaling divergence between the Romanian market and Portugal and Greece. During the two crises, one may observe a significant increase in correlations. However, unlike the previous graphs, I noted that during the sovereign debt crisis, correlations decreased in the second half of the crisis. This decrease is much more visible in the case of Greece. The findings for the United Kingdom, Sweden and Denmark follow a pattern similar to those highlighted for euro area developed countries.

Unlike the results obtained for old EU Member States, Romania's DCC with new EU Members States are lower. The DCCs paths for Poland, Czechia and Hungary are similar. The pattern follows periods of stagnation, sharp growth and decline. There are differences in the extent of integration. Thus, one may observe, at the end of the analysis period, when the values of the DCC are formed around equilibrium values, the fact that the Romanian market is more integrated with the Czech market and less with the Polish and Hungarian markets. Romania's DCC with the Baltic countries indicate a lower integration. In my opinion, the result is determined by the lower development of these markets. The dynamics of correlations indicate high volatility, especially for short-term correlations for Bulgaria and Croatia, but also for long-term correlations for Croatia. Also, both at the beginning of the analysis interval and at the end of the analysis interval, the results indicated negative correlations. The divergence between Romania, on the one hand, and Bulgaria and Croatia, on the other hand, gives investors the opportunity to optimize their portfolios through diversification. This supports the observation that the less developed the markets, the lower the integration.





Notes: the blue line reflects short-term, daily correlations; the red line reflects long-term, quarterly correlations; the gray hatched period corresponds to the period of the international financial crisis (August 2007 - April 2009); the period shaded in yellow corresponds to the sovereign debt crisis in the euro area (November 2009 - July 2012) Source: Author's own analysis

Analyzing the results, I have noticed that the dynamics of Romanian stock market integration varies, both in the analyzed periods and in relation with other markets. Also, the degree of Romanian stock market integration with other EU markets is quite low. In the case of most markets, the trend of Romania's integration follows a similar pattern. More exactly, the integration starts from low values in 2004-2007, reaches higher values during the global financial crisis and the sovereign debt crisis and, after 2012 it descends and stabilizes around equilibrium values. These equilibrium values reflect real integration, based on fundamental factors. In general, analyzing the graphs, one may observe a higher integration of Romania with the developed markets in the EU.

4 Conclusions

The findings reveal a series of interesting conclusions. First of all, the degree of financial integration of Romania, in relation to the EU member states, is low. Thus, the DCC show patterns of evolution that confirm the hypothesis of different stages of integration of stock markets in the EU, depending on the degree of economic and financial development. Secondly, the graphical analysis of the degrees of synchronization indicates a significant variation of the DCC. Thirdly, the values from 2012-2018 are higher than those from 2004-2007, which may indicate a slight increase in Romania's financial integration. This evolution is normal, if we consider Romania's accession to the EU and the economic effects of this process. However, the level of integration is still low. Fourthly, the economic and financial development gaps between Romania and the EU member states create the premises for some disparities. The lack of risk-sharing mechanisms, such as the tax (fiscal) union, amplifies these disparities. Fifth, despite the efforts of the European authorities, i.e. the project of the capital markets union launched in the last years, we cannot say that we have witnessed a development in line with the expectations of the EU stock markets and, in particular, of the CEE markets. Moreover, in some countries, especially in the CEE, disparities with old EU Member States have widened. Under these circumstances, in my opinion, the stock markets union project will not achieve its objectives, in the absence of specific measures, such as the creation of a pan-European pension fund, the standardization of regulations and market access conditions or the creation of a strong financial center. General support measures are also needed like the banking union, the fiscal union and the political union. As many anchors as possible are needed to reduce financial and economic disparities between Member States. The union of stock markets can be such an anchor, but only if other anchors exist.

The results obtained in this study are useful for investors, but also for authorities. From an investor perspective, the results are particularly useful in portfolio risk management and in diversifying investment portfolios. Authorities can improve the supervision of financial systems and reduce systemic risk during crises.

References

- [1] [1] Bekaert, G., 1995, *Market integration and investment barriers in emerging equity Markets*. World Bank Economic Review, 9, 75–107.
- [2] [2] Bekaert, G., & Harvey, C. R., 1995, *Time-varying world market integration*. Journal of Finance, 50, 403–444.
- [3] [3] Cappiello, L., Engle, R., & Sheppard, K., 2006, *Asymmetric dynamics in the correlations of global equity and bond returns*. Journal of Financial Econometrics, 4, 2006, 537–572.
- [4] [4] Chen, G. M., Firth, M., & Rui, O. M., 2002 *Stock market linkages: Evidence from Latin America*. Journal of Banking and Finance, 26, 1113–1141.
- [5] [5] Chiang, T. C., Jeon, B. N., & Li, H.,2007, Dynamic correlation analysis of financial contagion: Evidence from Asian markets. Journal of International Money and Finance, 26, 1206–1228.
- [6] [6] Colacito, R., Engle, R. F. & Ghysels, E., 2011, *A component model for dynamic correlations*. Journal of Econometrics, 164(1), 2011, 45-59.
- [7] [7] Engle, R. F., Ghysels, E. & Sohn, B., 2013, *Stock market volatility and macroeconomic fundamentals*. Review of Economics and Statistics, 95(3), 2013, 776-797.
- [8] [8] Gilmore, C. G., & McManus, G. M., 2002, *International portfolio diversification: US and Central European equity markets*. Emerging Markets Review, 3, 69–83.
- [9] [9] Goetzmann, W. N., Li, L., & Rouwenhorst, K. G., 2005, *Long-term global market correlations*. Journal of Business, vol.78, 1–38.
- [10] [9] Hamao, Y., Masulis, R., & Ng, V., 1990, *Correlations in price changes and volatility across international stock markets*. Review of Financial Studies, 3, 281–308.
- [11] [10] Horváth, R., Petrovski, D., 2013, *International stock market integration: Central and South Eastern Europe compared*. Economic Systems, 37 (1), 81–91.

- [12] [11] Kasch-Haroutounian, M., Price, S., 2001, Volatility in the transition markets of *Central Europe*. Applied Financial Economics 11 (1), 93–105.
- [13] [12] Kim, S. J., Moshirian, F., & Wu, E., 2005, *Dynamic stock market integration driven* by the European Monetary Union: An empirical analysis. Journal of Banking and Finance, 29, 2475–2502.
- [14] [13] Longin, F., & Solnik, B., 1995, *Is the correlation in international equity returns constant: 1960–1990* Journal of International Money and Finance, 14, 3–26.
- [15] [14] Meric, I., & Meric, G., 1997, *Co-movements of European equity markets before and after the 1987 crash.* Multinational Finance Journal, 2, 137–152.
- [16] [15] Phylaktis, K., & Ravazzolo, F., 2005, Stock market linkages in emerging markets: implications for international portfolio diversification. Journal of International Financial Markets, Institutions and Money, 15, 91–106.
- [17] [16] Scheicher, M., 2001, *The comovements of stock markets in Hungary, Poland and the Czech Republic.* International Journal of Finance & Economics, 6(1), 27–39.
- [18] [17] Syllignakis, M.N., Kouretas, G.P., 2011, Dynamic correlation analysis of financial contagion: evidence from the Central and Eastern European markets. International Review of Economics and Finance, 20 (4), 717–732.
- [19] [18] Syriopoulos, T., 2004, *International portfolio diversification to Central European stock markets*. Applied Financial Economics, 14, 1253–1268.
- [20] [19] Theodossiou, P., & Lee, U., 1993, *Mean and volatility spillovers across major national stock markets: Further empirical evidence*. Journal of Financial Research, 16, 337–350.
- [21] [20] Voronkova, S., 2004, Equity market integration in Central European emerging markets: A cointegration analysis with shifting regimes. International Review of Financial Analysis, 13, 633–647.
- [22] [21]Yang, Sheng-Yung, 2005, A *DCC* analysis of international stock market correlations: The role of Japan on the Asian Four Tigers. Applied Financial Economics Letters, 12, 89–93.

European Green Deal and the Prospects of EU-China Climate Change cooperation

ZHANG MIN, Professor Institute of European Studies, Chinese Academy of Social Sciences CHINA zhangmin@cass.org.cn

GONG JIALUO, PhD Institute of European Studies, Chinese Academy of Social Sciences CHINA gongjialuo@ucass.edu.cn

Abstract : European Green deal, a major development strategy launched by the new President of EU new committee, clearly proposes that the EU will become the first "carbon neutral" world continent in 2050, and accelerate the transformation of EU to green and low-carbon. Given the influence of EU's global climate governance, this strategy will have an impact on China EU cooperation on climate change in the medium and long term. Looking forward to the prospects of China EU cooperation on climate change, there are several points worthy of paying attention: the first, both China and the EU are seriously impacted and affected by the new epidemic, but strengthening China EU cooperation on climate change is still the main topic of Sino-EU summit and the key area of Deepening Sino-EU relations; second, European Green Deal will bring new challenges to China EU cooperation on climate change, and China should carefully consider it. Third, the European green new deal will promote the transformation of EU climate governance system from market regulation to legal regulation, leading a new round of regulation development in the field of global climate change; fourth, "the Just Transition Mechanism", set up by the European green deal will accelerate the industrial transformation and decarbonized process in high-carbon areas, and provide new opportunities for fair development in different resource endowment areas. China and the EU have potential for cooperation on climate change under the new green deal.

Keywords: EU-China Partnership on Climate Change; Paris Agreement; global climate governance, European Green Deal, low carbon emissions JEL Classification: N5, N54

1. Introduction

Cooperation in tackling climate change has been one of the most prominent achievements in strengthening the China-EU relation, as highlighted by Mr. Wang Yi, the State Councilor and the Foreign Minister of China, in the press conference held at the European Policy Center (EPC), referring climate change as one of the most threatening issue in the world at the moment, but also as a great opportunity for further China-EU cooperation (Xinhua, 2019). The EU have a shared understanding with China on the issue of global climate change. In the remarks made by Mr. Nicolas Chapuis, the Ambassador of the Delegation of the European Union to China, in an interview on 7 January 2020, described the year of 2020 as a pivotal year in EU-China cooperation, because it is the time when the two parties could put concerted efforts into tackling climate change. China and the EU were expected to hold Leaders' Summits at the end of March and mid-September this year respectively (Zhou, 2020). The global outbreak of the COVID-19 pandemic in January 2020 has severely disturbed people's living and unraveled tremendously the world's economy and society order, with China and the European countries being epicenters of this crisis. Hence, the top priority for both sides has been to actively prevent the spreading of the virus and speed up the R&D of the vaccine against COVID-19. In response, China and the EU (hereinafter referred to as 'the two sides') have reappraised their priorities and adjusted their consultation agenda in a timely manner. For example, the China-EU Leaders' Summit, which was originally scheduled to be held at the end of March 2020, was postponed, which is believed to leave an negative impact on the China-EU climate change cooperation only in the short run, while the long-term pattern of their cooperation on climate change, which is believed to be stable and consistent, it will neither be interrupted, nor thwarted by this pandemic. Since the China-EU partnership on climate change was established in 2005, the two sides have carried out a series of fruitful cooperation initiatives in tackling climate change and both sides have been vital partners in the global governance of climate change. The joint efforts made by the two sides to fight against this recent public health crisis will build up mutual trust and help relieve other global crises in a more positive manner. As soon as the regular epidemic prevention and control measures are getting normal in China, the advancement of the China-EU cooperation agenda on climate change will be restored, to be again the heart concern in the development of China-EU relations. The latest growth strategy proposed by the new European Commission i.e. the European Green Deal brings up both opportunities and challenges to the future cooperation between China and the EU on climate change.

2. Combating the climate change: China and the EU as two major international actors

The negative effects inflicted by human activities on global climate do not simply induce the slowing down of the economic growth, but they also endanger the living conditions of humankind. This is the source from which the driving forces stem for all the countries to strengthen cooperation to mitigate climate change. It is imperative to realize the limitations of the approach that is purely relying on theories to deal with climate change, ignoring its impact on politics, national security, economics and environment, which must also be addressed.

China and the EU have long been considered the two major partners in the governance of climate change, although China and EU are different in terms of their respective levels of economic growth and have different political systems. Both have been active players and action bodies in combating the global climate change. China and the European Community are founding members of the Intergovernmental Panel on Climate Change (hereinafter referred to as 'IPCC'). Subject to the laws of the United Nations Framework Convention on Climate Change, which came to effect on 21 March 1994, signed by more than 150 countries and regions around the world, China and the EU have successfully kept the atmospheric temperature at an appropriate level by the adoption of various mitigation and adaptation measures. The EU has consistently shown its leadership and taken actions to deal with climate change during a series of enlargements between 1995 and 2013. Most recently, the EU expanded to 28 member states in 2013, with the accession of Croatia. However, the historical moment of the EU member states back to 27, was considered evidence of an EU disintegration trend. Still, the EU's dominating position and its solid leadership in the governance of climate change will not be fundamentally undermined by this rupture.

On the other hand, as the largest developing country in the world, China has a high degree of concern over climate change and has been playing an important role in IPCC and other multilateral organizations. As pointed out in the IPCC AR5 Synthesis Report: Climate Change 2014, which was completed by 259 researchers worldwide, including 18 Chinese scholars, "...the globally averaged combined land and ocean surface temperature data as calculated by a linear trend show a warming of 0.85°C over the period 1880 to 2012", "Many of the observed changes since the 1950s are unprecedented over decades to millennia" etc. and the scientific evidence of global warming is strong and concrete. The president of the IPCC AR5 report working group, Dr. Thomas F. Stocker, spoke highly of China's contribution to this assessment: "Since the founding of IPCC in 1988, progress has been made in capacity building and the propagation of knowledge with the engagement of developing countries and transition economies. In the past 15 years, Chinese experts have indeed made great contributions" (Qin, 2013). China has been a member of IPCC for over 30 years. On 9 November 2018, at the commemorative event marking the 30th Anniversary of China's membership in the IPCC, Mr. Xie Zhenhua, China's Special Representative for Climate Change, acclaimed the crucial role of IPCC in terms of upholding multilateralism. In addressing the challenges of global climate change, China has been actively contributing China's wisdom and plan to implement the United Nations Framework Convention on Climate Change constructively, strove to control the global

3. China and the EU anchoring pledges of the Kyoto Protocol, encouraging the post-Kyoto agenda

temperature at the level of 1.5°C by speeding up the process of emission cut, improved its industrial structure as

well as innovating clean energy techniques.

China and the EU are key members that agreed on the Kyoto Protocol, and both sides are also the main parties to implement this treaty. The withdrawal of the US and Canada gave rise to tremendous uncertainty to the future of Kyoto Protocol. The EU has actively communicated and consulted with other countries in order to abate doubts and concerns over "sign or not" and has mobilized them to join. With the joint efforts of the EU and China, the Kyoto Protocol entered in force on the 16th of February 2005 and effectively thwarted the unilateralism pursued by the United States. The Kyoto Protocol marks the first move in human history to legalize the emissions reduction targets and the global warming controlling standards.

EU has shown positive signs and has taken concrete actions on climate change, acting both as a keen advocate, as well as the rule-maker in the policy area of mitigating global climate change (Zhang, 2015). In order to fulfill the commitments laid out in the Kyoto Protocol, in 2005, the EU has established the EU Emissions Trading System (EU ETS). In 2007, the European Commission proposed an integrated energy and climate change package to achieve the '20-20-20' key targets by 2020. The 2030 Climate and Energy Framework was presented by the European Commission in 2014 and, following that, all the member states have formulated their own national emissions reduction action plans, specifically targeting the cutting of greenhouse gas emissions, developing clean energy and improving energy efficiency. According to the 2019 EU statistics, the 28 member states have cut emissions by 22% in 2017, the equivalent of 1.24 billion tones of CO2, suggesting the EU has accomplished its 2020 reduction task ahead of time (European Commission, 2020).

The Chinese government has made early preparation to meet the carbon emissions reduction targets. According to the Kyoto Protocol, developing countries should start the emissions reduction actions from 2012 (CCCIN, 2003), and China took actions at least 5 years earlier. Since 2006, the Chinese government has considered combating climate change as a major economic and social issue and, as such, it has been embodied it in the medium and long-term plan of economic growth and social development. In 2006 China proposed as obligatory targets that the level of energy consumption per unit of GDP shall be shrank by approx. 20% by 2010, as compared with the level in 2005. China is also pioneering in designing as well as enforcing state plans on tackling the climate change. In 2007, China became the first developing country to formulate and implement a national program to address climate change. In 2009, China put forward the goal of reducing the per-unit of GDP greenhouse gas emissions level by 40%-45% in 2020, as compared to that of 2005. China earnestly performs its duties stipulated by the UNFCCC and Kyoto Protocol, the China Initial National Communications on Climate Change, released in 2004, and the National Plan for Coping with Climate Change and China's Special Sci-Tech Campaign to Cope with Climate Change, issued in June 2007 (Information Office of the State Council of China, 2011).

China's responses to climate change have been synchronized at multiple levels including mechanisms, policies and actions. In details, those emissions reduction tasks are achieved by various measures, including industrial structure re-adjustment, increasing of the renewable energy proportion in the overall energy consumption, setting up the first Chinese carbon trading market, energy saving and energy efficiency improvement. To better serve the implementation of the climate policy, moderation and adjustment in the functioning mechanisms of relevant Chinese institutions and departments have been put in place. In 2007, the National Leading Group to Address Climate Change was set up, and in 2008, the NDRC set up a department to coordinate and supervise the relevant work. Following that, the relevant departments under the State Council have founded supportive organs such as the National Center for Climate Strategy and International Cooperation of China and the Research Center for Climate Change, while some universities and scientific institutions have opened their own climate change research organizations (Information Office of the State Council of China, 2011).

4. The entry into force of the Paris Agreement signifying that China and EU are leading the global governance of climate change

China and the EU are the main promoters of the Paris Agreement and the Paris Climate Change Conference has created a number world records in global governance. The importance of the Paris Agreement is intensively reflected in the content of the negotiations including all the major issues in the global governance of climate change, e.g. the establishment of the fundamental principles on mitigation, adaptation, losses and damages, funding, technology transfers, transparency and capacity building etc. (Dong, 2017).

The Paris Agreement succeeded by adopting a fresh bottom-up governance structure for emissions targets, placing the so-called nationally-determined contributions (NDCs) at its core (Teng, 2018). In terms of governance, the agreement has also constructed a comprehensive system with three functions, including: encouraging participation by making independent commitments, building mutual trust and encouraging mutual learning by a high level of transparency, and finally, strengthening cooperation by carrying out periodic checks and revisions. As the largest developing economy, China has committed itself to accomplishing high level reductions of the greenhouse gas emissions, in a responsible way. In June 2015, China announced its nationally-determined emission cut targets by 2030 as it follows: to achieve the peaking of carbon dioxide emissions around

2030 and making best efforts to peak early; to lower carbon dioxide emissions per unit of GDP by 60% to 65% from the 2005 level; to increase the share of non-fossil fuels in the primary energy consumption to around 20%; and to increase the forest stock volume by around 4.5 billion cubic meters as compared to the 2005 level (Xinhua News Agency, 2016). China has been partaking its major-nation responsibilities and is indeed a responsible country urging developed countries to take greater responsibilities in emissions reductions, with real actions. China has also been coordinating the progress of North-South relations in studies of the global climate, growing greater awareness of global climate change. It bears no doubt that both developed and developing countries have obligations and responsibilities to respond to this global challenge. The targets set up by China can be regarded as a new paradigm by which China can develop a new norm of North-South cooperation in tackling climate change and achieving global greenhouse gas emissions reduction tasks. These targets were both the key enabler accelerating the negotiation process of the 2015 Paris Agreement, and the main driving force to build stronger mutual trust between parties (Cao, 2015).

China has always persisted to negotiate the 2015 agreement under the UN Framework Convention on Climate Change, and upheld the provisions of the convention as basic principles. The outcomes of negotiation shall be in accordance with the principle of common but differentiated responsibilities as well as the principle of respective capabilities, while considering different level of historical responsibilities, national circumstances, development stages and the capabilities of both developed and developing countries. It should also reflect elements including the mitigation, adaptation, finance, technology development and transfer, capacity building, transparency of action and support, in a comprehensive and balanced way. The negotiation process should be open, transparent, inclusive, party-driven and consensus-based (Xinhua News Agency, 2016). The above principles advanced by China not only reflect its respect and adherence to multilateralism as it considers appeals from both developed and developing countries in a balanced way, but it also ensures equity and fairness in the emission-cut targets of the developing countries.

EU's stance in the negotiation, as stressed by the EU Commissioner for Climate Action and Energy, Miguel Arias Cañete, should contain a dynamic five-yearly review mechanism as EU stands to be the rule-maker, rather than the rule-taker to the Paris agreement. Without falling behind previous levels of commitment, or resubmitting the existing ones, in order to stay below 2°C global greerhouse gas emissions need to peak by 2020 at the latest, they will be reduced by at least 50% by 2050, as compared to 1990 and be near zero, or below, by 2100. EU has always been eager to design an ambitious, durable and legally-binding international agreement on climate change. Many scholars consider EU's position as a key mediator and propeller of negotiations of the Paris Agreement, since the EU has exhibited its role just as crucial as a ratchet during the process and has pushed the global governance of climate change to a new era (Fu, 2016).

4.1. A review of China-EU cooperation on climate change between 2005 and 2020

The consistent deepening of China-EU relations has laid the foundation for the China-EU climate change cooperation partnership. So far, China-EU relations have had multiple remarkable milestones including the 21st Century-Oriented Long-Term and Stable Constructive Partnership Joint Statement (1998), and the first EU policy document issued by the Chinese government in 2003, suggest a strategic upgrade of China-EU relations. The two sides agreed to build a comprehensive strategic partnership. In 2013, the EU-China 2020 Strategic Agenda for Cooperation was released, a partnership featuring four key elements i.e. peace & security, prosperity, sustainable development and people-to-people exchanges was planned. During the same year, the second EU policy document was issued by the Chinese government. In 2018, the third EU policy document was published and more than 70 mechanisms for consultation and dialogue have been established so far, covering various fields such as politics, economy, trade, humanities, science and technology, energy and environment. On the other hand, China-EU cooperation on climate change continues to forge ahead, becoming one of the highlights of China-EU relations. In the period of 2005 to 2020, the cooperation on climate change had various features.

4.2. The establishment of the China-EU partnership on climate change

The start of the cooperation between China and EU in the area of climate change falls behind their cooperation in other fields, such as politics, trade, economy and technology, even if 20 years have passed since the establishment of the diplomatic relations between the two. The year 2005, when the EU and China Partnership on Climate Change was agreed upon (European Commission, 2005), marked the beginning of China-EU partnership (Ministry of Foreign Affairs of China, 2020). This is a common achievement of both sides, as the partnership is not only reality-based, it is also a reflection of both parties' fundamental interests. On the other hand, the EU believes that China, as a developing country, should closely follow the steps of the EU to implement the Kyoto Protocol. In fact, China is the world's largest energy consumer and producer, as well as the biggest consumer in coal, thus China suggests strengthening cooperation on climate change with the EU, expecting the

emissions reduction targets can be reached and the structure of energy production and consumption can be shifted and adjusted.

