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"CHALLENGES OF BULGARIA AND ROMANIA DURING THE NEW ECONOMIC REALITY"

under the Bilateral Project of Bulgaria – Romania (2021 -2024) "The World Economy on the Edge of a Deep Recession. Solutions for long-last recovery"

Sofia, 2022

The collection of papers in this book represents a documentary log of the results from the International Scientific Conference "Challenges of Bulgaria and Romania during the New Economic Reality" organized virtually on December 7th 2021 by the Economic Research Institute (ERI) at the Bulgarian Academy of Sciences (BAS) in Sofia, Bulgaria.

The Conference was organized by the International Economics Department of the ERI at the BAS and the Institute for World Economy (IWE) at the Romanian Academy (RA) as part of the joint interacademy project "Bulgaria – Romania (2021 -2024): The World Economy on the Edge of a Deep Recession. Solutions for long-last recovery".

The conference brought together esteemed researchers from both academies that are working on the areas of International Economics and International Finance.

The contributions of this book are divided in three thematic sections. Each paper presents the views of its authors who are completely and solely responsible for the published texts.

Just like the conference itself, the current edition offers an interesting mixture of scientific information, research approaches and achievements. Most of the contributions deal with the problems of the impact of EU policies in the context of Bulgaria and Romania EU membership, the economic development of the two countries as EU member states, their place in the global world and economy, as well as with some modern advances in international economics.

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Contents

CHAPTER 1. GLOBAL TRADE AND EU SINGLE MARKET

Iskra Christova-Balkanska[1]

THE SPECIALIZATION OR DIVERSIFICATION OF PRODUCTION IN EU CENTRAL AND EAST EUROPEAN COUNTRIES AND IN BULGARIA AND ROMANIA

EU industrial policy is entering a new stage of development, linked to the challenges posed by changes in globalization, The EU industrial policy is entering a stage of development towards digitalization and a green economy. The division of cognitive labor increases specialization and competition, but also the need for cooperation in Europe. Strategic competitiveness is based on the implementation of information and knowledge. The ecological environment is becoming a major strategic factor for regions and companies as well. These changes have had an impact on the specialization and the diversification of the industrial production of EU Central and Eastern European (CEE) member states after their opening to the international good and services market. In connection with the EU's new industrial policy, it is examined to what extent the EU CEE countries are prepared on a national and regional basis for the modernization of industrial capacities through the allocated funds for research and development activities. The aim of the report is also to highlight the opportunities of Bulgaria and Romania for inclusion through innovative technologies to the requirements of European industrial policy.

Keywords: EU integration, EU Industrial structural changes; Specialization; Diversification, EU CEE countries regional development; Global value chains, Innovation; EU new industrial policy.

JEL: F15, O1, O25, O31

1. The importance of industrial specialization and diversification for the economic openness towards the international trade

The basis of the international division of labor and the development of international trade is industrial specialization. It is a way of production of goods for which the country has comparative advantages, which brings a competitive position in the international trade market.

Production specialization is when a few efficient industries participate with a high share of the country's GDP. Investments in the economy, business management models, and the qualification of the labor force imply higher labor productivity and competitiveness of products on the world trade market. An important factor for the specialization of production is the transnational companies (TNC) as well as State's capacity to invest in research and development activities. Since industrial specialization permits more efficient allocation of valuable natural, capital and labor factors, it has a positive impact on the well-being of the country or the region. The specialization of production is also a suitable economic model for developing countries on the way to industrialization and entering the international commodity market of goods and services.

The specialization of production and international exchange has three main advantages, namely: improvement of the general productivity of labor, the international division of labor, and economies of working time. Specialization is the basis of the development of large-scale production of goods, in contrast to the times of the closed autarkic economy. According to the World Trade Organization (WTO), specialization of production is also an important factor that contributes to the development of the economic and industrial potential of developing countries.

In traditional theoretical models of international trade, it is underlined that liberal trade relations facilitate the opening of economies, which allows the expansion of exports and imports of goods for the production of which they have comparative

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advantages. In general terms, the analysis on which the traditional theories of international trade are based on the state and consequences of the opening of countries to the international goods market and their specialization in productions for which the country has comparative advantages. Early foreign trade theories explained comparative advantage by relative differences in productivity (David Ricardo), or by the relative availability of a given economy's factors of production (as explained by Eli Heckscher and Bertil Ohlin).

Modern theories of foreign trade incorporate monopolistic and firm-level competition into statistical models elucidating the factors that allow countries (or companies) to specialize in one type of industry or another. In these theories, a significant part of the models is devoted to intra-firm industrial trade, because it clarifies the complex relationships between companies operating in the same industrial sector (as is typical of the automobile industry). (M.J Melitz&S.Redding 2015, P.R.Krugman&E.Helpman 1985, P.R.Krugman, 1979)

The specialization of the economy focused on the production of a certain range of goods does not mean that the companies of this country will always realize increasing profits in the international market of goods and services. Their monopoly position in the international market of goods and services changes over time, under the influence of changing prices in the international market and from other factors affecting the global commodity market. The price instability and other factors that predominate the international trade market have a strong impact on the firm's rentability.

Most of the theories of international commerce make it clear that when a country trades in intermediate goods and in finished goods for which it has competitive advantages, the country has substantial advantages and developed specialized and/ or diversified production. International competition is the one that determines if one company has the potential to remain efficient and profitable on the international trade market, while other companies which have no competitive advantages on the international trade market concentrate their activities within the domestic market.

Industrial diversification is also qualified as proof, that the economy is developed and also has supporters in theoretical models of international trade. Developing countries are diversifying their production to expand their export lists, which makes the economy more resilient in the event of economic, financial, or political shocks and crises. A diversified industrial structure changes less often and this stability is a prerequisite for a sustainable economy.

The offshore operations of transnational companies (TNCs) and the fragmentation of production and trade relations because of the activities of global value chains (GVCh) have led to the distribution of different tasks in the process of production between several participants, located in different countries, which is in accordance with the cognitive division of labor. The skills and qualifications of the participants in the production process and the future benefits of implementing cognitive specialization are important.

Specialization and diversification are factors contributing strongly to technological progress and the consecutive need for restructuring industries for the state and the companies. The fragmented production units, located by the global value chains in different countries of the world in order to increase the company's efficient capabilities bring to the fore strategic specialization and smart specialization, which reflect the companies' ability to proactively implement innovations in ICT and adapt the production processes according to the dynamic technological innovations.