The partnership aims to give better communication and introduce more dialogues in the area of climate change between China and the EU (European Commission, 2005), it also helps both sides to fully observe their commitments under the UN Framework Convention on Climate Change and the Kyoto Protocol. As a result, two targets for cooperation have been put forward. The first one is about both sides having to develop and demonstrate "zero emissions" coal technology, while the second refers to significantly lowering the cost of key energy technologies and to promoting their deployment and dissemination.

4.3. Establishing a ministerial dialogue mechanism and deepening partnership in climate change

To further improve the China-EU partnership in climate change and create more opportunities for policy dialogues, the China-EU Ministerial Dialogue Mechanism on Climate Change comes in (European Commission, 2020). The Joint Statement on Dialogue and Cooperation on Climate Change between China and the EU was released on 29 April 2010, after the ministerial dialogue between Mr. Xie Zhenhua, the Vice-Chairman of the National Development and Reform Commission (NDRC) of China, and Ms. Connie Hedegaard, the European Commissioner for Climate Action, suggesting the official establishment of China-EU ministerial dialogue mechanism on climate change (European Commission, 2010). The dialogue will facilitate the exchange of ideas on the development and implementation of key issues in the international negotiations on climate change, the better understanding of each party's domestic policies and measures, and on specific cooperation projects of climate change between China and the EU. Moreover, the dialogue mechanism reflects the willingness to further coordinate and strengthen communication regarding climate change between parties. Besides the consensus reached, some differences between partners still persist on specific issue related to climate change. It is believed that such differences can be coordinated and overcome through regular communication and that more agreements may be reached. Furthermore, China and the EU have reaffirmed the principle of common and differentiated responsibilities according to their respective capabilities, and the aim for the full, effective and efficient implementation of the UNFCCC and of the Kyoto Protocol, to reach a positive outcome and meaningful progress at the next climate change conference.

The over ten-years long bilateral cooperation between China and the EU has resulted in a more strategic and vibrant manner of their future cooperation in climate change. The EU-China Joint Statement on Climate Change released in June 2015 in Brussels indicates that further engagement into the global climate change will be made. This statement was made public at a critical moment with several implications:

The statement was soon after the release of the 2014 Sino-US Joint Declaration on Climate Change, expressing the strong intention of both sides to play a leading role in the global governance of climate change. It also prevented the United States from being divisive and aggressive in negotiations of the Paris Agreement, to seek a common position for both parties;

The joint statement has played an important role in the finalization of the Paris Agreement. The national interests differed between both sides and both parties were eager to reach an ambitious and legally-binding agreement at that moment;

In terms of climate finance, both sides have acknowledged the complementary support by other countries; More investment into the low-carbon industry will be channeled through cooperation under this agreement; China fully recognized the critical role of EU played in characterizing the carbon trading system of China. Also the benefits of their collaboration in the research of climate-related topics, including Carbon Capture and Storage (CCS) technology, sustainable cities, as well as other environmental and energy issues.

Since then, China and the EU have solidly implemented the joint declaration. In September 2017, the first ministerial meeting on climate action co-hosted by Canada, China and the European Union was held in Montréal, Canada. The second ministerial meeting was held in Brussels, Belgium, in June 2018. In the same year, the EU-China leaders' statement on climate change and clean energy was presented at the 20th China-EU Summit on 16 July, in Beijing.

The China-EU cooperation on climate change has been the major force to institutionalize and legalize global governance in this field, leading the emissions reduction. The two sides enhance consensus in fulfilling the commitments of the Kyoto Protocol and the Paris Agreement via cooperation. Two major projects have been launched to tackle climate change in line with the ongoing cooperation. For instance, the EU-China joint project on emissions trading (2014-2017) allowed the EU to share its schemes with the seven 'pilot emissions trading locations' in China, specifically experiences in the setting of emission caps, allowances; the creation of market; supervision, reporting, verification and certification systems, supporting the establishment of a carbon trading system at the national-level. The EU has invested 5 million euro in this project. Another project named the

Dialogue on China-EU Carbon Trading Market Cooperation that was launched in 28 June 2018 with a total investment over 10 million euro (more than 70 million RMB) runs over a period of three years. The project will promote China-EU regular dialogues on emissions trading and will support the functioning of China's nationwide carbon trading market. It will also build on the existing cooperation between the two parties.

At the moment, the ongoing Dialogue on China-EU Carbon Trading Market Cooperation (2017-2020) is coming to its end. Since the start of the project, training and seminars have been held in several provinces and cities across China on a regular basis. On the 10th and the 11th of December 2019, the 23rd training session took place in Yunnan Province with a theme on Capacity Building Training for Enterprises in Environment and Power industry.

In 2020, China-EU cooperation on climate change has been disrupted by the outbreak of COVID-19 pandemic which added to the announcement of multiple new policies after the election of the European Commission since the end of 2019. However, the impact of the pandemic is believed to be temporary and the prominence of China-EU cooperation on climate change in China-EU relations will be restored soon after the crisis. What is noteworthy at this stage is the 'Carbon Neutrality' goal proposed by the European Green Deal, which is believed to have an impact on China-EU climate change cooperation in the medium and long term.

Soon after she took office, the new president of the European Commission, Ursula Von der Leyen, has launched a major development strategy named the European Green New Deal, aiming at turning the EU and Europe into the first carbon-neutral continent in the world, no later than 2050. The core of the deal is to transform Europe towards an all-round greening, industrial recycling and carbon neutralization continent so that comprehensive sustainable development could be achieved. To meet the carbon neutrality target, the EU countries must continue to increase their efforts in emission reduction, to expand the scope, and to speed up the general process of the reduction. In the next three decades, the carbon neutrality goal will penetrate and be reflected in all the EU policy areas, demanding advanced technological innovations. The new deal targets on those heavy-emitters i.e. energy industry, manufacturing, and construction; areas such as production & consumption, infrastructure, transportation, food and agricultural industry, taxation and social welfare are also included. The European Green Deal will be the New Policy orientation of the EU's sustainable development, as it will not only facilitate the achievement of the UN Sustainable Development Goals (SDG 2035) in the EU, but it will also help Europe as a whole to succeed in becoming the world's first carbon-neutral continent.

The European Green Deal is a long-term development strategy with achieving carbon neutrality in Europe as its core, which entails major changes in at least eight policy areas:

Speeding up the progress in moderating global climate change and increasing EU's ambitions for 2030 and 2050, in this realm. The target for the EU reductions in greenhouse gas emission is to be adjusted in a responsible way, from 40%, to at least 50% to 55% by 2030 and the target for 2050 will be lifted to 100% (carbon neutral), from at least 80% to 90% if compared with the 1990 levels;

Supplying clean, affordable and secure energy. Improving energy efficiency will be placed as the top priority by the EU, and the power sector will be largely based on renewable sources, complemented by the rapid phasing out of coal and by de-carbonizing gas;

Mobilizing industry for a clean and circular economy to address the twin challenges of the green and the digital transformation. Europe must leverage the potential of the digital transformation, which is a key enabler for reaching the Green Deal objectives;

Engaging in a 'renovation wave' of all buildings and renovating in a resource-efficient way. It is an effective way to boost the construction sector, as well as an opportunity to support SMEs and local jobs;

Accelerating the shift to sustainable and smart mobility. In 2020, the Commission will adopt a strategy for sustainable and smart mobility that will address this challenge and tackle all emission sources;

Adopting the From Farm to Fork strategy to design a fair, healthy and environmentally-friendly food system. To further protect human lives, the EU will transfer the existing production into a greener mode with lower emission, creating a food consumption system that is nutritious, healthy and eco-friendly;

Preserving and restoring ecosystems and biodiversity. The EU is currently not meeting some of its most important environmental objectives for 2020 - such as the Aichi targets under the Convention on Biological Diversity – and, as the EU holds responsibility to protecting biodiversity, the Commission will present by March 2020, a Biodiversity Strategy, to be followed up by specific actions in 2021;

A zero pollution ambition for a toxic-free environment action plan. The EU must stop pollution from the very beginning and to better monitor, report, prevent and remedy air, water, soil, and consumer products pollution. To address these interlinked challenges, in 2021 the Commission will adopt a zero pollution action plan for air, water and soil.



Figure 1. The Investment Plan within the European Green Deal

Source: European Commission (2019, 11 December). The European Green Deal, COM(2019) 640 final, https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF

The implementation of the greening and de-carbonization policies must be sustained by massive funding and investment by the EU, which will subsequently increase the burden of the EU and its member states, particularly considering the huge cost of maintaining economic growth at the same time. According to the estimates, to meet the goals in the 2030 Climate & Energy Framework proposed in 2014, an additional 260 billion euro, equivalent to 1.5% of the EU's 2018 overall GDP, have to be invested every year. Therefore, the motive for the European Commission to launch such a deal at this special moment is worthy of attention and three significant aspects may be considered.

The EU has always been pursuing a model of development coordinating the society, economy and the environment, which is regarded as 'the European model', indicating a non-distortionary and non-sacrificing way of development, that is, to bolster economic growth and to support the fair and equitable development of the European society without harming the environment. The European Environment Agency (EEA) believes a green economy enhances the resource efficiency by introducing low-carbon policies and encouraging green innovations, complemented with a focus on the ecosystems' resilience and on the people's well-being, in an inclusive manner. As cornerstones of the European values and principles, Green GDP, together with a low-carbon and environmental-friendly society, have been thoroughly and comprehensively reflected in the European Green Deal.

According to the European Green Deal, the EU will engage extra efforts in the emissions reduction field, to meet the goals laid out in the Paris Agreement and, more significantly, to consolidate its leadership in the global governance of climate change. After the withdrawal of the United States from the Kyoto Protocol, the EU has had a louder voice on issues related to climate change. The EU has been the prime mover of the 2015 Paris Agreement, which is the milestone of the global governance of climate change. The emissions reduction target listed in the EU's 2030 Climate & Energy Framework, that is, the EU's greenhouse gas emission should be at most 60% compared with 1990 level, is not consistent with the targets set by the Paris Agreement and the EU may fail to fulfill its Paris commitment (Yang, 2020). Thus, the European Green Deal empowers the EU to confirm its leading position in the global governance of climate change, particularly in the Paris Agreement, through additional efforts into the adjustment of emission cutting targets made by the green deal.

The European Green Deal will be the general action plan applied by the EU to retain its global influence and to obtain better internal cohesion. On 31 January 2020, the UK officially left the EU - "Brexit" - and three short-term effects have been induced. Firstly, Brexit harmed the overall power of the EU as well as its global influence, it has also resulted in power imbalances within the EU and, eventually, it may exacerbate the disintegration of the Union. To support the EU as global leader, the Commission was eager to design a long-term strategy which

can be shared between all member states so that more consensus and mutual trust would be built, its internal cohesion could thus be improved, and the principle of solidarity could be better upheld.

5. The implementation of the European Green Deal in response to the potential challenges of climate change

The European Green Deal imposes changes in areas of food production, industry, transportation, construction and energy consumption, and the EU will undergo institutional changes and policy reforms in regulation, investment and specifically in those addressed to the high-emission industries. The specific measures include:

The European Climate Law, meant to help legally monitor and control the progress of pursuing carbon neutrality in each member state;

A Just Transition Mechanism has been established to make sure the EU leaves no one behind during the process of transforming its high-emission industries. The Multiannual financial framework 2021-2027 lays out a 1.1-trillion euro plan to support Green Deal, to weather the financial and social costs of moving away from fossil fuels;

Undergoing policy reforms and encouraging technological innovation in high-emission activities, including energy, construction, industry and transportation. The production and use of energy across the economic sectors accounts for more than 75% of the EU's total greenhouse gas emissions. Energy efficiency must be further prioritized.

Building sector renovation. Currently, 40% of the total emission is produced by construction. Hence, a 'renovation wave' will be widely promoted around Europe as a higher rate of building renovation and refurbishment will cut spending for families and also reduce energy consumption;

Only 12% of the material resources used in the EU in 2016 came from recycled products and recovered materials. Thus, digitalization and green technological innovations are critical for maintaining the EU's leading position in the world green economy;

The emission of the transportation industry accounts for 25% of the EU's total emissions. The Commission will help provide more affordable, healthier and cleaner alternatives to the current mobility habits, by creating opportunities to undertake digitalization and technological revolution in transportation.

Since the presentation of the European Green Deal, in November 2019, the EU has published several policy documents. In 2020, the European Green Deal Investment Plan and Just Transition Mechanism were released on the 14th of January, the draft of the European Climate Law was made public on the 4th of March and, between the 10th and the 11th of March, the new EU Industrial Strategy together with the EU Circular Economy Action Plan were presented. All these policies and plans are designed to support the EU economy turn carbon-neutral, with a strong digital component, and to generally improve its global competitiveness.

It is for sure that more policies and plans will be introduced later on, to better serve the implementation of the European Green Deal. In the long run, achieving the carbon neutrality goal will greatly accelerate the EU's transition to a low-carbon economy & society. In the short run, it will force major energy-intensive and high-emissions industries to undergo a series of adjustments. To those who rely heavily on fossil fuels - i.e. the Eastern European countries -, these adjustments will raise costs and limit their potential of economic growth. Therefore, only by reaching consensus between the EU and its member states on topics of methods to achieve carbon neutrality, can the Green goals be met. Also, countries have to work together to promote policy innovation and development. For example, Poland and other Eastern European countries with strong fossil fuels reliance, have vehemently opposed the deal claiming that those goals will severely restrict their potential of social and economic growth. Barriers and challenges may persist.

6. China-EU cooperation on climate change facing challenges and opportunities

a) Both China and the EU have been seriously impacted and affected by the new epidemic, but strengthening China EU cooperation on climate change is still the main topic of the summit and the key area for deepening China EU relations

On June 22, 2020, the summit of China EU leaders was held for the first time in the form of online video. At the meeting, both China and Europe indicated that they would actively adopt economic recovery plan to deal with the economic crisis and global climate change, and promised to continue to promote and implement the Paris Agreement, so as to deepen the China EU Climate Partnership and promote the transformation of clean energy. In this regard, all parties have great expectations for the prospects of China EU climate cooperation,

especially some Western non-governmental organizations in the field of climate change. On the day of the video summit, Wendel Trio, chairman of the European Climate Action Network (European climate and energy nongovernmental Union), held on the same day "It is particularly important to strengthen international cooperation and fulfill commitments in the field of climate in 2020. According to the Paris Agreement, this year is the deadline for all countries to commit to achieving new and substantially higher emission reduction targets by 2030. Deepening China EU partnership on climate crisis is an important signal to the world. Now China and the EU must fulfill their commitment to achieve the 1.5 ° C temperature control target of the Paris Agreement by 2030. The next China Europe summit must be held as soon as possible to make concrete and effective commitments by the end of 2020, so as to persuade other big emitters to do the same."(CAN, 2020). The new outbreak delayed the progress of China EU cooperation on climate change to a certain extent, but failed to change the confidence and willingness of China EU leaders in the field of climate change cooperation. On September 14, 2020, the leaders of China, Germany and Europe met to focus on global climate change. Promoting China EU cooperation in the field of climate change will also be one of the important issues to be discussed and implemented during Germany's current EU presidency. German Chancellor Angela Merkel commented on China on several public occasions as "an active participant in world affairs in this century", and said that "the active cooperation between EU and China has significant strategic interests".

b) The new European Green deal will bring new challenges to China EU cooperation on climate change. China must carefully consider and actively respond to it

Under the current situation, the carbon neutral target proposed by the EU in the green new deal not only shows the EU's ambition to implement the Paris Agreement, but also urges China and the EU to re-examine the details and implementation of the Paris Agreement. At present, even if countries implement the implementation rules of the Paris Agreement, it may still not be possible for the parties to enhance their national funding contributions. According to the latest global emission assessment released by climate action tracker, even if all the parties can fulfill their commitments in the Paris Agreement, the world's temperature may still rise by 3.0 °C by the end of the 21st century, which is twice the target of 1.5 °C proposed by the Paris Agreement. There is still a big gap between the objectives of the Paris Agreement and the reality of climate change. Therefore, countries must also improve their goals in terms of national independent contribution.

This means that the green new deal is not only instructive and legally binding for EU Member States, but also has an external spillover effect, which has a profound impact on the outside world, especially poses a new challenge to China EU cooperation on climate change: the EU is adopting its own standards to require China to speed up emission reduction, forcing China to achieve the goal of "carbon neutrality" as soon as possible. In this regard, is China passively accepting the emission reduction standards of the EU and cooperating with the EU to take this opportunity to promote the major adjustment of energy production and consumption structure, or to implement and implement the national independent contribution goals suitable for China's social and economic development according to China's own low-carbon development rhythm? To this end, China has taken the initiative to make a positive response. President Xi Jinping solemnly promised in September 22, 2020 at the seventy-fifth UN General Assembly that China will enhance its national independent contribution and adopt more effective policies and measures. CO2 emissions will strive to reach a peak by 2030, and strive to achieve carbon in 2060. There may be differences about when and how to achieve carbon goals between China and Europe.

c) The European Green deal will promote the transformation of EU climate governance means from market rules to legal basis, and lead a new round of regulation development in the field of global climate change Under the green deal, the EU promulgated and will implement the first EU climate change law. From the perspective of laws and regulations, it provides a model and reference for countries in the world to promote the process of climate change governance. The EU will focus on introducing this regulation, aiming to realize the development strategy advocated by the EU green new deal in law, realize the EU's transformation to a fair and prosperous society, achieve the goal of carbon neutrality, establish a modern, resource-saving and more competitive economy, and constantly improve people's quality of life. Therefore, in order to realize the green and low-carbon transformation and decouple resource utilization from economic growth, the EU must actively respond to the challenge of climate change. European citizens are generally aware that climate warming is threatening human survival, seriously damaging the earth's ecosystem, biodiversity, human health and food. In response to this challenge, the EU has taken the initiative to seek its leadership in global climate governance. The promulgation of the EU climate law will raise the goal of carbon neutrality to the legal level of the EU and its Member States, which will help the EU realize its long-term strategic vision of "creating a clean earth for all mankind - achieving prosperity, modernity, competition, carbon neutral economy".

This practice of the EU is similar to the previous EU carbon emission system mechanism, but its essence is different. In order to fulfill the goals and tasks of the Kyoto Protocol, since 2005, the European Union has established a carbon emission trading system, which effectively regulates and realizes the emission reduction by using market forces through such mechanisms as delimiting emission reduction industries and enterprises, stipulating the total emissions of Member States, and determining and sharing emission reductions by Member States according to their own development situation. Nowadays, the successful experience of EU carbon emission trading system has been extended to all parts of the world. China has established China's carbon emission trading market forces to achieve emission reduction, while the climate change law takes emission reduction as a legal responsibility. Obviously, there are essential differences between the two. The carbon emission trading system does not have a hard constraint. When the emission reduction industries and industries covered by the regulation and the Member States share the emission reduction targets, there is room for flexible adjustment among them. Under this soft constraint mechanism, even if a country or an industry fails to complete the established emission reduction task, there is still room for bargaining.

Once the EU climate change law comes into effect and is put into effect, all kinds of emission reduction tasks and targets stipulated by the law will be binding, and all Member States and different regions, as well as various industries or industries, must be strictly implemented in accordance with the law. Therefore, the EU's climate change law will promote the transformation of EU Climate Governance from market rules to legal rules. China, as a big emission country in the world, during the period of the "14th five year plan", in the construction of ecological civilization and the implementation of the general secretary's theory that "green mountains and green waters are golden mountains and silver mountains", China must also increase emission reduction efforts and accelerate the pace of green and low-carbon transformation. Therefore, the formulation of EU climate change law also provides new ideas for China in the legalization process of Climate Governance. Relying on such legal tools as climate change law, China EU cooperation will have more initiative in implementing the Paris agreement rules, and try to avoid rounds of inefficient dialogues and consultations among actors and participants in global climate Governance in order to seek their best interests.

d) The Just Transition Mechanism set up by the European green deal will accelerate the process of industrial transformation and decarbonization in high-carbon areas, and provide new fair development opportunities for regions with different resource endowment.

The Just Transition Mechanism is a kind of financial subsidy for the decarbonization process of high-carbon areas and high-carbon industries in EU Member States. If this part of funds is only used to subsidize the losses caused by the closure of high-carbon industries, such as unemployment and the reduction of local GDP, it will be difficult for the transition funds to reflect fairness, which will cause further depression and long-term unemployment in the region, and the region (or industry) will lose the future of sustainable development. In this regard, EU experts analyzed: "in addition to addressing the challenges of climate change, the European green deal also means economic modernization and development strategy. In combination with the economic recovery package to deal with the new epidemic, the European green deal provides a unique opportunity to start and accelerate the process of regional industrial transformation. Only in this way can the concept of 'green policy' be promoted, which is beneficial to the development of human beings. As time goes on, in order to deal with climate change, there will be a new technological revolution similar to that in the field of renewable energy. There will be fundamental changes in automobiles, steel and all fossil fuel based industrial clusters or coal regions in central and Eastern Europe. The transformation funds proposed in the EU green deal will mainly promote the industrial or regional transformation and realize new prosperity and development opportunities for the transition areas.

To make good use of this new opportunity of transformation, we should first establish a set of evaluation system, scientifically define the high-carbon areas and high-carbon industries in the EU region, and determine the criteria and scope of applying for transformation funds; secondly, for regions or industries that are eligible for transition funds, a construction plan for industrial transformation or regional sustainable development should be submitted to provide reference for the subsequent introduction of technology and increased investment Thirdly, the success of the operation of the transition funds depends not only on the internal promotion of the EU, but also on the external driving forces. For example, with the help of transformation funds, China and the EU can establish closer cooperation in mutual investment in high-carbon regions or industries in the future. By making full use of the transformation funding mechanism, there is a great space for cooperation between China and Europe and the industries. Perhaps we can refer to the operation mode of the "fair supply mechanism of EU

transition funds" and set up the "fair transition financial mechanism project of China EU cooperation on climate change" to promote the mutually beneficial and equal development of China EU Climate Partnership.

7. Conclusions

From a global perspective, the upcoming UN Climate Change Conference of the Parties (COP26) in Glasgow will bring at least two opportunities to all countries in the world: to provide an opportunity for the reform of international climate negotiations - in any case, reform is imperative; and more importantly, in the process of jointly tackling the new coronavirus, countries have further realized that in solving global problems, especially global climate change, it is necessary to make joint efforts We should work together in the same boat and make joint efforts. Therefore, strengthening climate cooperation between China and the EU will promote the development of global climate governance mechanism towards a more equitable and orderly direction.

References:

- [1] Cao, H. (2015). China and EU in Global Climate Governance: ideas, actions, differences and cooperation, Chinese Journal of European Studies, 2015(5)
- [2] China Climate Change Info-Net/CCCIN (2003, 21 July). Chapter II climate change negotiation process and its focus issues, <u>http://www.ccchina.org.cn/Detail.aspx?newsId=29515&TId=66</u>
- [3] Climate Action Tracker (2019, 10 December). Governments still showing little sign of acting on climate crisis, <u>https://climateactiontracker.org/documents/698/CAT_2019-12-</u>10_BriefingCOP25_WarmingProjectionsGlobalUpdate_Dec2019.pdf
- [4] Climate Action Network (CAN) Europe, Press Releases, "EU and China set to foster cooperation on climate action", http://www.caneurope.org/publications/press-releases/1949-eu-and-china-set-to-foster-cooperation-on-climate-action.
- [5] Climate Action Tracker, "Governments still showing little sign of acting on climate crisis", https://climateactiontracker.org/publications/governments-still-not-acting-on-climate-crisis/.
- [6] Dong, L. (2017). EU's leadership in the Paris climate change process: limitations and uncertainties, Chinese Journal of European Studies, 2017(3)
- [7] Economic and Commercial Counsellor's Office of the Mission of the People's Republic of China to the European Union (2018, 22 September). EU announces negotiation position of Paris climate conference, <u>http://eu.mofcom.gov.cn/article/jmjg/ztdy/201509/20150901119520.shtml</u>
- [8] European Commission (2005, 2 September). EU and China Partnership on Climate Change, MEMO/05/298, <u>https://ec.europa.eu/commission/presscorner/detail/en/MEMO_05_298</u>
- [9] European Commission (2010,29 April). Joint Statement on Dialogue and Cooperation on Climate Change,

https://ec.europa.eu/clima/sites/clima/files/international/cooperation/china/docs/joint_statement_dialog ue_en.pdf

- [10] European Commission (2019, 11 December). The European Green Deal, COM(2019) 640 final, <u>https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-</u>01aa75ed71a1.0002.02/DOC 1&format=PDF
- [11] European Commission (2020). The EU and China have a long-standing cooperation on climate change and have agreed to further step up joint efforts, <u>https://ec.europa.eu/clima/policies/international/cooperation/china_en</u>
- [12] European Commission (2020). Trends in greenhouse gas emissions, <u>https://ec.europa.eu/eurostat/statistics-</u> explained/index.php?title=Greenhouse_gas_emission_statistics_-

emission_inventories#Trends_in_greenhouse_gas_emissions

- [13] Fu, C. (2016), Paris climate change conference: EU's position, action and role, In Huang Ping, Zhou Hong, Jiang Shixue, Blue Book if Europe 2015-2016, Social Sciences Academic Press
- [14] Information Office of the State Council The People's Republic of China (2008). China's Policies and Actions for Addressing Climate Change, <u>http://www.gov.cn/zwgk/2008-</u>10/29/content_1134378.htm?&from=androidqq
- [15] Information Office of the State Council The People's Republic of China (2011).China's Policies and Actions for Addressing Climate Change, <u>http://www.gov.cn/zwgk/2008-</u> 10/29/content_1134378.htm

- [16] Klein, R.J.T. (2020, 2 April). Two opportunities to seize now COP26 is postponed, Stockholm Environment Institute (SEI) Perspectives, <u>https://www.sei.org/perspectives/two-opportunities-to-seize-now-cop26-is-postponed/</u>
- [17] Ministry of Ecological Environment of China (2018). The 30th anniversary of the Intergovernmental Panel on climate change (IPCC) was held in Beijing, <u>http://www.gov.cn/xinwen/2018-11/10/content_5339170.htm</u>
- [18] Ministry of Foreign Affairs of China (2020). EU-China relations, updated in May https://www.fmprc.gov.cn/web/gjhdq_676201/gjhdqzz_681964/1206_679930/sbgx_679934/
- [19] Qin, D. (2013). Qin Dahe: great progress from 1.2% to 4% -- the role of Chinese scientists in the report of IPCC working group I , Weather China, http://www.weather.com.cn/climate/2013/10/qhbhyw/1994684.shtml
- [20] Teng, F. (2018). Opportunities and challenges for China to lead global climate governance in the context of de Globalization, Annual Report On Actions To Address Climate Change (2018): Gathering in Katowice, Social Sciences Academic Press, 2018
- [21] Xinhua News Agency (2016, 30 June). Authorized release: strengthening action against climate change -- China's national independent contribution, <u>http://www.xinhuanet.com//politics/2015-06/30/c_1115774759.htm</u>
- [22] Xinhua News Agency (2019). Foreign Minister Wang Yi delivered a speech at the media exchange conference of European think tanks, <u>http://www.xinhuanet.com/2019-12/17/c_1125357258.htm</u>
- [23] Yang, P. (2020, 40 April). Can the EU achieve its 2050 climate neutral target? https://mp.weixin.qq.com/s/4kK9XY60t6eLe56217u3VQ
- [24] Zhang, M. (2015). Analysis on "EU 2030 climate and energy policy framework", Journal of Graduate School of Chinese Academy of Social Sciences, 2015
- [25] Zhou, W. (2020, 18 Jan). Zhou Wenyuan: "EU ambassador to China Nicolas Chapuis: China EU comprehensive investment agreement expected to be reached in 2020", China Minutes, <u>http://www.oushinet.com/ouzhong/ouzhongnews/20200118/339288.html</u>

The Challenges of the Russia's Energy Policy during the Covid-19 Crisis

PETRE PRISECARU, PhD

European Studies Center, Institute for World Economy, Romanian Academy 13 September Street, No. 13, Bucharest, ROMANIA petreprisecaru@gmail.com

ANDREEA-EMANUELA DRĂGOI, PhD European Studies Center, Institute for World Economy, Romanian Academy 13 September Street, No. 13, Bucharest, ROMANIA andreeadragoi@iem.ro, http://www.iem.ro

Abstract: Currently, it is a well-known fact that Russia represents a major player on the global energy market with massive fossil fuel reserves and also with a high dependence on energy exports. While in the recent years Russia was the world's largest exporter of energy resources, ranking first in the global hierarchy of gas exports, second in oil exports and third in coal exports, the economic growth remained mainly driven by its "energy power". That proved to be a major vulnerability of Russian economy, especially since its energy sector is still characterized by high corporate concentration and a lack of market mechanisms amid very low domestic prices, a high energy intensity and low efficiency with no real interest from the major stakeholders for the decarbonisations process. As the main development directions outlined in the Russian Energy Strategy 2035 have stated, large state-owned companies depend on government subsidies, and this substantial financial support is all the more vital, especially in the context of the COVID-19 crisis. The "2020 energy crisis" – how it is known in the scientific literature – was mainly triggered by the oil price war between Russia and Saudi Arabia (both being major actors within OPEC+) and proved to have an important negative effect for the Russian energy sector development. Taking into consideration that the pandemic induced the decline of global demand for oil and natural gas, this evolution heavily affected the export volume and revenues of Russian companies. Given the expected prolongation of its reciprocal sanction regime with the West, Russia depends on China's energy demand and financial support. Given all these trends, our paper aims to highlight that the COVID-19 crisis is fundamentally relevant to the Russian energy sector, a sector which is an important sector for the Russian Federation. Our methodology is based both on a quantitative analysis and on highlighting the economic effects, constraints, and "weak points" of the Russian energy sector in the modern realities of the "2020 crisis".

Key Word: Russian economy, oil price war, energy exports, pandemic crisis, market reforms, decarbonisations process

JEL Classification: Q35, Q38, Q41-48

1 Introduction

Russia's energy policy undoubtedly represents both the "backbone" of its economic power, and its main lever of influence on the international relations field. While Russia has traditionally asserted itself as a vector of global power through hydrocarbon exports, the pandemic has led to great vulnerabilities for the global energy market, confronted with the demand and supply double shock, both being acutely felt by Russian producers. In addition, the outbreak of the "oil price war" in the first months of the COVID-19 crisis had a negative impact on Russia's budgetary and economic balance, raising questions about the viability of the country's model of economic growth that is highly dependent of energy exports. In the light of the above trends, this article proposes a radiography of Russia's energy policy in 2020 while underlying its implications for the Russian Federation's bilateral relations with other states, especially major oil and gas producers.

2 Russia's energy policy. Challenges in the pandemic era

In recent years, energy sector reform in the Russian Federation was the subject of many national and international studies arguing that even before the pandemic outbreak there were major reasons of concern

relating to Russian economy high dependence on fossil fuels (Mitrova, Melnikov, 2019; Kulachinskaya et al., 2020). Although Russia ranks fourth at global level regarding primary energy consumption and carbon dioxide emissions in the world, it has not yet a viable strategy for the decarbonisations of the energy sector. At the same time, Russian energy intensity (calculated as units of energy per unit of GDP) remains high due to relatively low energy prices, the development and share of solar and wind energy have been negligible (under 1%), the attitude concerning the problems of global climate change remaining among Russian stakeholders one of almost total indifference. The lagging state of reforms and the shock of the pandemic have brought serious challenges and have revealed the need to adopt a new strategy for the future development of energy sector, which will be under a huge pressure due to influence of the climate change agenda, increased global competition, technological isolation and gap, high financial constraints.

Russia is an important player in the global energy system because it provides 10% of global primary energy production, 5% of global primary energy consumption, and 16% of international energy trade. In recent years Russia was the world's largest exporter of energy resources, occupying the first place in gas exports, the second position in oil exports and the third in coal exports, according to British Petroleum and the International Energy Agency statistics. Russia also occupied the fourth place, after China, US and India, in the world hierarchy of primary energy consumption, in production of electricity and in carbon dioxide emissions due to the intensive use of fossil fuels. Russia's energy strategy and its policy concerning the energy transition and reforms are important not only for the country itself but also for the rest of the world. Considering the multiple challenges and the requirement to modernize and create a sustainable economy, the energy transition is urgently needed as the optimal means to reduce the country's reliance on hydrocarbon export revenues. In 2019 hydrocarbons had a contribution of 25% to GDP and 39% to the country's federal budget revenues, 65% to foreign earnings from exports, and almost a quarter of overall investments in the national economy.

Although many market reforms based on legislative and institutional measures have been enforced in the energy sector, this sector is still characterized by high corporate concentration and a lack of market mechanisms. Decentralization is a concept that encounters strong resistance from both the central authorities and major business stakeholders and is quite frequently regarded as a threat to the stability and reliability of the national energy system, and to the national security. After a centralized and planned economy under the Soviet Union and after three decades of market economy, low prices for energy in Russia are still persisting and cheap energy does not create incentives for energy efficiency improvements or for reduction of the energy consumption and for decarbonisation process. Low energy prices are probably seen as a means of social protection, their increase arousing fierce opposition from consumers (Stambler, 2020).

Russia produced 560.2 million tons of oil in 2019, 0.8% up from the previous year, as the preliminary data from the Russian Energy Ministry's unit show, the equivalent to 11.25 million barrels a day, making Russia the third largest oil producer worldwide in 2019. In the same year, the output of gasoline refining in Russia was 40.2 million metric tons, increasing by 1.9% <u>compared to 2018</u>. Furthermore, Russian refineries produced 78.4 million metric tons of Diesel fuel and 45.7 million metric tonnes of fuel oil in 2019. In the same year, Russia produced 679 billion cubic meters of natural gas, increasing the volume by approximately 10 billion cubic meters compared to the previous year. LNG production reached about 27 million tons. Thus, it ranked as the second leading producer of natural gas worldwide in 2019. In 2019 Russia's coal production was estimated to exceed 440 million tonnes which would be the highest figure for the country in the last 11 years, being the sixth largest producer of coal in the world, while exports amounted to around half of production, China with 33 million tonnes and South Korea with 28 million tonnes were the most important clients.

Russia's economy and budgetary incomes heavily depend on energy exports, which were severely affected during 2020 both by the outbreak of the COVID-19 pandemic and by the "oil price war". Theevolution of Russia's oil exports in 2005-2019 period is illustrated in the Graph 1.

According to some recent analyses (e.g. Mitrova, Yermakov, 2019), the energy policy of the Russian Federation represents the main lever through which the country maintains a relevant position within international trade partnerships, representing, together with its military force, one of the main bargaining advantages in the global hierarchy of power. Currently, the directions for the development of Russian energy policy are outlined in the Energy Strategy 2035, which aims to determine the path that Russia has to take for supporting the national energy sector: strengthening the state control over large companies or liberalizing markets. In the opinion of the aforementioned authors, international sanctions have had the effect of increasing state control in the energy sector, this fact being encouraged by the "tectonic changes" that have taken place on the international oil and gas markets. Currently, the share of independent producers in Russia's output, which is the driving force of

competitiveness and innovation, has steadily decreased, and, according to official data, in 2018 it barely represented 9% of the industry.



Graph no.1: The evolution of Russia's oil exports between 2005-2019 (millions tons)

Source: Authors based on Rosstat figures. For 2019 data are estimated.

Russia's oil and gas industry remains a force in the national economy, but the large state-owned companies depend on government subsidies, and its substantial financial support, especially in the context of the COVID-19 crisis, could collide with fiscal-budgetary targets undertaken by the authorities. The main subsidies granted to the Russian energy sector are: a) temporary export tax benefits for oil produced from new deposits in Eastern Siberia (approximately \$ 4 billion); b) mining tax allowances for new deposits in Eastern Siberia (about \$ 2 billion); c) property tax exemption for major oil and gas pipelines (approximately \$ 1.9 billion); d) fiscal allowances for the mining tax for new oil fields on the territory of Okrug Autonomous Nenets and in the Yamal Peninsula of the Yamal-Nenets Autonomous District (approximately \$ 1.5 billion); e) subsidized tariff for oil transportation through the Eastern Siberia-Pacific Ocean pipeline system (approximately \$ 1.1 billion); f) reduction of the coefficient at the rate of mining tax for oil from depleted deposits (approximately 1 billion USD); g) temporary exemption from customs duty on gas exported to Turkey through the Blue Stream pipeline (approximately \$ 0.8 billion); h) accounting of exploration and research and development costs for the purpose of calculating income tax (at least \$ 0.6 billion); i) accelerated depreciation rates (at least \$ 0.6 billion); j) state financing of geological exploration for hydrocarbon raw materials (\$ 284 million).

In 2020 Russia's energy policy has faced the impact of the COVID-19 crisis in which caused a severe recession that has affected both the demand and supply of energy products and implicitly their prices. The collapse of oil prices in March and April 2020 amid the impact of the global pandemic and of the strong deceleration of oil demand and supply generated a strong shock for the global oil industry, but also led to declining prices for other energy resources. Compared to other oil-producing countries, Russia was better prepared to deal with this shock caused by the sharp decline in oil prices, because since 2014, Russia's economy has developed a certain resistance to possible oil shocks due to conservative monetary and fiscal policies. Large budgets and foreign exchange reserves, the floating exchange rate and the regressive tax on prices, together with the light fiscal burden, have contributed to the resilience of Russian economy, as the price of oil has fallen. However, the current situation raises the question: how serious will be the challenge posed by the Coronavirus pandemic to Russia's long-term economic model, which remains heavily dependent on oil and gas exports? The first phase of the global pandemic and blockage measures have frozen much of the world's economic activity, implicitly affecting Russia as well. In turn, energy demand fell sharply and oil and gas prices declined to unprecedented levels since the 1997-1999 Asian crisis and the Great Recession of 2008-2009, respectively (see Graph 2).





Source: Authors, based on World Oil data.

The scale of market disturbance and price collapse was confirmedly astonishing in the magnitude and speed of the events. Subsequently, a significant part of the global economy began to reopen in areas such as China, the United States, the European Union and Russia, but the key question for Russian decision-makers remains the dilemma posed by the new crisis, whether this combined shock of demand and supply should lead to a rethinking of the economic development strategy and to a significant reduction in Russia's revenues from energy exports, reconsiderations needed and imposed by the prospect of fundamental changes in global long-term energy markets. In 2020, the world oil industry faced the deepest crisis ever, due to an unprecedented 30% drop in demand between April 2019 and April 2020. This decline has led to a dramatic oversupply of stored oil, which explains why West Texas Intermediate (WTI) crude oil futures prices in the United States traded below \$ 0 per barrel on April 20th, while spot prices for Brent decreased by 87% from the end of 2019 to mid-April 2020.

3 Oil price war between Russia and Saudi Arabia

Since late 2016 and early 2017 the important role played by OPEC in the oil market in regulating export supply has been completed or rather replaced by OPEC+, which is an alliance/group consisting of 13 OPEC and 10 non-OPEC members, which together control over 50% of the world's crude oil supply and hold about 90% of certain oil reserves. The price fluctuations in 2019 were also caused by the uncertain situation of the market supply of some large producers, within the OPEC + alliance, which left its mark on the price dynamics.

Since the beginning of February 2020, the plans of the OPEC+ members to reach a rapid agreement to cut production/supply, imposed by the downward trend in prices, seemed to be in jeopardy, as the Coronavirus pandemic had already begun to affect crude oil and natural gas markets. Under these circumstances, the OPEC Joint Technical Committee (JTC), meeting in early February 2020, recommended a reduction of OPEC + production by another 600,000 barrels/day in response to the strong negative impact of the pandemic, but Russia did not agree with the proposal and called for more time to analyse the global supply situation. Practically, from the very beginning, there was a certain discord between Russia and Saudi Arabia regarding the amount of additional supply/production cuts. Subsequently, in the second half of February and the beginning of March, when the effects of the Coronavirus pandemic became more and more obvious, crude oil prices were already following a strong downward trend. As a result, OPEC proposed substantial reductions in production in order to prevent a further decline in prices, but Russia did not agree to sign the new agreement. Subsequently, on March 5 2020, OPEC representatives met in Vienna and announced a proposal for further reduction of supply of the OPEC + by 1.5 million barrels/day from OPEC and 0.5 million barrels/day from the non-OPEC coalition, respectively, but Russia did not sign the agreement. As a consequence the next day, on March 6, oil prices collapsed.

Although Russian President Vladimir Putin had previously stated that the Russian authorities were more or less satisfied with the level of oil prices, noting that the Russian budget can maintain its resilience even with lower oil prices, still it was hard to imagine why he did not agree with OPEC's proposal. Some analysts linked this behaviour to Putin's desire to stop shale oil production in the United States, a serious competitor for Russian oil, by causing a dramatic falling of oil prices. The survival of the OPEC + was called into question by Russia's refusal, especially since Russian economy proved to be resilient to larger supply/output cuts, not only because it had a powerful resistance to lower prices than its competitors from OPEC, but also because the oil market has for long time suffered by the so-called "demand trap", meaning that supply reduction could not save prices when global oil demand fell sharply.

Despite those realities, the impact of the oil price war on the Russian economy has been quite harmful. The Russian government initially estimated a budget surplus of 930 billion rubbles (\$ 11.4 billion) in 2020, but after the outbreak of the price war, the budget balance has actually registered a deficit. The rubble rate has declined, falling by more than 30% from early 2020 to March 18. Major stock markets, such as New York, have also been hit by falling oil prices. Because of the devastating effect of the collapse in oil prices on the US shale oil industry, government officials of US Administration, members of the Senate and even President Trump had been heavily involved in mitigating a Saudi Arabia-Russia agreement. Towards the end of March, US President Donald Trump made efforts to convince Russia and Saudi Arabia to reach an agreement for cutting by 10-15 million barrels/day (500-750 million tons) the OPEC + supply. Saudi Arabia has called for an emergency OPEC meeting, but Trump's optimistic announcement has raised many questions because Russia had initially denied its acceptance, while lately Saudi Arabia declared also its scepticism in the matter.

Finally, in April 2020, OPEC + agreed on joint reductions of 10 million barrels/day, calling for Saudi Arabia and Russia to cut production by 8.5 million barrels/day for May and June, after which the reductions would gradually decrease, to 8 million barrels/day and then to 6 million barrels/day. The agreement was not well received by the markets, hence WTI and Brent brands reduced their prices. The OPEC + agreement was considered important, but still insufficient to cope with the sharp decrease in demand of 20-30 million barrels/day, especially as oil inventories were to increase in the months following its closure. The proposed reduction of 10 million barrels/day by OPEC + for May and June had prevent the world from physically testing storage capacity limits and prevent prices from falling into a deep abyss, but had not restored the desired market balance. Some analysts considered that there was still a considerable risk in price evolutions due to the fact that the reductions were not sufficient to prevent the accumulation of massive inventories in April and May (Watkins, Simon, 2020), and crude oil prices could have fallen despite supply cuts.

The high volatility of crude oil prices in March, a feature of the first quarter, but also of the last two decades, worsened in April, on April 13th the price of WTI crude oil on the New York commodity exchange (NYMEX), being 22.41/barrel, decreasing at 18.27/barrel on April 17th, and on Monday, April 20th, collapsing completely and entering a negative margin. This latest development was due to the fact that there was no demand at all, but instead there was a massive supply, including of Saudi crude oil (37 million barrels in oil super tankers), along with very large inventories and a massive overproduction in the US. As a result of these unfavourable developments, the price of oil fell further by 55.90/barrel in one day, reaching -37.63 /barrel, but also the spot price (for immediate delivery) reached the same level. The historic collapse in oil prices is an indication of the major vulnerabilities from a market dominated by oversupply, hence the reduction of supply by OPEC + by 485 million tons, will not compensate for the dramatic fall in global demand, estimated at 1-1.5 billion tons if the pandemic will persist in the medium and long term.

On the issue of cutting production to avoid oversupply, if Saudi Arabia can easily reduce production in the desert, the same cannot be done by US producers, drilling at great depths or offshore, with much higher costs and high risks if production stops, a situation that also applies to Russian producers from Siberia. If on the short term the situation is quite dramatic, especially for oil producers, the medium and long term impact of these very low prices can also be catastrophic, while the chain of bankruptcies and financial disasters creates a favourable ground for a great insufficiency of oil supply and significant price increases in the future, which would undoubtedly hardly affect oil consumers.

The OPEC + agreement managed to strengthen the market and stimulate the slight advance of the oil price to over \$ 40/ barrel and it was extended for the third and fourth quarters. Basically in July, August, September and October the oil price slightly fluctuated around about \$40/barrel for WTI and \$43/barrel for Brent, levels that have become familiar to the market, but in late October and the beginning of November the strong resurgence of the pandemic in Europe and the US has caused a new decrease of prices. The initial optimism displayed in October by OPEC + members and their hopes for a gradual reduction in production cuts from 2021

have no chance of being confirmed, especially since the Persian Gulf states do not like the perpetuation of prices at these relatively low levels. "We expect to be able to gradually increase production, in accordance with the terms of the agreement, without affecting the market, "said Alexander Novak in an article in the October issue of Energy Policy" (Khrennikova, Tanas, 2020). In conclusion we may state that while the agreement concluded in April helped to support the world oil industry severely affected by the pandemic, it should be noted that these optimistic estimates were not made in the framework of the growing number of global coronavirus cases, leading many industry analysts to question whether OPEC and its allies should not now change the agreement, which provides for an increase in oil supply from January 2021. If the agreement is maintained, the market may have great difficulty in absorbing additional quantities, according to IEA estimates.

Recently, Saudi Crown Prince Mohammed Bin Salman and Russian President Vladimir Putin have negotiated a detailed recovery plan for the global energy market, agreeing that it is important that all oil-producing countries will continue to cooperate and abide by the OPEC + agreement for the benefit of both producers and consumers. After tensions that lasted throughout the first half of 2020, the "oil price war" showed that it was vital for Russia and Saudi Arabia to work closely together to keep the global energy market stable. While some tensions persist within OPEC over the level of supply cuts and related to non-compliance with reduction commitments of some member states, OPEC + members need to consider economic diversification, which has to be implemented, even if its effects will only be felt on the long term.

4 Other important challenges for Russia's energy industry

The pandemic-induced global demand decline in natural gas, deceleration being largely concentrated in the industrial and commercial sectors, resulted in an average annual global decrease of 4%, according to International Energy Agency estimates. In the graph 3 one can see the sharp decline of natural gas demand at the regional level in 2020.