That is why it is essential what the country's potential is for the intensity of scientific research and development activity. Levels of public and foreign direct investment (FDI) and the adoption of innovation are important factors in production specialization and/or diversification. The country's performance in terms of companies' R&D spending is essential. These are essential indicators of the country's potential to implement modern models of production organization and management. Underfunding of R&D is an indicator of structural imbalances and underfunding of the potential contribution of scientific research to productivity and economic growth.

Investments in research and development activities are a prerequisite for the fulfillment of the goals set by the EU in the new EU industrial policy. The first part of this program "Europe 2020" was announced in 2010 and its objective was to overcome structural weaknesses in the European economy and to reduce income disparities on a regional basis within the EU, as well as to contribute to an increase in opportunities to reorganize the production process, taking into account the peculiarities of industrial production based on the cognitive division of labor and the development of "smart" specialization.

The overcoming of regional differences in EU countries is a prerequisite for increasing incomes and wealth and enlarging the opportunities to move towards more advanced industrial production. "Smart specialization" is a set of policies and measures aimed at increasing knowledge, content, and added value in industries for which countries have competitive advantages in the international trade market. The realization of the goals of "Industry 5.0" is directly related to the implementation of economic and industrial activities based on new entrepreneurial and production methods of organization and implementation. Production specialization stimulates investment in R&D activities for the realization of

the goals of "smart" specialization based on rapidly developing information and communication technologies (ICT) and the digitalization of the economy.

The pandemic crisis related to COVID-19 has greatly affected the EU economies. Entire sectors of industry were virtually shut down and the workforce was temporarily laid off. Under these conditions of imbalances in supply and demand and disruption of rhythmic supplies by global value chains, EU countries faced sensible difficulties to achieve the goals in relation to intelligent specialization and new EU industrial policy.

The pandemic crisis related to COVID-19 has shown the dependence of European economies and companies on external economic and political factors impact. Efforts of EU members were oriented towards the achievement of strategic autonomy and reducing dependence on external suppliers of countries outside the EU (namely from China) of raw materials, intermediate goods, and finished products.

Although the hard impact of the pandemic crisis because of COVID-19, the European Commission confirmed the goals of "smart specialization" on the basis of industrial strategies towards a twin transition to a digital and green economy, as well as to improve the competitiveness of European production on world trade markets.

The update of the industrial strategy of the EU 2020 is aimed at overcoming the structural imbalances in the industry, taking into account the gaps in the economic and foreign trade policy and at the expanded implementation of innovative productions in the ecosystems, i.e. in the individual branches of the EU economies.

2. EU Central and Eastern European countries' adaptation towards the new EU industrial policy

The manufacturing industry is the basis of economic prosperity and the development of foreign trade in the country. In recent decades, EU industrial production has been changing due to deindustrialization, the delocalization of industrial enterprises to other EU countries or outside the EU, as well as the change in the business models of companies and the operation of global value chains.

The production base of the countries of Western Europe is gradually shifting to the countries of EU Central and Eastern European (CEE) countries, where products and services related to the industry are being delocalized by Western European multinational companies attracted by the comparative advantages that the CEE countries have comparatively lower labor costs, the increase in foreign direct investment (FDI), availability of the natural resources and compliance with environmental standards and last but not least is the skilled workforce.

The implementation of digital technologies, climate change requirements, and the goal of achieving sustainability in the industry and the economy also have a material impact on industrial production. The manufacturing sector is increasingly related to industrial products, such as logistics support, R&D, design and computer services, and advertising and marketing.

Innovative productions are of particular importance for overcoming the differences in regional economic development and, in particular, for overcoming the backwardness at the regional level in the EU CEE countries.

The index of industrial production is an important indicator for assessing the economic activity in industrial sectors (after removing the influence of price variables). The global financial and economic crisis had an extremely negative impact on industrial production (falling by 1.6% in 2008 and by 14.4% in 2009). In 2012-2013, European industrial production also declined, then began a period of recovery over 5 consecutive years. In 2019, the EU industrial production index fell by 0.5%, followed by a significant decline in 2020 of 7.4%. The decline in the index of industrial production is due to the sharp contraction of capital goods (by 11.8% in 2020) due to the pandemic crisis related to the spread of COVID-19.[2]

Industrial production in the EU was 9.1% higher in 2021 than it was in 2005. The highest growth rates among the EU Member States during this period was recorded in Ireland, Poland and Slovakia, all of which have a level of industrial production in 2021, that is more than twice the level of 2005. A total of nine EU Member States recorded by low levels of industrial production in 2021 compared to 2005. The largest contraction during this period was in Spain (–19.6%), Portugal (–18.9%), Luxembourg (–16.5%), Italy (–14.7%), Greece (–13.8%) and France (–11.1%).[3]

[2] Eurostat data

[3] Total change in industrial production index (%), (2005–2021) Note: industry covers sections B to D of NACE Rev. 2. Source: Eurostat (online data code: sts_inpr_a)

EU manufacturing producer prices rose at a relatively slow pace between 2005 and 2021. The overall price change over this period was an increase of 28.6%. Producer prices in industry rose in all but one EU member state (Ireland). The largest increase was registered in Romania (with a total of 96.3%), Latvia (87.6%), and Bulgaria (81.9%).

A number of reasons explain the distribution and concentration of industrial activities in the EU CEE regions. According to the traditional concept of specialization and diversification of production, the CEE countries' industry is localized into some specific regions, where there are comparative advantages for producing goods that are competitive in the foreign market.

The endowment with natural resources is quite diversified in EU CEE countries and permits the specialization in mining and quarrying, agriculture, forestry, and tourism, and where there is a developed industrial base, important capacities exist for machines and equipment production. As a rule, the concentration of industrial capacities in one specific region is related to R&D scientific research. The availability of highly educated and skilled workers in EU CEE countries also affects specialization in scientific research and industrial parks that are developed jointly with universities. Financial insurance activities, as well as information and communication services in relation to industrial processes, are usually concentrated in urban areas.[4]

The delocalization of industrial enterprises by Western European companies has an impact on CEE countries' industrial structure development. The main reasons for the delocalization of Western companies' industries from Western Europe to Eastern Europe are the geographical proximity, the developed industrial structure, and the high educational and professional skills of the workers. The development of regions and their size is an important factor for assessing economic and industrial development and specialization or diversification on a regional basis in the EU.

Regional differences are significant in each of the CEE countries because they differ in labor productivity, infrastructure, and product competitiveness. This heterogeneity in the economic development of the regions is also characteristic of developed economies in the EU27. The different levels of development of the regions and the degree of industrial capacities are important factors for the development of innovative productions and for improving the competitiveness of production, but also an obstacle to the green and digital transformation of economies. Despite growing economic difficulties due to the pandemic crisis due to COVID-19, industrial production is increasing in EU CEE countries.