In Europe, the gas market was over-competed, especially by LNG exporters from the US, Qatar and other countries, while the accumulation of large inventories/deposits led to sharp declines in exports from countries such as Russia and Norway. But globally the situation has been much less dramatic than the disruptions suffered by the oil industry. Gazprom, Russian gas production giant company, was hit severely and its natural gas export revenues through pipelines fell by 53% in the first five months of 2020 compared to previous year. Between January and May 2020, the energy giant's revenues fell to \$ 9.7 billion, according to data provided by the Russian Federal Customs Service. The company's gas exports fell by 23% to 73 billion cubic meters. During May, the large Russian company exported 11.9 billion cubic meters of gas worth about \$ 1.12 billion, a 15% month-onmonth decrease. Therefore, 2020 will be a difficult period for Gazprom, as the Russian gas giant will most likely face a decline in its turnover and revenues (Russia Monitor, 2020).

The crisis has not spared the liquefied natural gas sector either. The combined export earnings of Sahalin Energy and Yamal LNG decreased by 16% compared to the previous year in the first five months of 2020. Between January and May 2020, energy products reached \$ 3.4 billion, with a decline in revenue, despite a 9% year-on-year jump in LNG exports. Russian energy companies have sold 27.6 billion cubic meters of liquefied natural gas to their foreign partners.

Between January and May 2020, revenues from crude oil exports decreased by 33% compared to 2019, reaching \$ 33.7 billion. During that period, crude oil exports fell by 3% to 104.4 million tonnes, the decline being sharp after oil prices fell globally. In May 2020, the country's earnings from oil exports fell by 19% compared with the previous year reaching \$ 3.6 billion, while their volume has decreased by 12% to 19.3 million tons. According to the Russian Federal Customs Service, the volume of oil exports from the country decreased by 1%, to 60.14 million tons between January and May. However, export earnings from Russian petroleum products fell by 23% to \$ 22.2 billion during this period. In May, oil exports fell by 16% month-on-month to 12 million tonnes, while revenues fell by 15% to \$ 2.67 billion. At the same time, gasoline traded much better than diesel oil, the collapse of diesel exports being detrimental to all data on petroleum products (Russia Monitor, 2020).



Graph 3: The decline of natural gas demand at the regional level in 2020

Source: Authors based on IEA data

For Russia, the decline in energy markets has led to a significant reduction in export earnings, lower profits for energy companies and reduced funding for the state budget. Even in the most optimistic scenario, revenues from oil exports will account for about half of what they were before the crisis. Revenues from Russian gas exports have also been significantly affected, although their impact on the budget is much smaller. Judging by the results of the first quarter and the decrease in import demand from European states until the end of the year, gas supplies from Russian pipelines to Europe could fall by 25-30 billion cubic meters and contract deliveries will have lower prices. Market oversaturation, warmer weather and lockdown measures implemented in EU by Member States have led to lower gas prices in Western Europe. However, prices in the main gas hubs have shown a sharp upward trend in the last two months (60% of Gazprom's contracts are related to price movements in European hubs). The market pessimism persisting during Spring and early Summer that halved gas prices and cut oil prices by a third compared to 2019 had some roots in the market events from the second quarter, but the situation may not be as dramatic, especially that a severe winter is forecasted in the Northern hemisphere. Confirmation of this pessimistic scenario would mean however a combined decrease of 20-25% in the volumes of Russian oil, gas and coal exports, which is equivalent to a loss of 50% in export earnings. For the budget, this means a sharp decrease in total revenues (around 25%), and the public and private sectors would need a substantial state support in this context.

The spread of Coronavirus on several production platforms has affected their output level but also the fulfilment of some new projects. Declining revenues from the energy sector will inevitably affect other adjacent industries, such as petrochemicals, metallurgy and machine building. In this context, the capacity of the energy sector, as the main revenue generator, to cross-subsidize industries from other fields will decrease, implicitly. Given the many challenges facing the Russian energy sector in the context of the COVID-19 crisis, greater state involvement in the economy seems to be the solution to overcoming this very difficult period for the Russian economy. To protect its strategic energy industry, the Russian government has proposed a number of fiscal and financial measures, including the creation of strategic oil inventories, which would account for 10% of Russia's annual oil production (Shagina, 2020). Following international trends, the majority of Russian energy companies have announced reductions in capital expenditures by 20-30%. In order to optimize their investment expenses, companies would eliminate new capital-intensive projects or projects with secondary priority from abroad. At the same time, high value-added sectors, such as LNG, oil refining and petrochemicals, have gained momentum. Based on the strategy of ensuring the highest possible market share, big companies such as Gazprom, Rosneft, Novatek have not given up to some ambitious projects.

Asymmetric relations between Russia and China will intensify, while the COVID-19 pandemic will intensify Russia's dependence on China's energy demand and financial support. As one of the first countries to emerge from the lockdown, China's economic recovery will be crucial for Russia to offset some of its budget losses and continue to fund its ambitious projects. However, China new post-COVID-19 energy strategy, focusing on local or regional supply chains, which could seriously affect Russia's economic recovery. In the

current relatively low-cost environment, financing Russia's ambitious projects will be a particularly vulnerable issue. Moscow's options for finding advantageous external financing are quite weak, and its dependence on Beijing's financial sources will intensify. Difficulties in attracting capital could delay the final investment decision for Arctic LNG-2, which, before the pandemic, was going to mobilize up to \$ 11 billion on the foreign financial markets. Other projects scheduled for 2021-2023, such as Gazprom's Baltic LNG, are likely to be abandoned on the medium and short term.

Decarbonisation strategies and climate change policies are becoming increasingly important for Russia's main export markets, especially in the EU. Governments and companies have already begun to change their strategies by abandoning the fossil fuel sector. In addition, the Green Deal Pact to be implemented in the EU aims to increase the share of low-carbon resources, especially renewable energies, and achieve neutrality in terms of greenhouse gas emissions by 2050. As a result of these trends, a number of Western commercial banks have announced plans to stop lending for Arctic oil and gas projects. If properly implemented, these decisions will have a serious impact on Russia's budget revenues and exports. On the other hand, the instability of the oil market and the high volatility of prices will strengthen the position of renewable energy, which is attracting increasing attention from international investors (Mitrova, 2020).

As for coal production, the Russian Ministry of Energy left mostly unchanged its forecast released in July on the drop of coal production in Russia to 395 million tons (-43.8 million tons or -10% compared to 2019) in 2020. In January-August 2020 Russian coal production lowered down to 259.15 million tons (-26.14 million tons or -9.2% y-o-y). Under a recent statement of the deputy Minister of Energy Anatoly Yanovsky, coal exports may shrink by 5% in 2020. Over the course of January-August 2020 coal exports dropped to 147.7 million tons (-11.01 million tons or -7.5% y-o-y). The main reasons for the downward trend in the industry are the decline in world prices for steam and metallurgical coal amid negative consequences of Covid-19 pandemic (Coal Hub, 2020).

The renewable energy market will also face most probably significant challenges in the near future. Although there is a global trend for cutting the carbon footprint in the energy sector and introducing mechanisms to stimulate this process, such as carbon taxes or emissions trading systems, Russian authorities consider these as a threat to hydrocarbon export revenues, and to Russian economic security and thus the climate agenda and the drive for decarbonisation are not yet essential factors in the energy strategy of the Russian Federation (Mitrova, Melnikov, 2019). It is perhaps edifying that The Paris Agreement is mentioned only once in the draft version of the 'Russian Energy Strategy Up to 2035', while this key document is setting the strategic development path of the country's energy policy for the near future. The explanation is related to the climate change scepticism being prevalent among Russian stakeholders, and maybe due to the impact of recent coronavirus crisis, combined with the fact that Russian electricity sector has a lower carbon footprint (in terms of g CO2 per kWh) than many other countries. Around 35% of electricity is generated in carbon-free nuclear power plants and large hydropower plants, while only 48% comes from gas, which largely replaced coal and petroleum products in the fossil-fuelled power plant fuel mix. Due to financial constraints created by the recent crisis and to large needed investments, incentives to set ambitious national decarbonisation targets are very low.

According to the draft Energy Strategy of Russia for the period up to 2035, the renewable energy share in Russia's total primary energy consumption would increase from 3.2 to 4.9% by 2035, including Russia's approved plan to expand its total solar photovoltaics (PV), onshore wind, and geothermal capacity to 5.9 GW by the end of 2024. The growth of renewable energy in Russia is supported by Decree 449, passed in 2013, which created a legal framework for increasing the renewable energy capacity system in the country. Since 2013, annual renewable capacity additions rose from 57 MW in 2015 to 376 MW in 2018, of which 320 MW solar and 56 MW wind. Technology policy is the main driver of Russia's interest in renewables, so Russia is focused first of all on building its own renewables manufacturing capacity and has set a fairly high level of local content required to qualify for the highest tariff rates, an essential component of the long-term feasibility of many Russian renewables projects. The share of Russian-made equipment required to avoid tariff penalties was relatively modest at the beginning of the auction system, but has risen to 65% for wind farms and small hydro and to 70% for solar until 2020, with the long-term target of localization set by the government at 80%. The requirements have encouraged foreign firms to partner with Russian power companies and manufacturers.

5. Conclusions

Currently, Russia's "energy power" has shown its vulnerabilities through two major events: the negative impact of the "oil price" war with Saudi Arabia and the chain effects of the collapse of global demand for natural gas in the context of the shock of global markets triggered by the COVID-19 pandemic crisis.

Hence, the revival of Russia's energy policy in a post-pandemic world could follow the traditional trajectory or take the form of an accelerated transition to other forms of energy. In the first scenario, low oil prices will stimulate demand for fossil fuels, which will start to rise again rapidly. However, the failure to invest or preserve existing capacity during the crisis will be felt more and more strongly, eventually leading to rising oil and gas prices, which in turn will rekindle interest in alternative energy sources and increase energy efficiency. In the second scenario, the state could make a more decisive choice in favour of green energy, which offers a significant advantage to the sectors that compete with oil and gas.

Energy-exporting countries such Russia could emerge from the crisis with transformed energy systems, strict carbon footprint restrictions on any imported raw materials and a permanently reduced demand for hydrocarbons.

Under current conditions, the Russian oil and gas sector must not only survive, but also consider longterm options for restructuring the entire industry and integrating hydrocarbons into the green development agenda. A key role in this could be played by the decarbonisation trend of oil and gas: a complex, expensive process that requires new technologies and capabilities that Russia does not currently have. In our opinion, for the time being, however, there are no other viable options for ensuring the long-term stability of Russia's oilbased economy.

References

- [1] <u>IEA (2020). Oil refining and retail industry risks losing 50 million jobs worldwide</u>, FXStreet, 3 Aprilie, Retrieved 3 April 2020
- [2] <u>Khrennikova</u>, D., <u>Tanas</u>, O., (2020). *OPEC+ Aims to Stick to Output Deal amid Virus Surge*, Russia Says, Bloomberg News, 14 October
- [3] Kulachinskaya, A., Akhmetova, I.G., Kulkova, V.Y., Ilyashenko, S.B. (2020). The Challenge of the Energy Sector of Russia during the 2020 COVID-19 Pandemic through the Example of the Republic of Tatarstan: Discussion on the Change of Open Innovation in the Energy Sector. J. Open Innov. Technol. Mark. Complex. Pp. 6, 60.
- [4] Mitrova, Tatiana (2020). The Oil Price Crash: Will the Kremlin's Policies Change? RUSSIA MATTERS, 8 July;
- [5] Mitrova, T. and Melnikov, Y. (2019), Energy Transition in Russia, ResearchGate, 28 August, https://www.researchgate.net/publication/335766396_Energy_transition_in_Russia
- [6] Mitrova, T., Yermakov, V. (2020). *Russia's Energy Strategy 2035 Struggling to remain relevant*, <u>https://www.ifri.org/sites/default/files/atoms/files/mitrova_yermakov_russias_energy_strategy_2019</u>.
- [7] Pdf;
- [8] Russia Monitor (2020). *Gazprom's Oil and Natural Gas Exports Fall Sharply*, Warsaw Institute, 7 July, <u>https://warsawinstitute.org/gazproms-oil-natural-gas-exports-fall-sharply/;</u>
- [9] Stambler, M. (2020). Russia Needs a New Strategy for Its Energy Sector, Climate Scorecard, April, https://www.climatescorecard.org/2020/04/russia-needs-a-new-strategy-for-its-energy-sector/
- [10] Shagina, M. (2020). Double Shock: The Impact of Covid-19 and the Oil Price Collapse on Russia's Energy Sector, Eurasia Program, Foreign Policy Research Institute, 4 June, https:// www.fpri.org/article/2020/06/double-shock-the-impact-of-covid-19-and-the-oil-price-collapse -onrussias-energy-sector/
- [11] World Bank (2020). *Russia Economic Report*, 6 July, www.worldbank.org > country > russia > publication
- [12] Oilprice.com (2020). *Market Reports*, February-November.

Economic Policies Applied by Developed and Emerging States

EMILIA CORNELIA STOICA Associated Professor PhD. Nicolae Titulescu University ROMANIA liastoica@gmail.com

MIHAELA SUDACEVSCHI Associated Professor PhD. Nicolae Titulescu University ROMANIA msudacevschi@univnt.ro

Abstract: The objectives of economic policies that public authorities want to implement are economic growth and the improvement of the quality of life of the community members they lead. The success of this approach is ensured by the use of fiscal-budgetary and monetary policy instruments appropriate to both the aims pursued and the correlation with the economic and social conjuncture that characterizes the implementation period. These instruments refer to the tax system - the regulatory, procedural and administrative framework; budget expenditure system, in terms of structure and prioritization; public debt management; the monetary system, referring primarily to the management of inflation, interest rates, lending policy of the national economy sectors, etc. From the multitude of economic policy tools that have been used over time, with better or worse results, public authorities are developing policies that can fit into one of the following categories: expansionist, restrictive, protectionist, opening up to the market free, and so on.

Applying these instruments to the real economy of a country will generate the hoped results if the appropriate conjunctural conditions are met both within and outside the country, which requires a thorough analysis of the macroeconomic and social development level of the concerned country as well as its position towards partners and neighbors, both from the point of view of commercial and / or investment relationships or political and strategic influence. Identifying the factors that influence the performance of fiscal and monetary policy implementation in each country is a key element as it can be used as a lever for future policy making. Any activity involves risks, and for each instrument of financial and monetary policy specific risks can be highlighted, which requires their isolation and proposing appropriate measures to address potential risk situations so that they do not negatively affect the overall result.

Key-words: fiscal-budgetary policy instruments, monetary policy instruments, economic risk.

1 Introduction

The role of the state in the economies of the 21st century is based on two types of macroeconomic theories: liberalism versus interventionism.

- classical theories (such as Adam Smith's theory in the 19th century) and modern liberalism theory, sustain the state's minimal intervention; the state having to fulfill its sovereign functions and to protect the balance between supply and demand on domestic markets. Thus, market mechanisms will enable self-regulated, autonomous and optimal functioning of the economy.

- interventionist theories, like Keynesist and neo-keynesist theories, that suggest the significant state intervention in the economy to stimulate the economic growth and the implementation of a broad social policy.

Nowadays, no government applies a purely liberal or exclusive interventionist policy, but a mix of thees two policies, in different percents of combination, from country to country and from time to time. At the same time, it should be underlined that, in democratic states, public authorities have no longer fully liberty of their decision-making power, as they are signatories of international conventions wich laying down operating rules in different fields, rules to be respected by all the countries and which are real constraints for them. For example, a Member State of the European Union must comply with Community rules, but also those established by the

World Trade Organization (WTO) for external trade or those established by the International Monetary Fund (IMF) for capital transactions. The objectives of economic policy have been formulated in numerous theoretical works, a few of the most relevant being the three theories, formulated by Musgrave (Musgrave, Richard A. and Peggy B., *Public Finance in Theory and Practice*, New York, McGraw-Hill Book Company, 1973): market regulation, social redistribution policy and stabilization of economic fluctuations.

Thus, regarding on the regulations about the markets and the states functionning, public authorities must ensure, in the same time, a real competition on the markets and the suppliance of public services, such as education, health etc., for a proper functioning of the economy.

The income redistribution policy is designed to correct inequalities from the distribution of primary incomes (provided by the labor and the capital) in liberal economies. Because the free market mechanisms do not provide regular functioning of the economy, with the possibility of crises, wich triggers unemployment or inflation, the state through its economic policy, aims to achieve four major goals: economic growth, full employment of labor, price stability and a balanced foreign trade.

Public authorities' interventions can be classified into two categories:

- those aiming at creating the conditions for a better functioning of the economic system by changing its structures. They are part of the so-called structural policy that includes competition policy, research and innovation policy, sustainable development industrial policy, other policies etc.;
- the policy of regulating economic activity that is subject to short-term fluctuations, called conjunctural policy, which can generate macroeconomic stimulation or stabilization.

As the economic policy is assigned a set of coherent decisions taken by public authorities aimed at achieving the goals that they have proposed a time frame short and medium term, by using economic instruments and / or financial.

The four main objectives of short-term economic policy can be represented in Kaldor's so-called Magic Square, proposed in 1971 by British economist Nicholas Kaldor (1908-1986): full employment, price stability, balance of the external balance, economic growth being difficult to achieve simultaneously.

Long-term economic policy aims to achieve sustainable development, combining economic growth with environmental protection, even minimizing social inequality.



According to this Magic Square, two major macroeconomic relationships are identified: Inflation vs. Unemployment, also known as the Phillips curve and the economic growth relationship vs. unemployment. The Phillips curve shows the dilemma of Keynesian economic policies: rising inflation may reduce unemployment, but fighting inflation leads to rising unemployment.

The relationship between economic growth and unemployment is reversed: the higher the economic growth, the lower the unemployment rate and the wider social security. In economic history, state intervention in

social life is a fairly recent event. Thus, in 1883, in Germany (led by Bismarck), compulsory health insurance was created, and in the United Kingdom a model of social security, known as the Lord Beveridge model, was implemented in 1942, operating in accordance with three principles: uniformity, uniqueness and universality. Conjunctural policy aims at short-term intervention on economic imbalances, using appropriate instruments within a given institutional framework. The main instruments of the conjunctural policy are: fiscal-budgetary policy, monetary policy, currency policy etc.

Structural policy seeks to act in the medium or long term on the fundamentals of the economy (labor market functioning, market competition, market regulation ...) to improve the performance of the economy.

These two aspects of economic policy are complementary. The effectiveness of a conjunctural policy can be enhanced by structural measures, eg reducing the VAT rate on medicines, basic foods, etc., improves living conditions and, implicitly, the functioning of the labor market. At the same time, the term economic policy is now expanding, including social policy. Social policy represents all public interventions aimed at improving the social situation of individuals and can be used for economic purposes, such as supporting education programs.

2. Economic Policies Applied by Developed and Emerging States

Section 1 - Economic Policies. Instruments

Before developing and, subsequently, implementing any economic policy, the responsible authorities must analyze conditions and characteristics of the national economy for choosing appropriate instruments to the objectives pursued. In this sense, it can be identified four contextual states:

expansion, short-term economic growth, as measured by annual growth of Gross Domestic Product (GDP):

stagnation, in which situation GDP varies slightly;

recession, in which situation the decline in GDP has been recorded for at least two consecutive quarters. It is considered recession even if the variation in GDP remained positive, but growth rate dropped significantly.

depression means an economy where productive activity and GDP have experienced significant decreases over a long period of time.

The level of development of the world states is very different, and economic policies have to take that into account in order to be effective. Therefore, countries are ranked according to the average gross national income per capita.

Ranking of countries by average GNI per capita in 2018					
Category of countries	GNI per capita				
Low-income countries, the most disadvantaged, low income per capita and unstable growth rates	< 995				
Developing countries with intermediate income from the lower tranche	996 – 3 895				
Developing countries with intermediate income from the upper tranche	3 896 - 12 055				
Developed countries, characterized by a high GDP per capita and low growth, high incomes	> 12 055				

~ . . .

Source: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519

Many developing countries show sustained growth rates, including emerging countries with high growth, integrated in world trade, such as the BRICS (Brazil, Russia, India, China, South Africa) as well as Mexico, Thailand, Turkey etc.

Economic policies are developed using an appropriate model of each country, in terms of level of development, historical traditions and geopolitics. On the other hand, the responsible authorities must take into account the fact that economic growth does not eliminate social inequalities, because in the world there are large inequalities both between countries and within the countries. Thus, 20% of the world's population owns more than 80% of world wealth, and welfare differences do not automatically fall due to economic growth.

Economic Growth Factors

Economic growth depends on the mobilization and efficiency with which the factors of production (labor and capital) are combined, and the different levels of economic growth result from their possible combinations:

- Extensive growth - resulting from the use of a larger number of inputs (capital and labor).

- Intensive growth - results from increased productivity of production factors.

Contribution and efficiency of work-factor depend on its quantity and quality. The amount of available work depends on the number of active population and the duration of work. The active population is defined by the International Labor Office (ILO), that all persons who work or declare that they want to engage in business paid its size depends on demographic variables such as birth rates, age structure, life expectancy at birth etc. The quality of work depends on the skills of those who work and labor productivity.

Capital is defined as a good product in the past and used to make other goods in the future. There are two types of capital, which influence the economic performance of different entities that realize the added value:

- Technical or physical capital - refers to all means of production used to produce goods and services. This includes tangible assets (buildings, equipment, vehicles, etc.) and intangible assets (patents, licenses etc.) and working capital (inventories of raw materials, materials, unfinished production and finished goods etc.).

- Financial capital - refers to the value of a company's equity, which makes it possible to finance part of the technical capital.

The growth rate of GDP results from the quantitative and qualitative increase in the capital factor.

The increase in capital comes from investing in material goods (durable goods) and immaterial (research, training) - aimed at increasing production capacities. The financing of these increases is achieved by mobilizing domestic savings and foreign capital, so-called foreign direct investment (FDI).

The quality of capital is measured by its productivity, i.e. the ratio between value added and fixed capital. The growth rate can be broken down into components:

Growth rate = growth rate of labor + capital growth + technical progress

Technical progress is a residual element, but its lack of activity in a company condemns it to a gradual disappearance.

After the 80s of the 20th century, new growth theories have considered technical progress as a result of the four types of investments:

1. Investment in physical capital - which increases the productivity of other firms through a profesional training effect, including the knowledge of operation and the accumulation of skills to handle the new equipment (Romer, 1986)

2. Investment in research and development to enhance the knowledge and allow cumulative innovation. (Romer, 1987)

3. Investing in human capital, giving priority to education, training, health, which improves the quality of work (Lucas 1988)

4. Infrastructure investments, that improve the efficiency of private investment in physical capital (Barro 1990) These four types of investment are identified as endogenous growth factors that can be used. In addition, these investments create positive externalities that can not be fully supported by the private sector. Therefore, state intervention in favor of these activities is necessary at different levels:

- Create an investment-friendly economic and institutional environment
- Directly investing in public infrastructure
- The introduction of economic and financial incentives to encourage training, research and innovation.

Section 2 - Economic Policies currently implemented by developed and emerging countries

Conjunctural economic policy aims to steer short-term activity to ensure sustained growth without imbalances such as unemployment, inflation, excessive budget deficits, etc. and may, depending on the state of the economy, be procyclical or anti-cyclical.

• Conjunctural policy is pro-cyclical when the state acts in the direction of the evolution trend of the conjuncture to amplify it. For example, measures to stimulate demand and thus economic growth, while the pace of development has slowed (typical recession);

• Conjunctural policy is counter-cyclical when the state intervenes to counteract undesirable conjunctural developments. For example, in a period characterized by an inflationary slump, rising interest rates will discourage non-government credit, decreasing pressures on prices.

Conjunctural economic policy implementation requires complementary policies: income policy, employment policy etc. The conjunctural stabilization of the activity is achieved through two main instruments:

-The National Public Budget (NPB), which includes the state budget, the administrative-territorial units' budgets and the state social insurance budget;

-Monetary policy.

Fiscal-budgetary policy and monetary policy can be combined to maintain a sustained rate of economic growth and low inflation.

2.1. Objectives and instruments of fiscal-budgetary policy

Fiscal and budgetary policy aims to act in the short term on the economic and social situation, characterized by employment, the pace of macroeconomic development, inflation, external balance (see Kaldor's Magic Sqare) through the NPB, taxes and tax duties, budget expenditures and budget balance.

Fiscal-budgetary policy can be used to achieve two major goals:

• Fiscal stimulation through a budget-development policy that aims at strong economic growth and full employment. The tools that can be used for this purpose are the reduction of the tax burden from some direct taxes or increased allocation of public funds for higher budget expenditures; in this case, fiscal policy means are lower taxes and / or higher public spending;

• a restrictive budgetary policy, which aims at slowing down the inflationary process by reducing public spending and increasing tax and tax obligations and taxes.

The interventionist theory of economic recovery is also supported by multiplier factors (fiscal and budgetary), including automatic stabilizers. Thus, the concept of the multiplication effect, pronounced in 1936 by British economist J.M. Keynes (1883-1946) justified fiscal stimulus policies and use of the budget deficit as a tool for resuming economic growth. The principle is that in a competition-based economy the change in one of the components of demand (consumption, investment, public spending) will lead to a greater variation in demand, assuming that the economic propensity of consumers remains unchanged.

In conclusion, the main components of the conjunctural policy are:.

- reference interest rates, those that can be managed by the central bank;

- fiscal taxes and compulsory social contributions system;

- public expenditure, in terms of volume, functional and economic structure.

Guidelines on fiscal policy

Setting tax rates (direct taxes: tax on personal income, corporate tax, indirect taxes on consumption) is not neutral and can cause a decrease in disposable income and consequently domestic demand (if taxes are increased) or conversely, a revival of economic activity (if the tax pressure drops).

A reduction of the income tax or VAT leads to an increase in disposable income and therefore increase household consumption. Operation of enterprises will grow to meet market demand, which means that will increase their turnover, including value added, leading to an increase in GDP and hence to economic growth.

For example, the US in 2017 - at the end of the Obama administration in 2016, the US economy experienced a modest annual GDP growth of around 1%, driven by weak private sector investment and stagnation in domestic consumption, as a result of the moderate decline in disposable income.

The newly elected Trump Administration has initiated and implemented since the following year a short-term economic recovery policy based on the sharp fall in tax pressure:

- The tax reform of households' disposable revenues modifies the 7 tax brackets and reduces the rates, with notably an upper bracket which passes to 37% against 39.6% currently, and modified thresholds. Simplification measures are also included, with the removal of a number of tax loopholes.

- The corporate tax rate decreases from 35% to 21% as of 2018 permanently

- the deduction of loan interest payments is now capped (up to 30% of earnings before interest taxes, depreciation and amortization - EBITDA - until 2021 and then EBIT).

- Other provisions, with temporary application of three to seven years, including to discourage international tax evasion by multinationals.

Although the proposed reform has been met with much suspicion, the multiplier effect felt since the first year of implementation, 2017, with the US economy rising to around 3% annually, with employment approaching by the maximum level, the disposable income has increased, so that the most dynamic factor of economic growth has reverted to domestic consumption.

An example of a restrictive economic policy, including its implications for macroeconomic performance, are the measures put in place by the Romanian public authorities in 2010 with the stated purpose of reducing the

general consolidated budget deficit. As a result of the economic crisis triggered by the subprime crisis, then the banking crisis triggered in the US in 2007 and expanded across the globe, the Romanian economy marked a strong decline (-6.6% of GDP in 2009, after a record level in 2008 of + 7.3%), a fall in domestic demand of -12% and a budget deficit of -7.2% of GDP. In order to overcome the recession, it was considered that a restrictive economic policy could stabilize negative macroeconomic developments by lowering public spending - reducing budget spending by decreasing the salaries of all the public employees by 25% - and increasing tax revenues - increasing the standard VAT rate from 19% to 24%.

Positive results were left waiting: in 2010 GDP continued to fall by -1.6%, the budget deficit remained high (- 6.51% of GDP), although VAT receipts increased, as expected, from 6.8% of GDP to 7.7% of GDP, while income tax fell from 3.7% to 3.5%. At the same time, however, domestic demand contracted further (-1.5% from the previous year) due to the decrease in the disposable income - the real monthly average earnings decreased (- 3.7% compared to the previous year) - number of employees has diminished in both the budgetary sector (-4%) and in the private sector (-9.5%), as a result of the decrease in activity, and public expenditure on social assistance increased (from 12.7% to 13, 4% of GDP) due to loss of work of a large number of employees, mainly from the private sector.

In the following years the trends in the reform year continued, and the resumption of economic growth took just over a year or even two, which shows, as interventionist theory argues, that the application of a restrictive conjuncture policy in an economy in the recession will accentuate the negative phenomena, the appropriate measures for the exit from the crisis being active measures, supporting investments, production, exports etc. which increase demand as the main factor of macroeconomic development.

Public spending guidelines

Expansion budget policy - aims to promote the development of economic activity; an increase in public spending can lead to an increase in consumer demand and business investment, so growth in production will help reduce unemployment, as rising business activity generates the need for additional labor. Also, there are predictable negative effects such as increased inflationary pressures if demand exceeds supply and, in particular, increase the budget deficit (financing its public debt may lead growth).

The restrictive public spending policy makes it possible to reduce the budget deficit, so reducing public debt, but it also has adverse effects, such as a reduction in consumption levels and a level of investment in business.

In conclusion, economic policy represents all the decisions taken by the public authorities to influence the country's economic activity. Depending on the objectives pursued (low inflation, diminishing unemployment, stimulating economic growth, development of foreign trade), the economic policy instruments inherited by the government will be diverse: fiscal-budgetary policy, monetary policy, income policy.

2.2. Monetary Policy

The primary objective of monetary policy is to control money in circulation, which means to provide businesses with a sufficient but not excessive source of money to ensure a balanced economic growth that does not contribute to the inflationary process nor to push for recession.

By increasing or decreasing the reference interest rates, monetary authorities or national central bank (or, in the case of the European Union, the European Central Bank) influence the distribution of loans, and thus the access of individuals and businesses to borrowing, stimulating or, discouraging their investments.(Stefan – Duicu Viorica, Stefan – Duicu Adrian, "*The Influence of Lending Activity Over Consumer's Behaviour*", CKS, Bucharest, 2011)

Monetary policy must serve two major purposes: controlling price fluctuations, and controlling the inflation and economic growth. To achieve these objectives, the central bank may determine the reference interest rates and the refinancing rates.

A decrease in the reference rate of the central bank encouraged commercial banks to reduce interest rates on loans. This reduction in the interest rates applied to credit encourages businesses to borrow for consumption and/or investment, with the risk of escalating inflation due to excess demand.

An increase in the reference rate raises the cost of credit granted by commercial banks, causing businesses to borrow less, their activity stagnates or even declines and there is a risk of economic slowdown.

To control inflation, the central bank may limit creating scriptural currency by banks through loans distributed. For this, the central bank may limit access to refinancing in the money market for these banks by increasing the cost of refinancing (increasing refinancing rates) or by limiting available liquidity (reducing open market operations and increasing reserve requirements). In the absence of central bank cash resources needed to deal with withdrawals, banks are forced to pay less credit and thus create less money.
Monetary policy instruments

A national central banks (also the ECB) has two main instruments to conduct monetary policy:

- refinancing interest rate on the interbank market: by fixing the remuneration for money which lends to commercial banks in the money market, it fixes the cost of refinancing the commercial banks;

- action on money market liquidity by using appropriate mechanisms, such as:

 \checkmark Open market operations - they are conducted at the central bank's initiative and play a role in steering interest rates, managing liquidity conditions in the money market and signaling the monetary policy stance;

 \checkmark reserve requirements. The central bank (or the ECB in the Eurosystem) requires commercial banks to set up reserves in open accounts in the national central banks' registers. The purpose of reserve requirements is to create and/or handle a structural liquidity requirement for commercial banks.

Section 3 – Economic policy coordination in the European Union and worlwide

3.1. Economic Policies in the European Union

Difficult coordination between monetary and fiscal policies

Monetary policy is the responsibility of central banks, including the ECB, all of which being autonomous public institutions and not subordinated to their governmental authorities. But fiscal-budgetary policies remain the responsibility of national governments. This division of roles in Europe leads to a difficulty in coordinating economic policies, the political mix being the sum of fiscal policies and monetary policy. To solve this problem, the European Union has decided to strengthen the coordination between the economic policies of the states. This better coordination requires mandatory measures for states that renounce a part of their autonomy towards the Union.

The measures adopted are the following:

"golden rule": the structural deficit of a state budget can not exceed 0.5% of GDP under financial sanctions;
strengthening the Stability and Growth Pact: in times of crisis, the budget deficit can not exceed 3% of GDP and public debt is 60% of GDP. States that violate this rule will be warned and then penalized with amounts calculated according to an algorithm established by the Treaty;

• Europe 2020 Agenda: this is a set of structural reforms designed to increase the Union's competitiveness;

• Growth Pact: European Union committed \$ 120 billion to stimulate economic growth.

Financing of economic policy by increasing taxation

To reduce budget deficits, responsible authorities can increase taxes and / or reduce public spending. However, it is likely that this policy will not have the expected results due to lower purchasing power of households, as a fall in demand leads to an economic slowdown. Then, tax revenues will be lower than expected and the social spending will be higher. Therefore, the deficit reduction does not hapened (Greece, Spain and Portugal are facing this situation).

Funding economic policies through indebtedness and the disadvantages of this method

The deficit can be financed by borrowing, but there are significant risks in this situation. Since the state is a safe debtor, it can absorb a large part of the available savings at the expense of private enterprises, which present higher risks to investors. In this way, the phenomenon of "eviction", ie the removal from private sector borrowing, in favor of the public sector, appears. This situation affects the development of enterprises and investments of individuals and, in the end, the decline in the growth rate of national GDP appears.

To ensure macroeconomic stability of the EU, founding members of Euro Zone defined a Stability and Growth Pact (SGP), which is a political commitment of all Member States to control their fiscal-budgetary deficits. However, unlike monetary policy, fiscal policy remains the responsibility of national authorities and the SGP requires the Member States to enhance convergence of economic policies.

The PSC contains two types of provision:

- multilateral surveillance as a precautionary measure: Member States submit yearly mediumterm budgetary targets in an updated stability program. A rapid alert system allows the Ecofin Council, which brings together EU economic and finance ministers, to make a recommendation to a state in case of budget slippages.

- excessive deficit procedure: this is triggered as soon as a Member State exceeds the cumulative deficit criterion of central, local and social security administrations (3% of GDP), except in exceptional circumstances. The ECOFIN Council shall make recommendations to the state to end this situation. Otherwise, the Council may impose sanctions, which means that the state concerned will have to pay a fine to the ECB.

The objectives of monetary policy in the Eurozone

The monetary policy of the Eurozone is entrusted to the European Central Bank (ECB). Two main objectives are attributed to it:

- controlling inflation - consumer prices must be below 2% annually in each Member State of Eurozone, defined as a priority (Article 105 of the ECB Statute);

- economic growth and employment: this is a secondary objective, ie the ECB should not undertake growth-enhancing actions if, in addition, they tend to restrict its objective of controlling inflation growth.

As the eurozone has adopted a floating exchange regime for the euro, the ECB doesn't aim to maintain a stable exchange rate.

Structural Policies in Europe

The objectives and instruments of structural policy in Europe are contained in the Lisbon Strategy (March 2000), which serves as a general framework. This document has set out the broad economic policy guidelines for the Member States to make Europe a competitive and dynamic knowledge-based economic space. In addition, every three years, on a recommendation from the Commission, the European Council draws up the Integrated Guidelines (IDL), which consist of the Broad Economic Policy Guidelines (BEPGs) and the Employment Guidelines (EDL), which are a series of intermediate objectives derived from the Lisbon Strategy. Based on these guidelines, each country sets a list of priorities in a National Reform Program.

Under the Lisbon Strategy, the European environmental policy aims, by 2020, to "the three 20": 20% reduction in greenhouse gas emissions, 20% renewable energies and 20% improvement in energy efficiency.

Competition policy aims at encouraging competition in the European space. This allows the development of all intra-zone commercial transactions and the decrease of many prices due to the expansion of national markets. However, there are strict control rules that prohibit agreements, abuses of dominant position and certain protection measures.

The European competition policy, under the joint responsibility of the European Commission and the EU Member States, aims to promote healthy competition in the European space.

3.2. Coordination of economic policies worldwide

The IMF, the WTO and in particular the G20 have established joint decision-making processes to define broad guidelines for the economic policies worldwide.

This coordination seems essential in times of crisis.

Anticompetitive and restrictive practices on free competition

The market economy, universally applied today, operates on the principle of free competition. This makes it possible to produce at the lowest cost and to sell at the best price for the high satisfaction of consumers' wishes. This market economy success is often perceived negatively by the public as it encourages companies to relocate their businesses to take advantage of lower wages in emerging economies. Industry competition with new producers in remote areas reduces the control capacity of national authorities and also requires deregulation to benefit from greater flexibility. Deregulation and, consequently, the absence of controls could lead to widespread oligopolies, which would dictate their own laws for the weakest competitors, which would gradually disapear and, also, the market economy.

Legal Practices

It is not forbidden to make commercial or financial agreements if the agreement is in the interest of consumers. The law does not prohibit the company to gain a leading position on the market, so a company can benefit - for example, commercial advantages - related to its dominant position. Agreements that do not restrict the market are not declared illegal. For example, an agreement will be legal if it will favor technical progress.

3. Conclusions

1. Economic growth is measured by the GDP growth rate, which is the new created value in a country within one year. Economic growth is therefore a quantitative and monetary indicator, while development is a more complex concept of a qualitative nature.

Development is a process of improving the economic and social situation of a country that improves the wellbeing of the entire population. Development is based on technical, cultural, social and institutional changes.

Economic growth permits growth as it promotes wealth growth, poverty reduction and income per capita growth, while development is only possible through State involvement, the only one able to build infrastructure (school, bridges, roads ...), to emit stable regulations for trade and to reduce inequalities through redistribution.

2. Trade, one of the most pertinent factors of economic growth, has in recent years marked contradictory developments in geopolitical rather than economic causes. Thus, world trade recovered in 2017 after the economic crisis that followed the subprime crisis. This recovery is mainly due to the increase in demand for imports in East Asia, against the backdrop of domestic demand growth supported by acomodative policies in the region. In a series of large developed economies capital goods imports increased, companies responding favorably to the investment conditions improvement.

Recent reconfigurations of the main trade relations, in particular following the United Kingdom's decision to leave the European Union, the US trade policy to renegotiate the Free Trade Agreement with the other North American countries and revising the terms of its other trade agreements, raises concerns about tougher barriers to trade and exacerbation of commercial litigation. This situation may worsen if other countries, such as China, the world's largest exporter of goods, will implement retaliatory measures.

3. Accelerating economic growth has important implications for the environment. The frequency of climate shocks continues to increase, highlighting the urgent need to strengthen resilience to climate change and to hinder the degradation of the environment.

As we face the risk of exhausting natural resources, primarily energy resources, the issue of renewable energy is becoming more and more acute. China remains the world's largest renewable energy investor, and in 2017, wind energy projects have increased investment in this area in Australia, China, Germany, Mexico, the United Kingdom and the United States. While many countries, especially Africa, continues to experience a severe energy shortage, there are still opportunities to create even now through smart policies and investments, growing conditions ecologically sustainable.

4. Years to date from the 21st century have already marked three different economic periods: at first, the world economy was relatively stable, with an increasing trend manifested in several geographic areas, such as the states of North, South-East, Japan etc.; followed years of financial crisis triggered by the US mortgage market crisis which has spread across Europe, also affecting many other countries in the world; at present, most of the world's economies have experienced performance that outweighs the economic crisis that followed the financial crisis and is implementing growth policies both economically and socially.

5. The reorientation of economic policy should focus on four concrete areas: increasing economic diversification, reducing inequalities, strengthening the financial architecture and eliminating institutional weaknesses

- First, the acute need for economic diversification, which has been perceived for a long time, in countries that remain largely dependent on a few commodities;

- It is also essential to restrict and to correct the ever-increasing inequalities to ensure a balanced and sustainable growth over time. In this context, contextual policies will be needed to increase the living standards of the population and structural policies in the long term to promote equal opportunities, including by investing in education, expanding access to health and training services, and investment in the road network and electrification.

- The third area in which public intervention is essential is the alignment of the international financial architecture with Agenda 2030 for Sustainable Development and the Addis Ababa Agenda for Action. To this end, it will be necessary to develop a new funding framework for

sustainable development and to move progressively from the current concerns based on profit (short term), the concerns focused on added value (long-term) in a responsible manner. Macroprudential policies, if well coordinated with monetary, fiscal and exchange rate policies, can help achieve these goals by promoting financial stability and limiting the build-up of financial risks. - Governance weakness and political instability remain fundamental obstacles to achieving the 2030 Sustainable Development Agenda. In this context, strengthening global economic growth

is not enough. In addition, the priorities of public action must be, among other things, to step up activities to support conflict prevention and resolution and to correct the institutional shortcomings that underlie the many difficulties encountered.

6. In times of economic and financial crisis, public authorities are almost forced to intervene in the economy, but this intervention can be done in different ways.

If the state is social and interventionist, it will intervene in the context of implementing a cyclical fiscal incentive, implementing a budgetary conjuncture policy to stimulate demand - a Keynesian fiscal stimulus policy - and pursuing a social approach to unemployment. But in times of economic crisis, even if the liberal state does not want to intervene, it must develop so-called structural employment policies, called active policies.

In the risky context of financial globalization, States are often dependent on international financial markets that indirectly dictate their fiscal policy with regard to the sustainability of public finances. In this context, the margins of maneuver of states are weak and do not allow them to cover their high sovereign debt.

The public authorities are wondering whether the current economic policy of deficit reduction is necessary and sufficient to stimulate growth. The current economic climate precipitates the economic and political actions of states towards reducing their deficits in order to invest more in the medium or long term in order to revive economic growth.

The policy of reducing deficits by limiting budget spending will force the state no longer to intervene significantly in the economy. Structural economic policies related to infrastructure, innovation and training can be compromised and yet effective for resuming economic growth.

Reducing deficits may involve increasing state revenues by increasing taxes, but this action is likely to aggravate domestic consumption by reducing households' disposable income.

Ultimately, a policy to reduce deficits by increasing taxes may reduce the competitiveness of companies. Indeed, the additional taxation generated by government spending will create a financial burden for companies, which they will transfer to their prices, which will, in the first place, reduce national consumption and international competitiveness in terms of exports.

In conclusion, reducing deficits can be an obstacle to economic growth, although large deficit deficits destabilize public finances and prevent the use of opportunistic policies appropriate to the resumption of economic growth.

References:

- [1] Laëtitia Guilhot. (2015), Le nouveau modèle de croissance de l'économie chinoise, un moyen pour relever le défi de la trappe à revenu intermédiaire ?. XXXIèmes journées ATM "Le bilan des Objectifs du Millénaire pour le développement 15 ans après : réduction de la pauvreté et/ou montée des inégalités ?", Jun 2015, Rouen, France. 16 p.
- [2] OFCE, 2017, « Investissement public, capital public et croissance », rapport.
- [3] Paola Monperrus-Veroni, Éric Heyer, Paul Hubert, Mathieu Plane, Xavier Ragot et Xavier Timbeau (2018), DÉBAT SUR LES PERSPECTIVES ÉCONOMIQUES À COURT TERME, OFCE | « Revue de l'OFCE », 2018/1 N° 155 | pages 353 à 365, ISSN 1265-9576, ISBN 9791090994065, https://www.cairn.info/revue-de-l-ofce-2018-1-page-353.htm
- [4] Musgrave, Richard A. and Peggy B., Public Finance in Theory and Practice, New York, McGraw-Hill Book Company, 1973
- [5] Stefan Duicu Viorica, Stefan Duicu Adrian, "The Influence of Lending Activity Over Consumer's Behaviour", CKS Journal, "Nicolae Titulescu" University Publishing House Bucharest, 2011
- [6] World Bank Group (WBG), GLOBAL ECONOMIC PROSPECTS 16 | JANUARY 2019, http://www.worldbank.org/en/publication/global-economic-prospects
- [7] World Investment Report 2018, UNCTAD/WIR/2018, worldinvestmentreport.org
- [8] World Trade Organization (WTO) (2017). Report to the TPRB from the

[9] World Trade Organization (WTO) (2018). Report to the TPRB from the Director-General on traderelated developments, mid-October 2017 to mid-May 2018. Available from https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/TPR/OVW11.pdf

Brand Communication during the COVID-19 Crisis

OTILIA-ELENA PLATON, Ph.D. Postdoctoral researcher The Bucharest University of Economic Studies Piata Romana no. 6, district 1, Bucharest ROMANIA otilia.platon@gmail.com

Abstract: - The measures adopted worldwide in 2020, in order to fight the COVID-19 pandemic, changed our way of life and generated major shifts in consumer behavior. Social distancing, confinement and lockdown were used as measures for public health protection, but generated a series of economic and social crisis. Many companies, from various industries, are still unable to produce and market their products or services to the same extent as before the pandemic and are experiencing a drop in sales. The COVID-19 pandemic has had an effect on brands' strategy and performance. The whole situation forces companies and their brands to rethink their strategies in order to cope with this situation and to limit the impact of business interruption. This paper aims to identify the crisis responses and the online communication strategies adopted by brands during the Coronavirus pandemic. Since some of these changes may be temporary, but many may be more permanent, it is important for companies to implement effective brand communication in order to overcome the difficulties in the long term. It is also important to identify the implications of this pandemic, since all these changes pose challenges to brands, but are also opportunities. COVID-19 pandemic offers a great opportunity for brands to shift towards more genuine and authentic messages, to "humanize" brands and make them more relatable to their consumers.

Key-Words: COVID-19 pandemic, Coronavirus, brand, branding, online communication, social media, crisis.

1 Introduction

The COVID-19 pandemic is having a profound impact on brands. The crisis generated by this pandemic has affected many companies and their brands. A series of companies, from various industries, are still unable to produce and market their products or services to the same extent as before the pandemic and are experiencing a drop in sales. The COVID-19 crisis forced them to rethink their strategies and even to reinvent themselves in order to cope with this situation and to limit the impact of business interruption. A suitable option for these companies was to focus on their brand communication in order to remain relevant or become more relevant for their fans and customers (Dias, Pessôa & Andrade, 2020). Brand communication has changed during this period and the main goals of brands were to build awareness, to maintain a favorable image, to gain trust, to help consumers stay positive and overcome difficulties and sometimes to help them with concrete actions. Effective crisis communication is crucial in order to overcome the difficulties. To achieve these goals brands needed to create relevant, credible and appealing content. The content is essential for building and managing a brand community, in which the consumers can feel important and valued as members of that group. Likewise, brands need to communicate strategic values, such as safety and health, and to adopt a more "humanized", social and informative tone in order to gain the trust of their consumers.