The main factor that shows the development of one or another region is GDP, with which it contributes to the country's economy. In 2020, the EU's GDP is estimated at €13.4 trillion, with an average of €29,900 per capita.[5]

Regional dimensions and disparities are important factors for assessing the economic and industrial development of the EU CEE countries. The improvement of the regional economic situation is the basis for the country's full participation in the EU's cohesion policy, which promotes convergence and sustainable economic growth.

After Bulgaria's accession to the EU, the Bulgarian regions have developed unevenly and, in general, the process of convergence with the average level in the EU has been slow. The data show that internal regional differences in Bulgaria remain significant. All regions, except the capital, register 50% below the EU average in terms of GDP per capita (in terms of PPS). The disparities are due to differences in labor productivity, harsh demographic problems, levels of education, employment, infrastructure quality, and insufficient research and innovation performance. In 2019, GDP per capita in the North-West region was 32% of the EU average, while it amounts to 89% in the South-West region, where the capital Sofia is located. Economic activity in Bulgaria remains highly concentrated in the region of Sofia, where 51% of the national GDP is produced. Labor productivity in Bulgaria is increasing, with less developed regions catching up, but the country lags behind the EU average level and this further deepens regional differences in Bulgaria. Bulgaria has the lowest labor productivity in the EU, equal to about 23% of the EU average. Labor productivity is highest in the region Yugozapaden, almost twice that of the lowest productivity South Central region. Although, the productivity growth in the lowest productivity region is increasing and grew by 3.5% per year between 2010 and 2019.

Many of the less developed regions of the country still lack important key assets such as transport infrastructure and human capital. This determines Bulgaria's poor results in the field of innovation. Transport infrastructure, especially roads, is more developed in the southern regions, especially in the capital.

Research and development spending is also much lower in less developed regions. In the Sofia region, the share of ICT implementation (41%) is higher compared to the least developed regions, where it can drop to 17% (Northwest and North Central). The ICT penetration is low, bearing in mind that the population in some regions lacks the possibility to use the Internet for public utilities. In 2020, the unemployment rate was only 3.4% in the South Central region but reached its

[4] Eurostat regional yearbook (2019), Eurostat, p.102
[5] https://ec.europa.eu/eurostat/cache/digpub/regions/#gross-domestic-product

highest value of 13.0% in the least developed Northwest region. The employment rate in this region is also particularly low (63.3%) compared to the national average of 73.4%[6].(See Table 1)

After the global financial crisis, industry and services have the highest share of the GDP of Bulgaria. (Agriculture sector - 4.4%; Industry - 19.8%; Construction - 4.5%, Services - 57.9%). An essential part of the industry is the processing industry, where almost 80% of the manufactured products are created. Bulgaria is specialized in sewing industry, but most important is the Bulgarian specialization in the sectors of the energy industry, production parts for motor vehicles, computers, programming, consulting and related services.[7] On the basis of the specialization of the Bulgarian industry in the past in productions related to electronics, production sectors in the field of ICT and electronics have been developing.

Enterprises from the non-financial economy are concentrated for the most part in South-West and South-Central, at the expense of North-West and North-East regions of Bulgaria. In the regions of South-West and South-East Bulgaria, the enterprises make up over 57% of the enterprises located on the territory of Bulgaria, and in North and South-East Bulgaria - 43% and the third most important is the South-West region. In the remaining regions of Bulgaria, the industrial structure mainly consists of small and medium enterprises (SMEs) with up to 9 to 50 workers.

Table 1: EU Central and East European countries selected indicators at regional level

	GDP PER HEAD (PPS) EU27=100, 2019	PRODUCTIVITY (GVA (PPS) PER PERSON EMPLOYED) EU27=100, 2018	GDP GROWTH AVG. % CHANGE ON PRECEDING YEAR, 2010- 2019	UNEMPLOYMENT RATE % OF ACTIVE POPULATION, 2020	R&D EXPENDITURE % OF GDP, 2018	INNOVATION PERFORMANCE
EUROPEAN UNION	100	100	1,57	7,1	2,19	
BULGARIA	53	2.87(c)	3.12 (a)		0.76	
Severozapaden	32	2.60(c)	2.72		0.49	Emerging innovator
Severen tsentralen	35	2.47 (c)	2.91		0.32	Emerging innovator
Severoiztochen	41	2.53(c)	2.59		0.43	Emerging innovator
Yugoiztochen	40	3.05(c)	3.00		0.32	Emerging innovator
Yugozapaden	89	2.51(c)	2.85		1.14	Emerging innovator
Yuzhen tsentralen	37	3.45(c)	3.38		0.44	Emerging innovator
ROMANIA	70	69	3.12(a)	5.0	0.50	

[6] European Commission, Report for Bulgaria for 2022 г.,{COM(2022) 603 final} - {SWD(2022) 640 final, Brussels, 23.5.2022 г.

[7] Bulgaria produces concentrates of precious metal ores, iron ores, lead-zinc and tin ores, various types of minerals, a wide range of goods for light industry, chemical goods, semiconductor elements, electronic integrated circuits and cards, laptops and desktop computers, multifunctional devices for performing one or more functions, other information processing systems etc.

Nord-Vest	64	61	3.70	3.8	0.22	Emerging innovator
Centru	66	76	2.65	7.1	0.31	Emerging innovator
Nord-Est	44	39	-1.18	3.0	0.19	Emerging innovator
Sud-Est	58	64	3.23	7.4	0.09	Emerging innovator
Sud-Muntenia	54	58	-0.89	5.9	0.33	Emerging innovator
Bucuresti-Iflov	160	133	6.72	4.7	1.15	Emerging innovator
Sud-Vest Oltenia	54	53	-0.62	5.0	0.24	Emerging innovator
Vest	71	78	5.49	4.6	0.42	Emerging innovator
POLAND	73	75		73.6(b)	1.21	
Małopolskie	67	71			2.14	Moderate innovator
Śląskie	74	81		70.2(b)	0.72	Emerging innovator
Wielkopolskie	79	76		75.4(b)	0.75	Emerging innovator
Zachodniopomo rski	60	66		71.3(b)	0.55	Emerging innovator
Lubuskie	59	66		72.5(b)	0.48	Emerging innovator
Dolnośląskie	80	84		75.1(b)	1.09	Emerging innovator
Opolskie	57	65		73.1(b)	0.63	Emerging innovator
Kujawskopomorskie	58	63		71.3(B)	0.65	Emerging innovator
Warmińsko-mazurskie	50	58		69.6(b)	0.56	Emerging innovator

Pomorskie	71	73		75.7(b)	1.40	Emerging innovator
Świętokrzyskie	52	57		72.22(B)	0.57	Emerging innovator
Lubelskie	50	53		70.5(b)	1.02	Emerging innovator
Podkarpackie	51	58		70.0(b)	1.11	Emerging innovator
Warszawski stołeczny	160	145		81.7(b)	2.44	Moderate innovator
Mazowiecki regionalny	63	60		72.9(b)	0.45	Emerging innovator
CZECH REPUBLIC	93	85	2.47			
Praha	205	131	3.07			Strong innovator
Střední Čechy	83	84	3.31			Moderate innovator
Jihozápad	78	75	2.11			Moderate innovator
Severozápad	64	64	0.49			Emerging innovator
Severovýchod	76	74	2.65			Moderate innovator
Jihovýchod	83	77	2.35			Moderate innovator
Střední Morava	75	70	2.57			Moderate innovator
Moravskoslezsko	74	74	1.70			Moderate innovator
SLOVAKIA	70	74	2.85	6,7	0,84	
Bratislava	162	109	2.46	3,4	1,42	Moderate innovator
West Slovakia	65	67	2.72	4.7	0.69	Emerging innovator

Central Slovakia	57	62	2.96	6.7	0.61	Emerging innovator
East Slovakia	50	67	3.49	10.5	0.48	Emerging innovator
HUNGARY	73	66	3.23(a)	3.3		67.9
Budapest	151	71	2.48	3.3		97.6 Moderate innovator
Pest	58	66	2.58	3.3		66.0
Közép-Dunántúl	67	65	4.16	2.8		57.7
Nyugat-Dunántúl	71	68	3.64	2.4		54.8
Dél-Dunántúl	50	59	3.21	5.3		48.9
ÉszakMagyarország	49	63	4.05	5.0		49.1
Észak-Alföld	47	58	3.18	7.3		50.9
Dél-Alföld	53	60	3.66	4.7		57.3

Source: European Commission Staff Working Paper 2022 Country Report – Bulgaria, Romania, Poland, Czech Republic, Hungary, Slovakia, Eurostat data

In Romania, regional differences are substantial in terms of income, labor productivity, investment, and employment. GDP per person (PPS) is highest in the Bucureşti – Ilfov region and amounts to 160% of the EU average, followed by the second most developed regions with 71%. Labor productivity in Romania is below the EU level, and the differences between regions on this indicator remain significant. The highest labor productivity was registered in the metropolitan region and in the Vest region. Productivity per capita is negative in the Nord-Est, Sud-Muntenia, and Sud-Vest Oltenia regions. These regions in the period 2010-2019 registered negative GDP growth. (Table 1) The most specialized regions of Romania are the Northwest, the Southwest Oltenia and the South Muntenia. Other regions, such as: Centru, North-East, Bucharest-Ilfov and Vest the specialization of industry is less pronounced and the production is much more diversified. As it was mentioned earlier, the richest and most diversified region in Romania is Bucharest-Ilfov.

The data shows that all regions of Poland are below the EU average level of GDP per capita (PPS) despite efforts to converge with the EU average level. Only the Warszawski stołeczny region has a GDP per capita of 160% and is above the EU average. Labor productivity in this region is also high, as indicated by the presence of a number of industrial enterprises around the capital city of Warsaw. The differences between the regions are due to the effect of problems such as a shortage of qualified personnel, a low level of attracted local and foreign investment in research and development, and low incentives for entrepreneurship and for improving labor productivity. The Mazowiecki region (around the capital Warsaw) is the region with the highest share of employment in the non-financial economy in the EU. (Table 1)

Regional disparities in the Czech Republic have decreased since the country's entry into the EU. Due to the pandemic crisis due to COVID-19 and the related shutdown of the Czech economy, regional disparities are increasing. The economy of the Czech Republic is highly developed in the capital (Prague), where GDP per capita (PPS) was 205% of the EU-27 average in 2019. Compared to other CEE EU member states, 6 Czech regions are moderately developed, where GDP varies between 74% and 83% of the EU27 average. Despite this positive trend, similar to other CEE countries and regions, significant intra-regional socio-economic disparities continue to hinder the Czech government's efforts to reduce disparities and boost digitalization and the development of green industries at the regional level.

Slovakia was catching up with the rest of the EU until 2014, but since then GDP has deviated from the EU average. After a peak of 78%, GDP per capita now stands at 70% of the EU average. The trend is the same for all Slovak regions, but

the least developed regions see a relatively smaller decline compared to the capital after the peak. GDP in the three regions varies between 50% and 65%, while it amounts to 162% of the EU average in the Bratislava metropolitan region. Regional disparities remain significant in labor productivity, infrastructure, and competitiveness between the capital and less developed regions of the country and represent an obstacle to the green and digital transition. The country shows moderately low results in the area of innovation, highlighting regional differences.

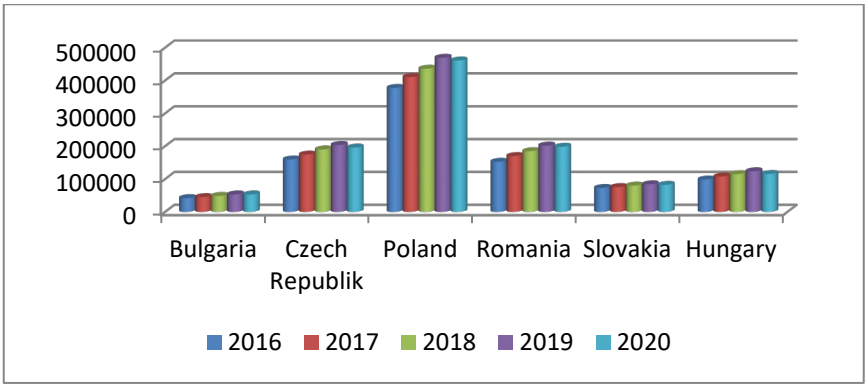
Since Hungary's accession to the EU, GDP per capita is improving, but is still only about 50% of the EU average, while in Budapest it is significantly higher. With the exception of the Budapest metropolitan region, GDP per capita (PPS) in all Hungarian regions remains below 75% of the EU average. Internal regional differences are remaining in labor productivity, GDP growth, employment, and other factors that hamper the overcoming of regional disparities.