During this period, social media platform are privileged platforms for keeping in touch with consumers since "at home, most people have more time, and need, to consume digital content" (Dias, Pessôa & Andrade, 2020). Using social media platforms, brands can integrate more easily into the daily new routine of their followers. Brands can use social media in order to capture consumers' attention and build lasting relationships with them. Using the main features of social media marketing, namely the user-generated content, connectivity, and participation, brands can easily interact and collaborate with consumers and can build trust and attachment (Platon, 2019).

Worldwide "people have shifted into protection mode, focused on themselves, their families, their employees, their customers, and their communities" (Balis, 2020). The COVID-19 pandemic has resulted in a new approach based on "commodified concepts of human connection, care and community in a time of crisis" (Sobande, 2020). In this context, the communication strategies adopted by many brands used the idea that this

crisis is a unifying force and the pandemic is bringing people and companies together more than ever (Sobande, 2020).

2 The impact of the COVID-19 crisis on brand communication

The Social Media Trends Report Q3 2020 (Socialbakers, 2020) is a detailed analysis regarding the evolution of social media ad spend during the period September 2019-September 2020. According to this report, "this year the audiences have shifted their attention even more to digital channels" (Socialbakers, 2020) because people have been forced into social distancing and they had significant more time to consume online content. This turned out to be an opportunity for many companies and the ad spend for all brands was higher in 2020 compared to 2019, especially after May 2020, as shown in figure 1.



Source: Socialbakers data, 2020 (chart time range: January 1, 2019 – September 30, 2020).

According to the data presented in figure 2, during the period January-May 2020 there was a decrease in ad spend both by region and by industry. The industry that managed to benefit most from this situation was the e-commerce industry, which boosted its ad spend after May 2020.





Source: Socialbakers data, 2020 (chart time range: September 2, 2019 – October 4, 2020).

This evolution of ad spend can be correlated with the fact that during the worldwide lockdown, in spring 2020, many companied had to adjust their budgets and readapted their promotional efforts to the situation. After this period, the consumers changed their behavior and started to buy more frequently from online stores, thus the e-commerce industry invested more in ad spend.

According to a study conducted by PwC among US consumers in 2020, the public health and economic crises caused a series of changes in consumer behavior (PwC, 2020). The shopping behavior changed from before COVID-19 and the consumers are now taking mare advantage of online shopping, as shown in figure 3.



Fig. 3. Online shopping behavior

Source: PwC Survey of 1600+ adult consumers

Q1: How has your spending in the following categories changed since the COVID-19 social distancing orders have been put in place?

Answer shows percentage increase in spend.

Q2: How have your shopping behaviors changed from before COVID-19 as compared to the last two weeks?

Source: PwC, 2020.

The PwC study also shows that this period turned out to be both an opportunity and a threat for many brands since approximately 50% of the respondents declared that during this crisis they bought and consumed different grocery brands than they used to (PwC, 2020). Thus, the COVID-19 crisis and all the changes it has brought are profoundly influencing the consumers buying behavior, regarding what they buy and how they buy.

Taking into consideration the fact that the consumers have shifted their attention to online channels, brands started to communicate more using social media platform and websites during this crisis. According to the Socialbakers report (2020), even though users are spending more time on social media, the Cost per Click (CPC) decreased, revealing that consumers are engaging rather with organic content and not with advertising.

Analyzing the organic engagement of Facebook and Instagram users with worldwide brand profiles, the Socialbakers report (2020) revealed that the e-commerce industry received the highest percentage of interactions on Facebook, growing by 7.6% from Q2 2019, and the second highest number of interactions on Instagram, growing by 1.8% from Q2 2019, as shown in figure 4.





Source: Socialbakers data, 2020 (chart time range: July 1, 2020 – September 30, 2020).

In order to reach their customers, brands had to rethink and adapt their communication strategies. According to the Socialbakers report (2020), brands are following six general online communication strategies, namely:

- brands are communicating messages that inform the public about how they ensure the safety of their employees, collaborators and customers;
- brands are communicating messages that inform the public about the adaptations in their products or services in order to protect the customers and the communities;
- brands are communicating messages that support health professionals and other persons who are in the "front line" of fighting the pandemic;
- brands are communicating messages of solidarity and are presenting actions directed at fighting the pandemic or supporting vulnerable groups;
- brands are communicating how they contribute to their customers' wellbeing and health and are providing online content that is supportive, hopeful, entertaining and inspiring;
- brands are communicating tips, guidelines and tutorials that are meant to help the consumers and are adapted to "life at home" (e.g. beauty, health).

According to Balis (2020) during this COVID-19 pandemic the nuances of brand voice should be more delicate than ever. The brand messages should be presented with empathy, honesty and transparency. Companies should provide information about what actions can brands take to serve and take care of their customers and to mitigate risk. Brands should be associated with acts of good in a time of crisis because consumers will recognize authenticity and true purpose. Marketers should also consider modifying their media mix and use online media in more agile ways. Brands should increase the level of user engagement and also analyze the conversation across social-media platforms in order to gain better insights from their customers and to better adapt their messaging.

According to Argenti (2020), brands should focus on several online communication strategies and they should try to communicate regularly with customers, focus on what is important to them and also focus on empathy rather than trying to create selling opportunities, providing relief when possible. Companies should rethink advertising and promotion strategies to be more in line with the current situation and should be proactive with communities.

Dias, Pessôa & Andrade (2020) emphasize the fact that digital influencers are pivotal players in the social media landscape during this period. Digital influencers act as mediators between brands and their followers and are empowered to share their opinions and experiences with brands, becoming opinion-leaders. Therefore consumers often trust them more than they trust brands because "the relationship between digital influencers and their followers is based on intimacy, proximity, and identification" (Dias, Pessôa & Andrade, 2020). Consumers are able to relate to influencers on a deep level because they are feeling that influencers are "just like them". Thus, using influencers in order to communicate brand massages is another important component of branding strategy during this pandemic.

3 Conclusions

Even though the COVID-19 pandemic is a major negative event, it offers the chance for companies to actively engage in various favorable initiatives with their consumers during the crisis. All the changes generated by this pandemic pose challenges to brands, but also create opportunities. COVID-19 pandemic offers a great opportunity for brands to shift towards more genuine and authentic messages, to "humanize" brands and make them more relatable to their consumers.

As Mensa & Vargas-Bianchi (2020) emphasize, "in this scenario, emotions may run high and play an important role in the configuration of consumer's attitudes and judgments". Therefore marketers should seek to make the consumers feel positive emotions towards brands. Positive emotions could result in increased brand trust and attachment and could improve consumers' attitudes related to the brand.

The COVID-19 pandemic generated an exponentially increased move to online communications (He & Harris, 2020). Across all industries this change was instantaneous and profound. It is important to continue to analyze whether this change accelerated the on-going trend of developing more marketing activities online than offline.

References:

[1] Argenti, P.A. (2020). Communicating Through the Coronavirus Crisis. *Harvard Business Review*, available online at: <u>https://hbr.org/2020/03/communicating-through-the-coronavirus-crisis</u>

- [2] Balis, J. (2020). Brand Marketing Through the Coronavirus Crisis. *Harvard Business Review*, available online at: <u>https://hbr.org/2020/04/brand-marketing-through-the-coronavirus-crisis</u>
- [3] Dias, P., Pessôa, C. & Andrade, J.G. (2020). Brand Communication on Instagram during the COVID-19 Pandemic: Perceptions of users and brands, *RepositóriUM*.
- [4] He, H., Harris, L. (2020). The impact of Covid-19 pandemic on corporate social responsibility and marketing philosophy. *Journal of Business Research*, vol. 116, pp. 176-182.
- [5] Mensa, M. & Vargas-Bianchi, L. (2020). Nurtured and sorrowful: Positive and negative emotional appeals in COVID-19 themed brand communications. *Journal of Communication in Healthcare*, manuscript submitted for publication.
- [6] Platon, O.E, (2019). *Marketing 2.0 a strategic approach from the perspective of brand equity*, *Volume 1*. Universitara Publishing House, Bucharest.
- [7] PwC, 2020, available online at: <u>https://www.pwc.com/us/en/industries/consumer-markets/library/covid-19-consumer-behavior-survey.html</u>
- [8] Sobande, F. (2020). 'We're all in this together': Commodified notions of connection, care and community in brand responses to COVID-19. *European Journal of Cultural Studies*, vol. 23, no. 6, pp. 1033-1037.
- [9] Socialbakers (2020). Social Media Trends Report Q3 2020, available online at: <u>https://www.socialbakers.com/website/storage/2020/11/Socialbakers-Social-Media-Trends-Report-Q3-</u> 2020.pdf
- [10] Socialbakers (2020). *Covid-19 is changing behavior on social media for both brands and users*, available online at: <u>https://www.socialbakers.com/blog/covid-19-is-changing-behavior-on-social-media-for-both-brands-and-users</u>

The Role of Accounting and Accountant in the Modern Economy

MIHAELA IOANA GURĂU Ph.D. Candidate School for Advanced Studies of Romanian Academy Department of Economic, Social and Legal Sciences Calea 13 Septembrie, Bucharest ROMANIA mihaela_gi@yahoo.com http://www.mihaelagurau.ro

Abstract: - The digitization of the economy is a phenomenon known as the Fourth Industrial Revolution with major positive effects for competitiveness, by increasing productivity. It has a noticeable impact on the labor market, through the creation / disappearance of jobs and the emergence of completely new occupations and places great emphasis on the collaborative involvement of all interest groups (industry, consumers, experts, government). It is important to mention that each one of the principles of the new economy open up specific paradigms for economic science in general, but especially for its different disciplines and specializations, accounting being also marked by digitalization.

Key-Words: - The economic revolution, digital technologies, B2B - business to business, B2C - business to customer, B2E - business to employee, B2G - business to government, G2B - government to business, cloud computing, ERP (Enterprise Resource Planning) system.

1 Introduction

The economic revolution is a total revolution that is reflected in the way it occurs, is consumed and works, its effects being the transformation of professions, the highlighting of new branches of activity and diminishing until the disappearance of others. At the same time, there are areas of activity which, in order to survive must enter into major, unexpected changes even. It is a challenge for traditional business models.

The way accounting is kept has changed a lot, but the importance of the accounting function has not changed. Modern technologies must be a good friend of accounting and take over some of the activities required for data entry and processing, and the importance of professional accounting reasoning, plus the verification, interpretation and analysis of data remains the responsibility of the accountant.

Those who choose to ignore the fundamental changes in progress or try to cosmetize them are obliged to bear their effect in the near future. Digital transformation has more opportunities than dangers for those who embrace it. This is what economic actors have to do today, regardless of the area in which they operate¹.

2 Digital economy - Accounting in the digital age

The digitization is the reality in which the modern accounting professional is trained, perfected and carries out his daily activity. It is an environment in which the understanding of the opportunities of new technologies ensures that obstacles are overcome and risks are prevented.

The unusually high volume of information leads to changing in the way markets operate and it also facilitates the emergence of new opportunities for creating value by exploiting the available information. The digital economy or the new economy refers predominantly to changes in economic activities as a result of the use of digital technologies, which ensure access, storage and processing of information in a way that trains lower costs with small efforts.

It is a global economy that favors intangible products, ie ideas, information, relationships and relies on intense interconnection.

¹ From Emmanuel Macron's preface to the book "The certified public accountant and the digital economy" Philippe Arraou

⁻ President of the French Order of Certified Public Accountants, published by Ordre des Experts comptables, 2017

Through new digital technologies, the storage, access and transmission of information are becoming easier and more accessible. Digital information can be transformed into economic and social values, generating unexpected opportunities for the development of new products and services. Information becomes the key resource for the digital economy.

The new economy favors or is favored by the geographic, economic and geo-political environment, at international level but also at national level, which has led to the phenomenon of "digital divide" (exclusion from the benefits of new technologies of social categories and regions / geographical areas).

In the digital economy, the concept of work has changed substantially by the fact that many activities are carried out on the computer, including through Internet connections. Moreover, new activities have emerged, new professions that have radically changed the concept of work. In the context of the digital economy, digital work is a concept that has become an essential basis of discussions within the economic policies in the field of the Internet.

In this paper, we will try to illustrate how a seemingly endangered profession of computerization and automation must precisely use these tools to modernize the current supply and channel the human capital to areas where it can provide added value.

Synthesizing and presenting accounting data and information has never been easier, digitization is the ideal solution in presenting relevant, verifiable, reliable, transparent and accessible information in a timely manner. The accounting professional has some opportunities in the digital economy era to offer new approaches to reporting, providing users of accounting information, whether internal or external, with transparent and honest information about the financial position, performance of an economic entity and flows of its treasury.

Digitization is the reality in which the modern accounting professional is trained, perfected and carries out his daily activity. It is an environment in which the understanding of the opportunities of new technologies ensures that obstacles are overcome and risks are prevented.

As the digital economy has made its mark on all fields of activity, neither could accounting remain unaffected by digital transformations. It could even be said that the accounting profession stands out through its broad awareness of the fact that the digital transition is an inevitable reality that has an impact on the accountants in the organization, the workplace, the customer relationship, etc., and in short, in every dimension of their operations.

It is often saying that the accountant has only the task of recording economic-financial transactions (book-keeping). The accountant (in the broadest sense of the term) must be an economist and a financial person, all together. In fact, it must be equipped with an analytical mind, which will give it a clear meaning in its role, in addition to book-keeping.

In the digital age, the biggest challenges of the accounting profession are integrated thinking, globalization and technology. The accountant also has the role of strategic consultant, to help companies to implement a business model that will facilitate their growth. In terms of globalization, it does not only affect the accounting profession, but the society as a whole.

For any company, the access to information, the speed of their transmission, the speed of decision making, the mobility of the staff and the flexibility in managing accounting activities are becoming more and more important. In this context, a strong accounting system is a basic component of the information system of an economic entity that is the basis of a good functioning and business development.

Accounting has sought to adapt at all times and, speaking of accounting practices in Romania, the need for adaptability has increased, especially since the 1990s. Accountants were forced to keep up with the changes in accounting regulations every five years, to even more frequent changes in tax law, and besides, the need to adapt to digitization kept them on alert.

Due to the successive technologies that have shaped and reformulated the economic environment, the accounting has gone from keeping handwritten accounts to registering them with the help of the typewriter on paper sheets. The change went even further, as the paper sizes disappeared for the benefit of electronic records and proceeded to collect accounting records and transmit data in electronic format.

Contemporary accounting professional practice has little resemblance to what it was in the post-war period and, as the transformation gains speed, there is every reason to believe that, in the immediate future, it will look very different from what it is today. The ongoing regulatory reforms and the digital revolution will be crossed, providing many opportunities for most practitioners who will strive to gain a foothold in the specialty market.

Over time it has been proven that accounting professionals have the ability to ask the right questions about progress and to develop and adapt accordingly to the business environment and market needs, which are,

by definition, constantly moving. In today's "fully electronic" environment, the focus on IT resources, which may be traditional systems or integrated information systems, comes to ease the work of accountants who, over time, have shown adaptability to legislative changes or changes due to the progress of the digital economy.

It can be said that IT has been a powerful growth engine for the accounting profession, which has allowed extraordinary productivity gains to be made, even if, at the same time, accounting, fiscal and social requirements have become more complex. Accounting practices have achieved excellent performance and it is not exaggerated to say that this evolution benefited first of all the companies, which now can have easier access to the information regarding the financial position and the performance of the company, and at much lower prices, they can to monitor the submission of documents or to follow the relationship with the state institutions.

The reality of the digital phenomenon, both in society and in accounting practices, is truly revolutionary: intense, profound and irreversible, it is a change of society to which any accountant must adapt. The digital transforms the organizational modes and stimulates the metamorphosis of the accounting field. In this sense, the accountant must be concerned with having a strategy in a digital world rather than having a digital strategy.

The digital transition of the economy comprises an almost total transformation in most economic fields. This applies, of course, to accounting practices as well as to any operating entity: we are all caught up in this adventure that helps us take customer relationships to another level, especially in terms of data transmission and reporting.

The way we keep accounting has changed a lot, but the importance of the accounting function has not changed. Modern technologies must be a good friend of accounting and take over some of the activities required for data entry and processing, but the importance of professional accounting reasoning, plus the verification, interpretation and analysis of data remains the responsibility of the accountant.

The digital economy helps social and generational inclusion provided that the applicants have digital knowledge to enable the IT sector to be globally competitive. To do this, it is necessary to promote digital skills at every stage of education and vocational training, so that future employees, from any branch of activity, including accounting, have a high level of qualification.

3 Accounting tools in the digital age

In the not too distant history of accounting, accounting reports were jokingly called "bed sheets" because of the size of the sheets they were written on. The work of an accountant and the attention that was needed when drawing up the accounting documents, respectively the accounting and fiscal reports, were weary and time consuming.

With the advent of computers and accounting software, accounting has become easier and less risky to make mistakes. The only hurdle was that the staff had to be trained to use the new technology, but this was easily overcome.

Gradually, the accounting programs became more and more complex, and they could execute, in addition to mathematical operations, a series of complex operations, accounting and tax reporting, management closures, complex records, etc. Accounting software is a digital conversion of the work done by an accountant.

At the beginning of using the accounting programs, the barrier imposed by the insufficient knowledge of the work on the computer led to the phenomenal "so does the program". The program must do what the accountant tells it. It must accept the implications of digital, but remember that the profession of accountant is not a passive profession but implies the involvement in the development of processes. The accounting profession has to learn from the digital revolution, but in turn, it can offer advice to those who lead this revolution.

The use of accounting software requires advanced accounting knowledge, so the accountant cannot disappear from this equation. Soon, however, many of the manufacturers of such software will cease their activity, because their products will become anachronistic with the real needs of the entrepreneurs.

21st century technology offers complex solutions, online accounting services (Cloud technology), compared to the classic, licensed accounting programs that are currently considered quite difficult to use by an entrepreneur, which is why they are used mainly by to accountants.

3.1.Enterprise Resource Planning (ERP) systems

An ERP (Enterprise Resource Planning) system is a unique IT platform, used for integrated monitoring, control and management of all activities, processes and operations carried out by a company. An ERP application

can be used for any field of activity: production, trade (retail), distribution, accounting, import / export, service provision, etc.

By developing ERP systems we could say that the accounting department, in a company, is no longer isolated, is interconnected with all the other departments of the company and, when the manager wants financial accounting information, he has access to it without being need to ask the accountant for help.

ERP systems replace accounting software that has limited utility compared to them and can be: onpremises ERP or on the internet (cloud ERP). The basic difference between on-premises ERP and ERP cloud is clear:

- On-premise (local) ERP solutions are installed locally on the company's hardware and servers and are then managed by IT staff

- ERP cloud - also called SaaS or Software-as-a-Service - is offered as a service. With this type of implementation, the company's ERP software and its associated data are centrally managed (in the "cloud" of the Internet) by the ERP provider and are accessed by customers using a web browser.

The type of ERP implementation model used can have a significant impact on a business. An ERP system significantly improves interdepartmental collaboration and participates in the automation and efficiency of the activities within the company.

The basic principle of the functioning of an ERP software is the centralized collection of the data in order to distribute them on a large scale, an ERP system has a common database through which access to the data collected from several activities, by several departments, thus putting together the information and experience of all ERP users to create a unitary and integrated perspective.

Through the interface of the ERP system, the data are collected / recorded, validated, processed, transferred or exported in raw form or in the form of reports, financial-accounting statements, etc. Data registration in the ERP system is done by:

• Enter the data directly by the operators, using the keyboard or by scanning the bar codes, if necessary

• Import from other databases

• Transfer between third parties, in particular between IKA (International Key Accounts) and their suppliers, using EDI (Electronic Data Interchange) technology

Therefore, an ERP software helps the user to manage their activity better and faster and to record it in the database, and the resulting documents or information are then accessible also to the management or to the other departments that need this data to carry out its activity.

The components of an ERP system are:

Administration - to define available menus for users and access rights in ERP, to customize documents and reports or to define the backup process of the ERP database.

Accounting - intended for the automation of the accounting operations and for obtaining the financial and accounting statements and reports, legally binding.

Inventory - for accurate real-time management and monitoring of all product stocks and stock movements, regardless of one or more locations.

Fixed assets - for the detailed recording and follow-up of the financial operations carried out on the assets (fixed assets and inventory objects), with automatic reflection in the accounting.

Payroll - for the management of information related to employees and for solving all activities related to salary calculation (holidays, contracts, payment of salaries and taxes, meal vouchers, etc.).

Orders - for the correct estimation of the inventory requirement to be ordered from the supplier, taking into account several variables, such as seasonality or demand for products.

Supply - for the optimal and efficient management of the supply chain and of the necessary supply. **Sales** - for organizing and tracking sales, discounts applied, but also for preparing the documents related to the sale.

Receipts-Payments - to track the real situation of outstanding and outstanding invoices from customers or suppliers, but also of the situation of bad / good paying customers for one or more commercial agents.

Billing - for the registration and generation of documents specific to the billing circuit (proformas, invoices, notices, etc.).

Services - for the activities of services, service and guarantees and for the preparation of the necessary documents. **Production** - for the correct record of the orders that are followed by a production process and for the efficient management of the production recipes, the input or consumption vouchers, the production reports, etc.

Cost centers - for greater transparency on the distribution of costs by each division, branch, department, work point etc. so you can quickly understand what is profitable and what is not.

Notifications - Automates sending to customers via email, information and documents (invoices, reports), directly from ERP.

Interfaces - allows the automation and programming of data exchange, between ERP and third party applications such as online stores, warehouse management application (WMS), application for analysis and reporting (Business Intelligence), POS, EDI, software for sales agent automation (SFA), CRM etc.

Nomenclature - for recording important information about third parties / partners, administrations or products. **Reports** - for generating and customizing a large set of reports, for each department of the company.

The digital revolution has changed and continues to change any human activity, including accounting, the representatives of the accounting profession will in the future be the main providers of information needed for the decision-making process at any level, although many of the accounting activities could be taken over by computers and robots. It is about retrieving data from any type of media and processing it. Probably, accountants will have to expand their areas of activity considerably. For example, to offer more comments and solutions, proposals related to risk management, consulting and business recommendations, to develop more forecasts, to participate more actively in decision making.

3.2. Cloud computing - the accounting tool in the digital age

Cloud computing is the most popular expression in today's IT world. "Cloud" is a well-known metaphor of the Internet which, combined with the word "computing" should suggest simplicity. It's like a network you connect to and pay for as you consume. The use is made on request and according to needs (in variable quantities), and the payment is according to consumption, it is paid as much as it is used.

A definition of the cloud would be: a solution for using external data resources (servers, storage space, applications and services) over the Internet. With cloud computing, managing a business becomes much easier. A data center stores the economic applications to which companies log and use them, directly benefiting the final service, without taking many other actions to reach the desired end. This is the power of cloud computing.

Cloud solutions have the benefit of low cost because they do not use so many resources to work and they seem to be more reliable than most applications. In addition, the applications in the "clouds" have automatic upgrade, so the application will be safe, efficient and will have new features without any effort from the user.