The value-added (VA) is a significant indicator of the industrial development of EU CEE countries. Germany had the highest share of value added among EU countries for the manufacturing sector at 33.0 %. Among the EU member states, Denmark has the highest share of VA from industry and, more specifically, the production of machinery and equipment (15.4%), followed by Germany - with a 14.9%. Bulgaria acquires the highest share of added value (18.2% of the total added value) in the production of electricity, gas, heating, air conditioning. The VA from the production of motor vehicles, trailers, and semi-trailers is the highest for Slovakia at 21.4%.

Cars, trailers, and semi-trailers industries give the highest value added in the total value added in Slovakia (21.4%), the Czech Republic (16.9%), Hungary (15.8%), Romania (15.1%), followed by Germany, with 14.3% at an average EU value-added level of 8.7%.

In the period, 2016 - 2020, the VA of the non-financial economy for 3 main regions increased in Bulgaria by 26.7%, in the Czech Republic by 22.74%, in Poland by 22.18%, in Romania by 30.1%, in Slovakia by 12.88%, in Hungary with 17.14%.[8] (see Fig.1)

Figure 1. Gross value-added at basic prices by NUTS 3 regions in the nonfinancial economy for EU Central and East European countries, 2016-2020



Source:https://ec.europa.eu/eurostat/fr/web/structural-business-statistics/publications

In 8 regions of the CEE countries, industrial production employs more than 40% of the workforce in the non-financial economy (2016). Poland has the largest share of employment in the EU in mining and quarrying amounting to 38.1%. In 3 Czech Republic regions more than 40% of the workforce is employed in industries.

The Global value chains with headquarters from Germany and Austria install production bases in industrial Czech regions. The production of transport equipment is characterized by clusters, where global value chains' industrial activities are concentrated. Romania's westernmost region, Vest, has the highest degree of specialization in motor vehicles, trailers, and semi-trailers. The main industrial centers of Poland are in the South. The main industrial centers are Wroclaw, Bytom, Czestochowa, Katowice, Chorzow, Krakow, Warsaw, and Gdansk. Iron and steel, chemicals, textiles, and zinc/lead refining are important industries developed in these regions.

High-tech industries cover the production of selected products: pharmaceuticals; computer, electronic and optical products; aircraft and spacecraft and related machinery. In 2019, these activities employed 2.0 million people in the EU (6.8% of manufacturing employment), while adding €293 billion in value-added, or 14.6% of manufacturing value- added.

[8] Own estimations on Eurostat data

In 2019, high-tech industries accounted for 24.5% of production value added in Belgium, while the next largest share was registered in France (18.0%). In the majority of EU Member States, less than 10.0% of value added in manufacturing is derived from high-tech industries. The lowest share was registered in Portugal (4.7%).[9]

High-tech enterprises in CEE countries are tied to attracted investments from overseas companies, given the delocalization process of Western European companies. Technologically developed companies are located in Poland, the Czech Republic, Hungary and less of them in Romania and Bulgaria. The production value of Hungary's high-tech enterprises as well as the produced added value amount to 2.58% and 2.21% of the production value and the added value of the EU, respectively. Poland registered respectively 2.62% and 2.16%, the Czech Republic – 2.91% and 0.71%, Romania – 0.65% and 0.25, Bulgaria – 0.22% and 0.25%.[10]

***Table 2**: High-tech Manufacturing statistics in EU CEE countries, 2018*

	NUMBER OF ENTERPRISES	TURNOVER EUR MILLION	PRODUCTION VALUE EUR MILLION	VALUE-ADDED EUR MILLION
EU	40358	715168	568933	177386
BULGARIA	459	1245	1243	452
ROMANIA	994	4064	3686	1263
CZECH REPUBLIC	3385	17154	16533	2576
POLAND	4446	16449	14896	3827
HUNGARY	1535	17114	14685	3924

Source: High-tech manufacturing activities, Eurostat data

The industrial structure of the EU CEE countries in some regions is specialized, but as a whole the diversified industrial production prevails in each of them. And it is a proof that in these countries there are a strong industrial potential for development and cohesion with the most industrialized regions in West Europe, despite the COVID-19 crisis effects.

The EU new industrial policy and goals brings to the fore the development of the regions as the main basis for achieving sustainable economic growth and the introduction of modern technologies in the production process. A large part of the realization of the goals of "smart specialization" in connection with the double transition to digitalization and green economy is due to foreign direct investments and mainly to the delocalization of production in the Eastern part of Europe. Although the industrial production in the CEE countries is growing as well as the industrial value-added value, the investments in R&D activity by region and in general still remains at a relatively low level. The country that wants to develop scientific research and development activity should allocate more significant percentages of GDP to create conditions and develop the attraction of quality FDI and new industrial projects. The data show that, with the exception of a few regions in the CEE countries, the level of funding of research and development activity by the state, including with monetary resources from the EU under operational programs, still remains at a much lower level.

Despite the activity of foreign companies on the territory of CEE, it is evident that they refrain to a large extent from developing significant scientific research activities to raise the high-tech level of production units located in the Central and Eastern part of Europe. Driven by the desire of international companies to maximize profits, they build the localization strategy in the host country on the basis of reducing production costs. To a certain extent, the theoretical concept is confirmed that companies invest in scientific development and implementation of new technologies in industrialized countries, while in other destinations they are limited to investments that support the already attained level of production.

[9] High-tech manufacturing activities, 2019, Eurostat (online data code: sbs_na_sca_r2
[10] Own calculations on Eurostat data

Conclusion

The main question to which an answer is sought is to what extent the countries of EU Central and Eastern Europe and mainly Bulgaria and Romania, are able to consistently develop EU new industrial policy goals, based on effective organization and innovative technologies. It is obvious that this process cannot develop without the participation and activity of the global value chains in the CEE countries.

The concept of the European Commission is that the development of intelligent specialization and precisely the double transition to digitization and green economy depends on the strategies of TNC for the modernization of the industry, and this activity cannot be subject to strict regulation by the European institutions. On the other hand, public spending is essential to increase the scientific potential of the state, which must help to reorganize the industrial sector.

The CEE countries face a number of challenges in relation to overcoming the effects of the pandemic crisis related to COVID-19 and the war on the territory of Ukraine, which significantly changed the supply of energy carriers and raw materials to Europe. In addition, the EU develops strategies for the development of industrial policy in relation to the development of new capacities and sources for the development of the cognitive division of labor and new business models that increase the efficiency of the Single Market and increase the strategic autonomy of Europe. Bulgaria and Romania will not be isolated from this comprehensive process of reorganization of the European industry.