The difference between traditional systems and Cloud computing is that it offers several features, including flexibility and cloud systems, which show great adaptability, also called scalability.

Another defining difference of the Cloud systems, compared to the classical systems is that of adjusting the amount of resources allocated, automatically, according to needs, the level of the allocated resources is only slightly higher than the level of resources consumed.

Through Cloud technology, the relationship between administrator and accountant becomes truly effective. As an end user, the contractor only has to upload a scanned or photographed copy of the desired document (eg invoice), and the information in these documents will be processed and recorded in the final accounting document (balance sheet, report, statement to ANAF, etc.). by an accounting specialist with whom the respective platform collaborates.

Cloud technology favors the existence of applications that run entirely through the Internet and have a high degree of interactivity with the user (Rich Internet Applications).

Advantages of Cloud Computing:

- Synchronizing user data using multiple cloud-related devices (eg, smartphone, tablet, notebook, but also PC) is simplified
- Online documents in the cloud can be processed using web applications
- Increased computing speed and storage capacity, but without investments in its own configuration

• The data cannot be stolen, the data carrier cannot be damaged, etc.

4 Conclusion

Online accounting services are truly revolutionary, they can also be used by individuals (business administrators) who do not need advanced accounting knowledge. Also, the company does not need any employee or permanent collaborator in the financial-accounting department, the online accounting services take over all the repetitive tasks, and offers permanent access to the accounting information that the administrators need, from any device with a connection to Internet.

A major advantage of the online accounting services is that any problem that appears in the daily activity of the business can be solved quickly due to the access to the financial documents and accounting information of the company.

Freed from the small and repetitive tasks, the accounting professional who performs in the digital age characterized by automation and new technologies, will be able to devote more time to advising clients and developing their business.

Even though applications, technology (including artificial intelligence) and increasingly efficient procedures will help us perform tasks faster, none of them will replace professional accountants because it will always require the judgment of a professional.

References:

- Emmanuel Macron's preface to the book "The certified public accountant and the digital economy". Philippe Arraou - President of the French Order of Certified Public Accountants, published by Ordre des Experts comptables, 2017
- [2] Platon, O.E., An exploratory study regarding the brand-consumer relationship in social media, *Global Economic Observer*, vol. 3, no. 1, 2015, pp. 135-140, available online at: <u>http://www.globeco.ro/wp-content/uploads/vol/split/vol 3 no 1/geo 2015_vol3 no1_art_016.pdf</u>
- [3] <u>https://www.ziaruldeiasi.ro/stiri/expertul-contabil-un-jucator-relevant-in-era-digitala-provocari-si-oportunitati--142843.html [10.10.2020]</u>

Understanding the Nature and Effects of Digital Games in Promoting Sustainability

SERGHEI FLORICEL Department of Management University of Quebec in Montreal (UQAM) Case postale 8888, succursale Centre-ville Montréal (Québec) H3C 3P8 CANADA

floricel.serghei@uqam.ca https://professeurs.uqam.ca/professeur/floricel.serghei

Abstract: - Based on an understanding of the goals and strategies that are most likely to produce successful sustainability transitions this paper aims to expand our understanding of how digital games can be used to advance such initiatives. The paper first reviews the benefits that games provide to their users and therefore explain their widespread adoption. Afterwards, the paper discusses more specific contributions that games can make to motivate active involvement, advance the understanding of sustainability issues and the elaboration of solutions, enable community support and political advocacy for the sustainability causes, and, finally, help citizens act in local, incremental, non-disruptive yet durable ways. Different types of games are proposed as more appropriate for providing each of these four contributions.

Key-Words: - sustainability; digital games; serious games; citizen scientists; political advocacy; pervasive games

JEL Classification: O39, O44, O49

1 Introduction

Stimulating widespread, relatively fast and long-lasting change in the living, working and consumption patterns of human populations is a crucial condition for addressing the causes and limiting the consequences of processes such as global warning and environmental degradation. This goal is at the core of many government programs, from the mandatory phaseout of automobiles with internal combustion engines (Burch & Gilchrist 2020) to programs seeking to educate and involve citizens, such as portions of the recent European Green Deal initiative. However, the success of such initiatives can be jeopardized by the skepticism, lack of support and even resistance of target populations, particularly if they perceive these initiatives as emanating from elitist, bureaucratic or even antidemocratic circles and as directly affecting their economic interests (Claeys, Tagliapietra & Zachmann 2019; Ponthieu 2020). Therefore, a key policy making and governance issue is finding ways to harness the energy, intelligence and skills of populations in order to transform them into allies for this quest. In particular, we need to understand how to involve the broadest possible range of citizens in defining changes through grassroots efforts and in implementing these changes in ways that limit the negative, disruptive impacts on peoples' lives (Patterson et al. 2017).

This paper aims to contribute to our understanding of these issues by investigating how digital games can be used most effectively to promote a transition towards sustainability in pluralist, emergent and non-disruptive ways. Games combine two characteristics that make them suitable for rapidly involving citizens in this kind of transition. First, because of their entertaining and challenging nature, they are more likely to attract a broader audience and provide a path of least resistance towards attaining educational and behavior change goals (Fabricatore & López 2012). In particular, they can prevent initiatives from being perceived as boring, government-mandated instruction or chore programs. Second, many games include some form of social interaction and therefore they can be used to develop the skills needed to convince or outplay other people or groups, as well as to coordinate actions and organize in order to legitimate and obtain resources for grassroots initiatives (Hromek & Roffey 2009). From a systemic perspective, these characteristics also transform games

into exploration tools that can be part of an ongoing process of identifying the most effective bottom-up approaches for educating citizens, as well as for stimulating and diffusing changes.

In this paper, we rely on a review of the literatures on games and their use for sustainability-related goals (Stanitsas et al. 2019), and, respectively, on the social strategies used to foster sustainability-oriented change (Levin et al. 2012) in order to build a theoretical framework that could inform the selection and development of games to be used for accelerating the transition towards a sustainable society. Results suggest that such games would combine features from four kinds of games currently used for entertainment and educational purposes. These results could contribute to the literature on games as innovative means for achieving an environmentally sustainable future, which tends to overestimate the educational and behavior-changing impact of games, by offering a larger set of goals and a more nuanced basis for assessing these benefits. Moreover, these results could provide interesting insights to the literatures on fostering and governing sustainability-oriented societal change, by suggesting how games could provide better means for emergent and non-disruptive transitions.

2 How Can Games Help?

Games have a long history of being used not only for entertainment but also for instrumental purposes such as education, behavior change and even psychotherapy (Blackmon 1994; Papadakis et al. 2020; Rosselet & Stauffer 2013; Wilkinson 2016). A recent trend is using games to increase awareness regarding environmental issues, explain the complex impact of human activities on nature, foster the active involvement of citizens with these issues, and facilitate the development and implementation of sustainable alternatives (for a recent review see Stanitsas, Kirypoulos & Vareilles 2019). A variety of material and digital game types have been proposed as candidates for achieving these goals but they are still far from achieving any sizable impact in terms of changing awareness and behavior towards sustainability

2.1 Exerting a widespread and lasting influence

Despite these efforts, sustainability oriented games are still a long way from attaining diffusion levels comparable with those of commercial entertainment games. To understand the road ahead, it is estimated that Pokémon Go has been downloaded over 1 billion times (Webster 2019). This suggests that an important aspect is grasping how sustainability-oriented games could touch a comparable number of citizens. In addition, even if Pokémon Go affected the behavior of many individuals and groups of friends who adopted the game, the impact has been relatively short-lived. Therefore, the first issue can be reformulated as understanding how games can exert a lasting influence on a large number of citizens not only in terms of awareness and learning but also in terms of permanent behavior change.

2.2 Enabling grassroots, non-disruptive change

As explained in the introduction, the needed social change is perhaps easier and more effectively realized if it comes in the form of grassroots initiatives, defined and promoted by citizen groups and implemented with minimal disruption for citizens' economic wellbeing and ways of life. From this perspective, the issue becomes understanding how games can be used to encourage users to take matters in their own hands, to create citizen networks and movements engaged in monitoring the situation, developing solutions, modeling their impact and putting together all the resources needed for their implementation.

In order to provide an answer to these issues, in section 3, we review the literature on game adoption and impact on individuals. Then, in section 4, propose a framework for assessing the kind of games that provide the entire range of benefits needed for sustainability oriented changes.

3 Understanding game adoption and benefits

Games and play are customary forms of human life since immemorial times. But what interests us in particular are the reasons explaining the extraordinary and continuing diffusion of what we call digital games, from videogame consoles, to computer-based games and to games on mobile devices, as opposed to more traditional table and outdoor games as well as sports. It is estimated that, in 2020, the worldwide videogame market size reached over \$159 billion and involved over 2.7 billion players (Wijman 2020). This includes 2.6 billion mobile

gamers, of which only 38% pay for their games (Wijman 2020). The literature on digital games, has identified a number of reasons for such widespread adoption particularly in the form of individual benefits, but also discusses the broader social impact of this phenomenon.

3.1 Individual perspective on game benefits

This subsection discusses the reasons why so many individuals play digital games, and many of them persist in playing to the point of becoming addicted, not only to gaming in general but to a particular game. The common explanatory argument for adoption is that, implicitly or explicitly, individuals perceive games as providing some benefits. According to a typical categorization of user-perceived benefits in marketing, these reasons can be divided into three categories that will be discussed, in turn, in the following sub-subsections.

3.1.1 Intangible emotional benefits

Digital games provide an alternative to the everyday boring experience of young and, increasingly, less young populations, both female and male. For example, action and adventure games provide challenges and cause emotions such as fun and satisfaction for achievement that are less and less available to typical, increasingly sensitive, security conscious and physically unfit urban and suburban dwellers. Through their forms of play, videogames extend the continuous entertainment provided by earlier means such as cinema and television by adding an illusion of agency and control, though seemingly consequential decisions, actions and exchanges. Moreover, videogames, particularly those relying on virtual reality, provide a "simulated lived experience" (Wolf 2015), such as an immersive yet ultimately safe escape in a different world, for instance magical, exotic, aesthetical or dangerous, and so, they become a plausible source of emotions from pleasure to fear (Lin 2017). Furthermore, game experience provides an environment that, unlike reality, gives individuals the impression that their potential is maximized, a source of satisfaction, which may take extreme forms such as exhilarating joy (Bartolucci, Mattioli & Batini 2019; McGonigal 2011).

3.1.2 Intangible and tangible social benefits

Like for any product, a large proportion of players adopt a game as a result of imitation or influence from peers (Bass 1969; Rogers 1962). Playing games or a specific type of game also allows players to express their association to a certain group or subculture, as well as to distance themselves from others (De Grove, Courtois & Van Looy 2015). But, digital games, especially multiplayer or team-based via Internet, also create occasions for interaction with other players, opening a space for social achievement and peer recognition (Verheijen et al. 2019). This may translate into more lasting socialization, as players create rather stable networks of friendships based on game-enabled acquaintances, through which they support each other through difficult times such as Covid-19 related confinement (Eklund & Roman 2017). Proficient gamers, moderators and scenario developers in open games such as Dungeons and Dragons can accede to central or broker positions that enable them to influence an extensive player network. For some of them, this may provide a path towards tangible, monetary rewards as participants in official competitions, as game testers or even as game developers. In sum, games create a virtual socialization environment that helps socially awkward individuals signal their affinities, learn social skills, join groups, and eventually transform virtual ties into real-word resources.

3.1.3 Tangible cognitive benefits

The way television provides complementary learning that can be useful in various personal, social and even professional contexts, players may also perceive digital games as a source of useful learning and skills. For example, war games teach in a captivating way the history of world conflicts and acquaint players with various forms of weapons and military action. Adventure games help players learn about various countries, habitats and explorations. Such knowledge could be useful for various professions, from military and law enforcement to tourism (Stott 2010). Gamers who otherwise would not set foot in a concert hall even become acquainted with classical music pieces used as a sound background in certain videogames (Gibbons 2018). Users may see this increased level of culture as helpful for accession to a higher social and economic status. Players may even value implicitly the sensation that games help them develop attention, spatial thinking and perception (Bediou et al. 2018), and in some cases, such as Wii, also sensorimotor skills. Of course, games designed specifically for teaching 'serious' subjects provide educational benefits, in particular by increasing interest and motivation, and by facilitating the understanding of complex subjects. But the context surrounding their use in schools and university programs, or as part of government-mandated programs, may not encourage such perceptions and the

spontaneous, wholehearted adoption from users, as it may do for teachers and instructors (Lavigne 2016). This moves us from discussing user-perceived benefits to the broader benefits of games as perceived by societies.

3.2 Societal perspectives on game impacts

Understanding the perception of digital games by a broader range of stakeholders is important because, in case this perception is negative, even if users would like to adopt game-based approaches, their use for advancing change for sustainability may trigger resistance from doctors, educators, parents, law enforcement officers and others who may fear that serious unintended consequences will outweigh benefits. Auspiciously, the discourse surrounding the social impact of games has shifted from seeing them almost exclusively as a source of psychological and social ills towards considering them as a potentially spectacular solution for all individual and societal problems. For example, games have long been deemed to cause sedentarism, addiction, depression, isolation, violence and crime (especially action games that involve fighting, stealing and shooting), and other antisocial behaviors and beliefs (Bonnaire & Baptista 2019; Nogueira et al. 2019; Sherry 2001).

But, after years of vilification, psychological research has also started to assess and explain the benefits of games for perception, attention, cognition, motivation, emotional balance, social adaptation, and even psychomotor skills, such as those needed to perform laparoscopic surgery (Granic, Lobel & Engels 2014; Bediou et al. 2018; Chalhoub et al. 2016). Educators also point out that digital devices instill a different kind of cognition style and skills, and that games may be among the preferred means of prepare such 'digital natives' for the emerging patterns of work in an increasingly digital society (Prensky 2001). Specifically for sustainability change, games may help users learn the skills needed for distance working and may shift their preferences from physical to virtual consumption, thus reducing the impact of their activities and leisure on the environment (Sims Bainbridge 2010). The term 'gamification' has also been proposed for the idea of including game elements in various activities as well as in the software and information systems that support them, in order to make task performance easier, more effective and more fun (Deterding et al. 2011).

Although the debate regarding their social usefulness continues, we can safely conclude that games have their place in the arsenal of means which can be mobilized for sustainability-oriented change. To advance our understanding of the characteristics that enable games to become effective instruments in the transition to sustainability, the next section reviews the literature on different categories of games and their specific benefits, and relates these benefits to those needed to motivate and enable citizen participation in the transition towards sustainability.

4 Games as motivators and enablers of sustainability-oriented citizen action

To understand the impact of games in changing sustainability beliefs, perceptions and behaviours, we combine inspiration from a model about the impact of technological means such as games on sustainability, namely Melville' (2010) belief-action-outcome framework, with a loose interpretation of Goyal and Howlett's (2020) argument that four distinct collective actors are engaged learning that enables a transition towards sustainability. Goyal and Howlett (2020) call them respectively "technology constituencies," in charge of developing of new tools and motivating their adoption, "epistemic communities" which provide and legitimate the needed beliefs, "instrument constituencies", which develop and implement the corresponding practices, and "advocacy coalitions," which secure the adoption of policies in support of the intended change.

These elements largely correspond to the results reported in the policy and governance literatures regarding the conditions for grassroots, non-disruptive and lasting change towards sustainability, the most common of which are motivation, knowledge, agency, and political power (Patterson et al. 2017). By combining insights from these frameworks, we argue that digital games involved in sustainability transitions are more likely to succeed if they afford their users the opportunity to acquire four kinds of capabilities, respectively, (i) motivation and confidence; (ii) sensemaking and creativity; (iii) community support and political advocacy, and (iv) monitoring and intervention. Below we review, in turn, these benefits, and tentatively associate specific kinds of games to each of them, as summarized in Fig. 1.

Figure 1: Specific benefits needed for sustainability transitions and types of games most likely to provide them



Source: Author-prepared by relying on the on reviewed literature.

4.1 Motivation and confidence through adventure or action games

Sustainability promoting games are more likely to achieve a level of diffusion comparable to that of commercial games developed primarily for entertainment purposes, if they provide players the most salient individual emotional and cognitive benefits discussed in the previous section. Two types of games appear more likely to provide this kind of benefits, by generating interesting and lively experiences, namely adventure games and action games. In adventure games, players advance in a graphic simulated environment or in a branching story by making decisions, solving puzzles or interacting with the environment or with other real or virtual players. Such games are particularly useful in attracting and motivating players regarding environmental issues, among others by allowing them to virtually become involved in real-life expeditions that trace the consequences of global warming (Henrickson & Doering 2013). In the process, players also have an opportunity to acquire knowledge about the areas in which the adventure takes place. Moreover, both adventure and action games with expressive graphics, virtual and enhanced reality, or games inspired by horror themes, such as Plants versus Zombies, can make less perceptible changes such as those stemming from global warming more salient as well as help fix the learning at a more fundamental, emotional and instinctual level, more easily amenable to manipulation (Lin 2017; Drezner 2014; Nasiruddin et al. 2013). For example, the same moral principles as those featured in game such as "This War of Mine" (Toma 2015), a survival game based on the problems faced by civilians during wars, could be extended to a game that would make more vivid the catastrophic consequences of climate change such as hurricanes and inundations. Some games also provide cognitive benefits by enabling players to hone their anticipation and planning capabilities for developing a course of action. This shapes their agency in particular ways, and may increase their level of confidence in their ability to effect change in the real world (Nguyen 2019). In the conclusion of this motivational subsection, it should be noted that the attraction impact of extremely popular games is not only direct, through the number of players that adopt it, but also through their cultural impact, for example through the number of 'memes' that they generate and that are circulated through social media and influencers. This reach is much more extensive and may provide a subtler way of involving citizens in sustainability transition. So, the potential 'memeability' (Mercer & Sarson 2020) of a game could be, along with play challenge and thrill, another source of impact.

4.2 Sensemaking and creativity through serious games

Students of social and ecological systems and of the interactions between them, particularly of the attempts to foster sustainability through social change, frequently underscore the complexity of the concerned systems and processes, and the difficult, super wicked nature of the problems faced by those who devise interventions and transitions (Kirwan, Maye & Brunori 2017; Levin et al. 2012; Wiek et al. 2012). A key enabler of success, particularly in light of alternative discourses, is understanding and assimilating the established knowledge, for example the latest scientific data and models (Barth & Michelsen 2013). However, citizens involved in solving such wicked problems also need capabilities for sensemaking about the complex interconnectedness between the concerned systems, and for further gradual, concrete, action-based learning in interaction with the systems (Lehtonen et al. 2018; Van Poeck, Östman & Block 2020). Moreover, to devise non-disruptive interventions and transitions they also need to develop problem-solving, creativity and innovation capabilities (Mitchell & Walinga 2017). We believe that the category of serious games comes closest to enabling these capabilities. These are games relying on a ludic component to help education, learning, problem solving, skill development, behavior change and other non-entertainment goals (Schuller et al. 2013; Uskov & Sekar 2014). Serious games is a very inclusive term, which covers many of the other categories of digital games reviewed here, as well as table games (Djaouti, Alvarez & Jessel 2011). Many of them aim to explain scientific notions to students in a fun way, which makes them suitable as means of citizen education for sustainability (Clark et al. 2009). Serious games, such as Nusfjord (Weines & Borit 2019), are increasingly used as teaching aids in schools to help students understand the complexity of environmental processes and of sustainability action (Chappin, Bijvoet, & Oei, 2017). The outcome of such games could be a stronger belief in the reality of global warming and other sustainability issues as well as in the effectiveness of proposed solutions (Wade & Piccinini 2020; dos Santos, Strada, & Bottino 2018). However, we believe that the main role of games is supporting the collective production and validation of understanding and of models for specific issues, perhaps local ones of concern to citizens and communities, along with the development of innovative solutions. In other words, pedagogy benefits take a back seat to sensemaking and creativity enhancement through platforms similar to Lego Serious Play, which enable systemic, visual or physical modeling of phenomena and solutions (Schulz et al. 2015; James 2013). Through collaboration capabilities, such game platforms could contribute to the creation of epistemic or inquiry communities (Soyturk, Gandolfi & Ferdig, 2020). Also, by complementing more mundane means such as paper sketches and physical objects, digital games could provide, especially through 3D imaging and virtual reality capabilities, a platform for problem visualization and preliminary solution testing (Marone 2016; Metze 2020). For a simulation of broader consequences of interventions, including their social aspects, platforms featuring construction and management game elements, such as world-construction games could also be useful (Rollings & Adams 2003). Together these types of serious games enable multidisciplinary collaboration by creating epistemic objects allowing the integration of various perspectives and contributions, as well as the rapid prototyping and testing of preliminary solutions in order to identify their shortcomings (Ewenstein & Whyte 2009; Jensen, Seager & Cook-Davis 2018).

4.3 Community support and political advocacy through strategy and role-playing games

Sustainability change cannot be implemented on the needed depth and scale if intended actions do not have the required legitimacy with those affected by them as well as the required resources needed for their implementation. Games could provide a platform that could be used to foster the needed local networks and communities as well as broader political advocacy movements that could influence political decision making at a national or supranational level. In strategy games, players acquire the skills and the confidence needed to confront opponents and compete for resources as well as to plan actions and manage the scarce resources available for their implementation (Fabricatore & López 2012). In team-based or multi-player games, players also get a chance to interact socially and perhaps define a common identity, along the lines of being involved in sustainability change. Another kind of physical and digital games likely to be appropriate in this respect are role-playing games such as Dungeons and Dragons and its numerous digital variants. This kind of games have been shown to be effective in fostering communities and collective identities that are necessary for effective collective actions (Bowman 2010).

Using massive multi-player online role games (MMORG) to foster the abilities for negotiating and obtaining resources for real sustainability-related issues is already being attempted (Chabay 2020).

4.4 Monitoring and intervention through pervasive and simulation games

The cycle of involving citizens on a sustainability path ends with the need to provide change solutions and initiatives with a distributed acting arm. The goal of ensuring an active local presence, for example in affected communities and near sensitive habitats and sources of greenhouse gases and pollutants, requires the capability to stimulate behaviors that are contrary to what digital games are typically deemed to encourage, namely a rather passive, stay-at-home stance. Games have to encourage behaviors such as becoming active citizen-scientists, who contribute observations, data and local insights, or agents of change who help communities and organizations understand the consequences of their activities and convince them to implement new, beneficial practices. A loose source of inspiration for such platforms could be active discovery games, such as Pokémon GO, which have managed to counter an often mentioned negative consequence of digital games, namely sedentarism (Nigg, Mateo & An 2017). Taking the form of a mobile augmented reality game, such platforms would stimulate participants to individually detect environmental changes and identify hidden clues for their emergence. A broader term for this game are pervasive games, which bring digital entertainment back to the real world (Magekruth 2005), by extending game play beyond its typical in "spatial, temporal and social limits" (Arjoranta, Kari & Salo 2020: 3). The addition of virtual or augmented reality capabilities would also enable to demonstrate the effects of sustainability oriented practices compared to existing practices. Eventually, such games would help achieve a more permanent involvement of individuals and groups in observing and immersing in nature, comparing observations, implementing and testing the effects of interventions (Rauschnabel, Rossmann & tom Dieck 2017; Ruiz-Ariza et al. 2018). An additional types of games that could support the active involvement of citizens are simulation games, which could teach players, for example, how to safely remove dangerous substances, rescues animals and perform other delicate operations. As mentioned above, games are already used for a teaching such skills even for surgeons. Virtual reality and haptic technologies could be combined into the platform to boost the teaching of such skills.

5 Conclusion

This review suggests that digital games have a significant potential in promoting sustainability transitions, and part of this potential is already being realized by a large number of initiatives. However, the different benefits that games can and need to provide, the many forms that they can take, and the costs involved in developing and promoting them raise a number of dilemmas that further research and the sustainability movement would have to address:

- Focus all energies on the development of one super-popular game, or let a large number of games emerge from different creators and enable their simultaneous use by different communities.
- Focus on games that are accessible to a broader range of publics including those with less advanced educational background, for example action games, or on games that require more advanced skills and intellectual interests, such as role-playing games.
- Create a simple game, which could be played even on the least advanced hardware platforms, or create expensive game that harness the whole range of available technologies such as virtual reality, and feature advanced graphics and naturalistic character movement.
- Create proprietary games, which would be developed and promoted by their owners, or open games to co-development, thus ensuring their continuous evolution and growth.
- Achieve all four benefits through one game platform, perhaps in the form of separate modules in a unified environment in which players navigate seamlessly to ensure their progression towards more advanced forms of involvement, or let benefits be provided by different platforms by a diversity of environments, to ensure that players will not get bored by uniformity.

Acknowledgement: The writing of this paper has been financially supported within the project entitled: "Support Center for IEM research - innovation projects competitive in Horizon 2020", ID 107540. This project is co-financed by the European Regional Development Fund through the Competitiveness Operational Programme 2014 - 2020.

References:

- [1]. Arjoranta, J., Kari, T., & Salo, M. (2020). Exploring Features of the Pervasive Game Pokémon GO That Enable Behavior Change: Qualitative Study. JMIR Serious Games, 8(2), e15967.
- [2]. Barth, M., & Michelsen, G. (2013). Learning for change: an educational contribution to sustainability science. Sustainability science, 8(1), 103-119.
- [3]. Bartolucci, M., Mattioli, F., & Batini, F. (2019). Do Board Games Make People Smarter?: Two Initial Exploratory Studies. International Journal of Game-Based Learning (IJGBL), 9(4), 1-14.
- [4]. Bass, F. M. (1969). A new product growth for model consumer durables. Management science, 15(5), 215-227.
- [5]. Bediou, B., Adams, D. M., Mayer, R. E., Tipton, E., Green, C. S., & Bavelier, D. (2018). Meta-analysis of action video game impact on perceptual, attentional, and cognitive skills. Psychological Bulletin, 144(1), 77–110.
- [6]. Blackmon, W. D. (1994). Dungeons and Dragons: The use of a fantasy game in the psychotherapeutic treatment of a young adult. American journal of psychotherapy, 48(4), 624-632.
- [7]. Bonnaire, C., & Baptista, D. (2019). Internet gaming disorder in male and female young adults: The role of alexithymia, depression, anxiety and gaming type. Psychiatry Research, 272, 521-530.
- [8]. Bowman, S. L. (2010). The functions of role-playing games: How participants create community, solve problems and explore identity. Jefferson, NC: McFarland.
- [9]. Burch, I., & Gilchrist, J. (2020). Survey of global activity to phase out internal combustion engine vehicles (revised edition). Center of Climate Protection: Santa Rosa, CA, USA.
- [10]. Chabay, I. (2020). Vision, identity, and collective behavior change on pathways to sustainable futures. Evolutionary and Institutional Economics Review, 17(1), 151-165.
- [11]. Chalhoub, E., Tanos, V., Campo, R., Kesrouani, A., El Rassy, E., Rizkallah, J., ... & Sleiman, Z. (2016). The role of video games in facilitating the psychomotor skills training in laparoscopic surgery. Gynecological Surgery, 13(4), 419-424.
- [12]. Chappin, E. J., Bijvoet, X., & Oei, A. (2017). Teaching sustainability to a broad audience through an entertainment game–The effect of Catan: Oil Springs. Journal of cleaner production, 156, 556-568.
- [13]. Claeys, G., Tagliapietra, S., & Zachmann, G. (2019). How to make the European Green Deal work. Bruegel Policy Contribution, 13.
- [14]. Clark, D., Nelson, B., Sengupta, P., & D'Angelo, C. (2009). Rethinking science learning through digital games and simulations: Genres, examples, and evidence. In Learning science: Computer games, simulations, and education workshop sponsored by the National Academy of Sciences, Washington, DC.
- [15]. De Grove, F., Courtois, C., & Van Looy, J. (2015). How to be a gamer! Exploring personal and social indicators of gamer identity. Journal of Computer-Mediated Communication, 20(3), 346-361.
- [16]. Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining" gamification". In Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments (September, pp. 9-15).
- [17]. Djaouti, D., Alvarez, J., & Jessel, J. P. (2011). Classifying serious games: the G/P/S model. In Handbook of research on improving learning and motivation through educational games: Multidisciplinary approaches (pp. 118-136). IGI Global.
- [18]. dos Santos, A. D., Strada, F., & Bottino, A. (2018). Approaching sustainability learning via digital serious games. IEEE Transactions on Learning Technologies, 12(3), 303-320.
- [19]. Drezner, D. W. (2014). Metaphor of the living dead: Or, the effect of the zombie apocalypse on public policy discourse. Social Research, 81(4), 825-849.
- [20]. Eklund, L., & Roman, S. (2017). Do adolescent gamers make friends offline? Identity and friendship formation in school. Computers in Human Behavior, 73, 284-289.
- [21]. Ewenstein, B., & Whyte, J. (2009). Knowledge practices in design: the role of visual representations asepistemic objects'. Organization studies, 30(1), 07-30.
- [22]. Fabricatore, C., & López, X. (2012). Sustainability Learning through Gaming: An Exploratory Study. Electronic Journal of e-learning, 10(2), 209-222.
- [23]. Gibbons, W. (2018). Unlimited Replays: Video Games and Classical Music. Oxford, UK: Oxford University Press.
- [24]. Goyal, N., & Howlett, M. (2020). Who learns what in sustainability transitions?. Environmental Innovation and Societal Transitions, 34, 311-321.

- [25]. Granic, I., Lobel, A., & Engels, R. C. (2014). The benefits of playing video games. American psychologist, 69(1), 66.
- [26]. Henrickson, J., & Doering, A. (2013). Teaching sustainability through adventure. Journal of Sustainability Education, 5(May).
- [27]. Hromek, R., & Roffey, S. (2009). Promoting Social and Emotional Learning With Games: "It's Fun and We Learn Things". Simulation & Gaming, 40(5), 626-644.
- [28]. James, A. R. (2013). Lego Serious Play: a three-dimensional approach to learning development. Journal of Learning Development in Higher Education, (6). Retrieved from https://journal.aldinhe.ac.uk/index.php/jldhe/article/view/208
- [29]. Jensen, C. N., Seager, T. P., & Cook-Davis, A. (2018). LEGO® SERIOUS PLAY® In Multidisciplinary Student Teams. International Journal of Management and Applied Research, 5(4), 264-280.
- [30]. Kirwan, J., Maye, D., & Brunori, G. (2017). Acknowledging complexity in food supply chains when assessing their performance and sustainability. Journal of Rural Studies, 52, 21-32.
- [31]. Lavigne, M. (2016). Jeu et non jeu dans les serious games. Sciences du jeu, (5), 1-18.
- [32]. Lazarus, R. J. (2008). Super wicked problems and climate change: Restraining the present to liberate the future. Cornell Law Review, 94, 1153-1233.
- [33]. Lehtonen, A., Salonen, A., Cantell, H., & Riuttanen, L. (2018). A pedagogy of interconnectedness for encountering climate change as a wicked sustainability problem. Journal of Cleaner Production, 199, 860-867.
- [34]. Levin, K., Cashore, B., Bernstein, S., & Auld, G. (2012). Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change. Policy sciences, 45(2), 123-152.
- [35]. Lin, J. H. T. (2017). Fear in virtual reality (VR): Fear elements, coping reactions, immediate and nextday fright responses toward a survival horror zombie virtual reality game. Computers in Human Behavior, 72, 350-361.
- [36]. Magerkurth, C., Cheok, A. D., Mandryk, R. L., & Nilsen, T. (2005). Pervasive games: bringing computer entertainment back to the real world. Computers in Entertainment (CIE), 3(3), 1-19.
- [37]. Marone, V. (2016). Playful constructivism: Making sense of digital games for learning and creativity through play, design, and participation. Journal For Virtual Worlds Research, 9(3), 1-18.
- [38]. McGonigal, J. (2011). Reality is broken: Why games make us better and how they can change the world. New York: Penguin.
- [39]. Melville, N. P. (2010). Information systems innovation for environmental sustainability. MIS quarterly, 34(1), 1-21.
- [40]. Mercer, J., & Sarson, C. (2020). Fifteen seconds of fame: Rupaul's drag race, camp and 'memeability'. Celebrity Studies, 1-14.
- [41]. Metze, T. (2020). Visualization in environmental policy and planning: A systematic review and research agenda. Journal of Environmental Policy & Planning, 22(5), 745-760.
- [42]. Mitchell, I. K., & Walinga, J. (2017). The creative imperative: The role of creativity, creative problem solving and insight as key drivers for sustainability. Journal of Cleaner Production, 140, 1872-1884.
- [43]. Nasiruddin, M., Halabi, M., Dao, A., Chen, K., & Brown, B. (2013). Zombies--a pop culture resource for public health awareness. Emerging Infectious Diseases, 19(5), 809-813.
- [44]. Nguyen, C. T. (2019). Games and the art of agency. Philosophical Review, 128(4), 423-462.
- [45]. Nigg, C. R., Mateo, D. J., & An, J. (2017). Pokémon GO may increase physical activity and decrease sedentary behaviors. American journal of public health, 107(1), 37.
- [46]. Nogueira, M., Faria, H., Vitorino, A., Silva, F. G., & Neto, A. S. (2019). Addictive Video Game Use: An Emerging Pediatric Problem?. Acta Médica Portuguesa, 32(3), 183-188.
- [47]. Papadakis, S., Trampas, A. M., Barianos, A. K., Kalogiannakis, M., & Vidakis, N. (2020). Evaluating the Learning Process: The" ThimelEdu" Educational Game Case Study. In CSEDU (2) (pp. 290-298).
- [48]. Patterson, J., Schulz, K., Vervoort, J., Van Der Hel, S., Widerberg, O., Adler, C., Hurlbert, M., Anderton, K., Sethi, M. & Barau, A. (2017). Exploring the governance and politics of transformations towards sustainability. Environmental Innovation and Societal Transitions, 24, 1-16.
- [49]. Ponthieu, E. (2020). The European Green Deal and Other Climate Plans. In: The Climate Crisis, Democracy and Governance (pp. 17-36). Springer, Cham.
- [50]. Prensky, M. (2001). Digital natives, digital immigrants. On the Horizon, 9(5), 1-6.

- [51]. Rauschnabel, P. A., Rossmann, A., & tom Dieck, M. C. (2017). An adoption framework for mobile augmented reality games: The case of Pokémon Go. Computers in Human Behavior, 76, 276-286.
 [52] Decemp F. M. (1962) Differing a film and film and film and the film and the film of the film of
- [52]. Rogers, E. M. (1962) Diffusion of innovations. New York: The Free Press.
- [53]. Rollings, A., & Adams, E. (2003). Andrew Rollings and Ernest Adams on game design. New Riders.
- [54]. Rosselet, J. G., & Stauffer, S. D. (2013). Using group role-playing games with gifted children and adolescents: A psychosocial intervention model. International Journal of Play Therapy, 22(4), 173.
- [55]. Ruiz-Ariza, A., Casuso, R. A., Suarez-Manzano, S., & Martínez-López, E. J. (2018). Effect of augmented reality game Pokémon GO on cognitive performance and emotional intelligence in adolescent young. Computers & Education, 116, 49-63.
- [56]. Schuller, B. W., Dunwell, I., Weninger, F., & Paletta, L. (2013). Serious gaming for behavior change: The state of play. IEEE pervasive computing, 12(3), 48-55.
- [57]. Schulz, K. P., Geithner, S., Woelfel, C., & Krzywinski, J. (2015). Toolkit-based modelling and serious play as means to foster creativity in innovation processes. Creativity and innovation management, 24(2), 323-340.
- [58]. Sherry, J. L. (2001). The effects of violent video games on aggression: A meta-analysis. Human communication research, 27(3), 409-431.
- [59]. Sims Bainbridge, W. (2010). Virtual sustainability. Sustainability, 2(10), 3195-3210.
- [60]. Soyturk, I., Gandolfi, E., & Ferdig, R. E. (2020). Development of a Game Communities of Inquiry Scale (GCoIS). International Journal of Gaming and Computer-Mediated Simulations (IJGCMS), 12(3), 37-58.
- [61]. Stanitsas, M., Kirytopoulos, K., & Vareilles, E. (2019). Facilitating sustainability transition through serious games: A systematic literature review. Journal of Cleaner Production, 208, 924-936.
- [62]. Stott, N. (2010). Anticipating military work; digital games as a source of anticipatory socialization. In British International Studies Association American Foreign Policy Conference, University of Leeds, UK.
- [63]. Toma, E. (2015). Self-reflection and morality in critical games. Who is to be blamed for war?. Journal of Comparative Research in Anthropology and Sociology, 6(01), 209-224.
- [64]. Uskov, A., & Sekar, B. (2014). Serious games, gamification and game engines to support framework activities in engineering: Case studies, analysis, classifications and outcomes. In IEEE international conference on electro/information technology (June). pp. 618-623. IEEE.
- [65]. Van Poeck, K., Östman, L., & Block, T. (2020). Opening up the black box of learning-by-doing in sustainability transitions. Environmental Innovation and Societal Transitions, 34, 298-310.
- [66]. Verheijen, G. P., Stoltz, S. E., van den Berg, Y. H., & Cillessen, A. H. (2019). The influence of competitive and cooperative video games on behavior during play and friendship quality in adolescence. Computers in Human Behavior, 91, 297-304.
- [67]. Wade, B., & Piccinini, T. (2020). Teaching Scenario Planning in Sustainability Courses: The Creative Play Method. Journal of Management Education, 1052562920958136.
- [68]. Webster, A (2019) Pokémon Go spurred an amazing era that continues with Sword and Shield. The Verge (February 28). Downloaded at https://www.theverge.com/2019/2/28/18243332/pokemon-gosword-shield-franchise-history-niantic-nintendo-switch
- [69]. Weines, J., & Borit, M. (2019). Playing with the Past to Understand the Present: The potential of using Nusfjord (2017) to Teach About the Complexity of Fisheries as SocioEcological Systems.
- [70]. Wiek, A., Ness, B., Schweizer-Ries, P., Brand, F. S., & Farioli, F. (2012). From complex systems analysis to transformational change: A comparative appraisal of sustainability science projects. Sustainability Science, 7(1), 5-24.
- [71]. Wijman, T. (2000) The World's 2.7 Billion Gamers Will Spend \$159.3 Billion on Games in 2020; The Market Will Surpass \$200 Billion by 2023. Downloaded at: <u>https://newzoo.com/insights/articles/newzoo-games-market-numbers-revenues-and-audience-2020-2023/</u> (posted on May 8, 2020; consulted on November 19, 2020).
- [72]. Wilkinson, P. (2016). A brief history of serious games. In Entertainment computing and serious games (pp. 17-41). Springer, Cham.
- [73]. Wolf, M. J. (2015). Video Games, cinema, Bazin, and the myth of simulated lived experience. G| A| M| E Games as Art, Media, Entertainment, 1(4).

Professional EXO-JUDGMENT Perception – a Quantitative Research Based on an Innovative Conceptual Structure – part III

VIORICA MIRELA STEFAN-DUICU Lecturer, the Department of Economic Sciences "Nicolae Titulescu" University 185 Calea Văcărești, 4th District, Bucharest ROMÂNIA chirita.mirela@gmail.com

ADRIAN STEFAN-DUICU Auditor ROMÂNIA stefanduicu.adrian@gmail.com

Abstract: - This paper represents the third part of an exhaustive research that has a high content of innovation and creativity. The central element around which orbit all the hypotheses developed and the whole content is the concept of exo-professional judgment. Even if we have presented conceptually with all its composing elements, description and the influences created around it, in this article we will delimit the bond between the professional judgment and the value judgments that are comprised in the reference theories and how known are these within the society.

Key-Words: - reference accounting theories, exo-judgment, value judgments, innovative concept, professional judgment

1 Introduction

Professional judgment and the value judgments

The value judgment, a "normative judgment that enounces an appreciation" ¹ represents a set of moral values and reflects the capability of an employee to be good or b_ad , honest or dishonest, objective or subjective etc.

A percentage of 78% of the study's attendees have stated the fact that value judgments are integrated in the professional judgment.

Fig. 1. The integration of the value judgments in the professional judgment





Source: elaborated by the author

¹ Dictionary available at the address: <u>http://dexonline.ro/definitie/valoare</u>.

^{The} Value judgments, as the sample population states, regardless the domain, have been assimilated to the following moral values, as seen in the table below:

Ethics	Correctitude
Integrity	Seriousness
Objectivity	Promptitude
Honor	Respect
Justice	Responsibility

Table 1. Moral values

Source: elaborated by the author

- Reference accounting theories useful in the use of the professional judgment

The accounting theories are those "that separate the accounting phenomena into "art" and "technique" of the accounts on one side, and "science of the company's economy" on the other side.² Their utility is undisputed, accounting theories representing the fundament of current computing systems.

The respondents, in a percentage of 72,49% do not have any knowledge regarding the accounting theories. A cause of this bad consequence is represented by the orientation of the companies on current policies without highlighting the base of these policies and the information that has generated today's decisional mechanism and the current organizational quadrants.

The study's attendees do not possess a developed economic, financial and accounting culture and cannot fully understand the processes that occur within a company because the lack of information propagation related to the mandatory epistemological pillars of every environment, process, domain etc.

Fig. 2. The knowledge proportions of reference accounting theories useful in the use of the professional judgment



The knowledge of reference accounting theories

² S. Damian, "Evoluția contabilității în perioada de tranziție a economiei românești", PhD thesis resume, 2011, pg, 20.

Source: elaborated by the author

	Theories	Character
Academic	Accounting Theory	Positive/Normative
	Value Theory	Positive/Normative
	Accounts Theory	Positive/Normative
	Balance sheet Theory	Positive/Normative
	Games Theory	Positive/Normative
	Agency Theory	Positive/Normative
	Signal Theory	Positive/Normative
	Human Capital Theory	Positive
	Financial Market Theory	Positive
	Equilibrium Theory	Positive/Normative
Consultancy and	Normative Theories	Normative
management		
	Positive Theories	Positive
	Agency Theory	Positive/Normative
	Accounts Theory	Positive/Normative
	Balance sheet Theory	Positive/Normative
	Value Theory	Positive/Normative
	Human capital Theory	Positive/Normative
	Organizational Theories	Positive/Normative
Distribution	Bureaucracy Theory	Positive
	Accounts Theory	Normative
	Balance sheet Theory	Normative
	Patrimonial Theories	Normative
	Normative Theory of	Normative
	Accounting	
Production	Games Theory	Positive/Normative
	Signal Theory	Positive/Normative
	Accounting Theory	Positive/Normative
	Value Theory	Positive
	Sociological Theories	Positive/Normative

Table 2. Theories stated by the respondents

	Theory of Social Economic Organization	Positive/Normative
	FinancialManagementTheories	Positive/Normative
	Bureaucracy Theory	Positive
Public services and other services	Balance sheet Theory	Normative
	Accounts Theory	Normative
	Double party Theory	Normative
	Cost Theory	Normative
Legal	Quasi-legal Theory	Positive/Normative
	Legal Theories	Normative
	Normative Theory	Positive/Normative
	Representation Theory	Positive/Normative

Source: elaborated by the author

The respondents tried to present the useful accounting theories in the use of the professional judgment. After the data processing we can observe that the employees don't exactly know what the accounting theories are, but they associate the accounting theories with the sociologic, legal, management and financial theories.

Fig. 3. The notoriety of accounting theories according to the fields of activity Knowledge of accounting theories according to the fields of activity



Source: elaborated by the author

A clearer image of the accounting theories are found in the academic environment, the respondents presented correctly the accounting theories in a higher percentage (67.57%).

This fact is owed to the access to valuable information that goes over the common threshold of knowledge. The high intellectual level favors the development of the economic, accounting and financial knowledge in the academic domain.

In the distribution and service domain the proportion regarding the fact that employees don't know the accounting theories is over 93%. In consultancy and management domain the percentage is over 70% for those that do not have any information regarding the accounting theories and in production and legal domain the percentage is over 60%.

In conclusion, the respondent cannot use the accounting theories as guidance in their own activity because they do not know the theoretical base of accounting under the form of issued theories. There is still a possibility of a cumulus of information in the domain, but because the gaps existing at an educational and organizational level, the respondents do not associate the body of information with the theoretical base of the accounting theories.

References:

- [1] Caplow, T. (1970), L'enquête sociologique, Armand Colin, Paris.
- [2] Ștefan-Duicu, V. M. (2016), Contabilitatea și raționamentul profesional, Editura Mustang, București.
- [3] Chelcea, S.(1975), Chestionarul în investigația sociologică, Editura Științifică și enciclopedică, București.
- [4] Chelcea S. (2001), *Tehnici de cercetare sociologică*, suport de curs Școala Națională de Studii Politice și Administrative SNSPA, București.
- [5] Weight, K. B. (2005), Researching Internet based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services, Journal of Computer-Mediated Communication, Vol. 10, Issue 3.
- [6] Niculescu, M. & Vasile, N. (2011), Epistemologie. Perspectivă interdisciplinară, Ed. Bibliotheca, Târgoviște.
- [7] Cristea, V. G., (2015), The necessity to introduce the accounting rules and the fair value in the conceptual framework, *Procedia Economics and Finance*, Vol 26, pag 515-521.
- [8] Mackenzie, N. & Knipe, S. (2006), Research dilemmas: Paradigms, methods and methodology, Issues in educational research, Vol.16, No. 2.
- [9] Şandor, S. D. (2013), Metode și tehnici de cercetare în științe sociale, Tritonic Books, București.
- [10] Topf, M. (1986), Response sets in questionnaire research, Nursing research, Vol. 35, No. 2.
- [11] Coles, C. (2002), Developing professional judgment, Journal of Continuing Education in the Health Professions , Vol. 22, Issue 1.
- [10] Deutsch, M. & Gerard, H. B. (1955), A study of normative and informational social influences upon individual judgment, The journal of abnormal and social psychology, Vol. 51, No. 3.
- [11] Grigore, M. Z. (2009). *Economia informației, instrument de analiză al noii microeconomii*, Lex ET Scientia International Journal (LESIJ), 16(2), 354-364.
- [12] Mattessich, R. (1995), Conditional-normative accounting methodology: incorporating value judgments and means-end relations of an applied science, Accounting, Organizations and Society, Vol. 20, No. 4.
- [13] Sudacevschi, M. (2016). *The promotion of the accounting services within the limits of professional ethics*. Challenges of the Knowledge Society, CKS Journal, 718-722.
- [14] Yankelovich, D. (1991), Coming to public judgment: Making democracy work in a complex world, Syracuse University Press.