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Eduard Marinov[11]

THE IMPACT OF THE COVID-19 PANDEMIC ON BULGARIAN AND ROMANIAN TRADE WITH SUB-SAHARAN AFRICA: A COMPARATIVE ANALYSIS

In the years before the Covid-19 pandemic a trend was observed for Bulgarian and Romanian exports to expand their value to partners with higher share at the expense of the reduction of exports to countries with a more insignificant presence in the country's international trade relations. The pandemic, however, imposed new rules and patterns in international trade. The diversification of international markets and the direction towards regions which were neglected and evaded as risky could be a powerful factor in the search for growth acceleration and overcoming the still unclear economic effects of the pandemic. The paper aims at summarizing the trends and transformations in trade with one such region – Sub-Saharan Africa, by providing a comparison of Bulgarian and Romanian trade relations with it. The study analyses the dynamics of both countries trade with the region for the 2016-2021 period, the place of Sub-Saharan Africa in Bulgarian and Romanian trade flows, the commodity structure and the direction of trade, providing an answer to the question if the trends observed before the pandemic are changing.
Keywords: Sub-Saharan Africa, SSA, Bulgarian International Trade, Romanian International Trade, EU comparative analysis
JEL: F10, F14, O50

Introduction

In the years before the Covid-19 pandemic a trend was observed for Bulgarian and Romanian exports to expand their value to partners with higher share at the expense of the reduction of exports to countries with a more insignificant presence in the countries' international trade relations. Under the current state of deepening liberalization and globalization processes, intensification of trade relations is a main pillar in their strategies for economic development. The concentration of foreign trade with one country or economic community, as is the case with the European Union (EU), determines the dependence of the economy on the economic situation of those main partner countries, which poses a high risk of rapid transmission of (negative) global economic trends in our country. Economic growth will be determined by export opportunities – especially outside the EU, hence any policy to promote exports is fundamental to the growth and stability of the economy in the medium term.

The pandemic, however, imposed new rules and patterns in international trade. The diversification of international markets and the direction towards regions which were neglected and evaded as risky could be a powerful factor in the search for growth acceleration and overcoming the still unclear economic effects of the pandemic.

Although neglected by both Bulgarian and Romanian researchers and policy makers in the past several decades, Sub-Saharan Africa (SSA) becomes more and more significant to the countries trade relations while the development of trade with the countries in the region has a serious potential in terms of the opportunities which their markets present to Bulgarian and Romanian companies. The importance of Sub-Saharan countries is determined by their increasing role in global politics and economy, as well as by the vast economic potential and natural resources available to these countries.

Bulgarian and Romanian policy towards African countries in general is based on the one hand on the traditionally good relations with some of them, while on the other – on their preferential political and economic relations with the European Union. Important conditions for these countries to overcome their problems are the existence of an established legal and institutional framework, the political stability and inclusive social environment. The African direction of Bulgarian foreign and economic policy is a part of the country's priorities for its integration into the European structures. Thus both countries are part of the development of trade relations with African countries under the EU Economic Partnership Agreements.

Aiming to analyses and summaries the potential trade prospects, the article discusses Bulgarian and Romanian trade with Sub-Saharan Africa in a comparative perspective to the EU. Section 1 analyses the long-term pre-Covid trends for the 2003-2015 period and the place of SSA in the international trade relations of the EU and Bulgaria. Section 2 provides a comparison of the dynamics, commodity structure, direction of trade and some further observations on Bulgarian and

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Romanian trade with SSA. Finally, the conclusion summarizes the main findings and trends and provides some recommendations on the possible policy measures for the utilization of the trade potential of Sub-Saharan markets.

The article analyses the period since 2003, when the new framework for trade relations between the EU and African countries entered into force. The long-term trends are discussed for the 2003-2015 period, while the impact of Covid-19 is analysed for the period 2016-2021 with annual and half-annual data due to data availability. All presented data are based on the author's own calculations based on import and export data from the International Trade Center and Eurostat.

1. Summary of long-term pre-Covid trends[12]

Aiming to analyses and summaries the potential trade prospects, this section discusses Bulgarian and Romanian trade with Sub-Saharan Africa in a comparative perspective to the EU – the dynamics of trade for the 2003-2015 period and the place of SSA in the international trade relations of the EU and Bulgaria, a comparison of the commodity structure of trade with SSA, both counties' place within the EU and among the comparable as size of the economy and as historical links with the region countries of Central and Eastern Europe (CEE). The article analyses the period since 2003, when the new framework for trade relations between the EU and African countries entered into force, up to 2015. All presented data are based on the author's own calculations based on import and export data from the International Trade Center and Eurostat.

The total value of trade between Bulgaria and Sub-Saharan Africa in 2015 amounted to 409.8 million Euro, occupying just 0.8% of the Bulgaria's total and 2.3% of the country's extra-EU trade flows. Throughout the period 2003-2015 exports had a more significant place – in 2015 their value is 233.2 million and the share of exports to non-EU countries is 2.8%. Imports are considerably less – 177.6 million in 2015 which is 1.9% of the extra-EU imports of Bulgaria. Until Bulgaria's accession to the EU (up to 2007) trade with Sub-Saharan Africa had a relatively low value – less than 50 million Euro in 2003 and 2004 and about 100 million in 2005-2007. Before 2007 both imports and exports had similar values, while later there was a significant increase in exports – nearly 4 times till 2008 and almost 6 times till 2013.

The total value of trade between Romania and Sub-Saharan Africa in 2015 amounted to 650 million Euro, occupying just 0.5% of the Romania's total and 2.3% of the country's extra-EU trade flows. Throughout the period 2003-2015 exports had a more significant place – in 2015 their value is 408.5 million and the share of exports to non-EU countries is 2.8%. Imports are considerably less – 241.5 million in 2015 which is 1.7% of the extra-EU imports of Bulgaria. Until Romania's accession to the EU (up to 2007) trade with Sub-Saharan Africa had a relatively low value – less than 250mMillion Euro. In 2003 both imports and exports had similar values, while later there was a significant increase in exports – nearly two times till 2005, 4 times till 2008 and almost 5 times till 2013.

Exploring the dynamics of trade between Bulgaria and Romania on one hand and the region of Sub-Saharan Africa on the other shows that the global financial crisis has almost no (negative) impact on it, unlike the countries' accession to the EU in 2007, after which a significant increase in exports is observed. However, there is a certain decline in trade flows in the last years of the period under review for both Bulgaria and Romania.

Sub-Saharan Africa countries have a growing importance in Bulgarian and Romanian trade relations. The growth of trade in Bulgaria is faster – the value of trade with the region increased more than 4 times faster than Bulgaria's overall extra-EU trade flows, while in Romania it increased with 50% faster than the overall trade of the country. The potential of trade with these countries is even greater considering the increasing strongly positive balance of trade both in Bulgaria and Romania. Moreover, an increase in the share of trade with the region is observed, albeit it still occupies an insignificant part of Bulgaria's and Romania's total trade flows.

Both in Bulgaria and in Romania exports to Sub-Saharan Africa are growing faster than imports within the 2003-2015 period. However, while in Romania the region is occupying a growing but relatively unchanged share both in exports and in exports, in Bulgaria exports to SSA are taking a more serious place, while imports are growing faster in relative terms.

Bulgarian exports differ significantly of Romanian – the former are dominated by manufactures while the in the latter prevailing are crude materials. In terms of its commodity structure both Bulgarian and Romanian trade with Sub-Saharan Africa is poorly diversified and is concentrated mainly in a few major groups of goods – for Bulgaria these are mostly raw materials and products with low value added, while in Romanian trade prevail manufactures. Demand

[12] For a comprehensive analysis of long-term trade with SSA, see Marinov, E. 2017. Bulgaria and Romania Trade with Sub-Saharan Africa: A Comparison. In: Christova-Balkanska, I. and Marinov, E. (eds). 2017. International Scientific Conference Proceedings "Bulgaria and Romania: Country Members of the EU, Part of the Global Economy". Sofia: ERI-BAS. pp. 163-174. ISBN: 978-954-9313-09-3. https://inecoconference.files.wordpress.com/2017/07/12-eduard-marinov.pdf.

for manufactured goods in the region and the success of some Bulgarian and Romanian enterprises exporting such commodities shows a niche for national manufacturers. Unlike Romanian trade which is quite stable in terms of its commodity structure, in the 2003-2015 period there are significant changes in the commodity structure of trade, most of them due to the emergence or disappearance of a specific product in Bulgarian trade (imports or exports). With a few exceptions export of the main export commodities is instable – they appear and disappear in Bulgarian exports to individual Sub-Saharan countries in certain years, sometimes with a significant value. The trend for significant fluctuations and sudden appearance and disappearance of certain products in both countries' trade with Sub-Saharan countries is even more obvious.

The concentration of the export structure in a limited number of products in both countries is mostly due to the lack of persistent and sustainable trade relations caused by the weak or even non-existing government policy to support Bulgarian and Romanian companies at these markets. Bulgarian and Romanian enterprises do not utilize adequately the wealth in resources of Sub-Saharan countries – imports are also concentrated in a few products (mostly foods and metals) from a limited number of import sources. The strong trend towards major fluctuations as well as the sudden appearance or disappearance of certain commodities it trades with Sub-Saharan Africa has a negative impact on imports.

Bulgaria and Romania have a similar rank within the EU in terms of trade with SSA. If the old colonial metropolises are excluded, Bulgaria takes place exactly in the middle among the other EU member states in terms of trade with Sub-Saharan Africa. Romania on the other hand, although being a bigger economy, is just two places above. Even from this perspective, the share of the countries of the other 20 countries' trade flows is still very low. However, Bulgaria and Romania are among the EU countries with the fastest growth rates of international trade with Sub-Saharan Africa, albeit minimal in terms of value. Despite the lower volume of trade compared to Poland, which as the biggest economy under review is the leader among Central and Eastern Europe EU members, Romania and Bulgaria occupy leading positions in trade with Africa on all indicators. Bulgaria is the undisputed leader in terms of growth rates of both imports and exports.

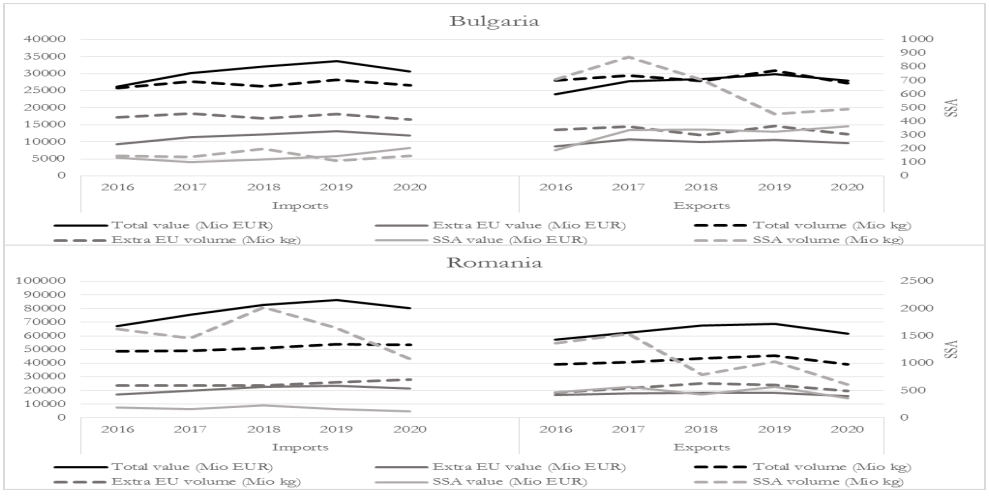
The growing potential of Sub-Saharan Africa together with the good institutional framework provided by the EU trade agreements are a fine basis for the realization of efficient trade policy by the Bulgarian and Romanian governments. This policy should include at the first place the utilization of the most important government function in supporting international trade – to provide information to potential exporters and importers, as well as the conduction of ambitious and most importantly persistent actions to impose Bulgarian and Romanian enterprises on these markets.

2. Dynamics of trade flows: the impact of COVID-19

2.1. Value and volume of trade

Both countries have a decreased value of total trade and Extra-EU trade in 2020, but unlike in Romania, for Bulgaria trade with SSA is increasing in 2020 – both in value as well as in volume (Figure 1). Although the total and the Extra-EU trade balance of both countries is negative, they both have a positive balance with SSA, nonetheless it is mildly deceasing in 2020, compared to 2019.

Figure 1. Value and volume of trade (annual data, 2016-2020)



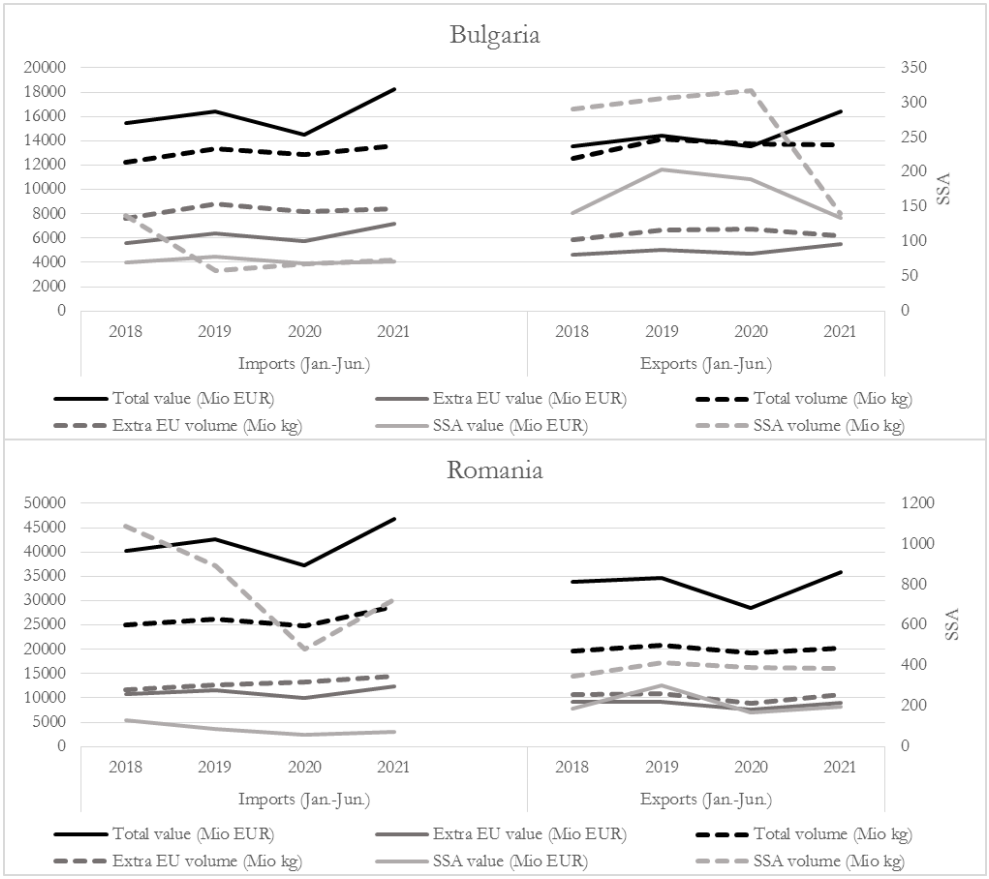
Source: Own calculations based on Eurostat data.

The total value of trade with SSA for Bulgaria in 2020 is 569.3 million Euro, imports amounting 205.3 Million and exports – 364 Million (increasing with respectively 100.4, 61 and 39.4 Million Euro compared to 2019), while the volume amounts to respectively 636 Million Tons (146.5 imports and 489.7 exports, increasing with around 35 Million each compared to 2019).

For Romania the value is lower, the volume is higher, and in 2020 there is a decrease in both. The total value of in 2020 is 467.1 million Euro, imports amounting 113.9 Million and exports – 353.2 Million (decreasing with respectively 263.8, 43.7 and 216.41 Million Euro compared to 2019), while the volume amounts to respectively 1694.5 Million Tons (1079.2 imports and 615.3 exports, decreasing with respectively 568 and 412 Million Tons compared to 2019).

A new trend could be seen in 2021 however which could be contributed to the effects of the pandemics – the value and volume of global and extra-EU trade is sharply increasing in both countries in the first half of 2021 (Figure 2), bringing it at the highest level in the period under review.

Figure 2. Value and volume of trade (half-annual data January-June, 2016-2020)



Source: Own calculations based on Eurostat data.

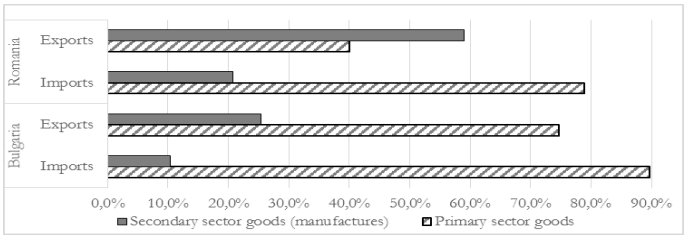
As for trade with SSA again there is a difference in the dynamics – while both imports and exports of Romania increase (with respectively 1% and 51%), there is a sharp decline of Bulgarian exports in 2021 bringing exports to SSA to their lowest value and especially volume in the observed period – a decrease in value of 29%, and in volume – of more than 55%.

2.2. Commodity structure

Although there are a lot of similarities in the trade patterns of the two countries, one can see a very different picture regarding the commodity structure of trade with Sub-Saharan Africa – while imports of both Bulgaria and Romania are highly concentrated in primary goods (which is natural due to SSA's export structure), we observe a very different commodity structure in exports (Figure 3) with ¾ of Bulgaria's exports being concentrated in primary goods (40% crude

materials, mainly ores, 20% oils and fats and 10% food), while 60% of Romanian exports are of manufactures (47% - machinery and equipment).

Figure 3. Commodity structure of trade (%, 2020)

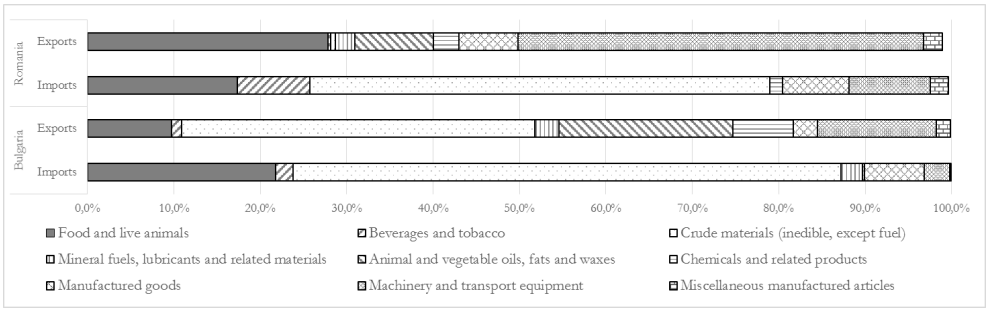


Source: Own calculations based on Eurostat data.

Bulgarian trade is highly concentrated (Figure 4) – the country imports ca 150 products, the first 10 occupying nearly 90% of all imports (40% precious metal ores and 15% cocoa beans), and exports 600, the first 10 occupying nearly 80% (50% - copper ore, 20% sunflower seeds and oil).

Romania has a more diversified trade – the country imports over 300 products, the first 10 occupying nearly 80% of all imports (30% aluminum ore, 12% rubber, 10% tobacco), and exports almost 650 products, the first 10 occupying nearly 60% (15% cars, 15% vessels, 12% sunflower seeds and oil, 7% wheat).

Figure 4. Commodity structure of trade (SITC groups, %, 2020)



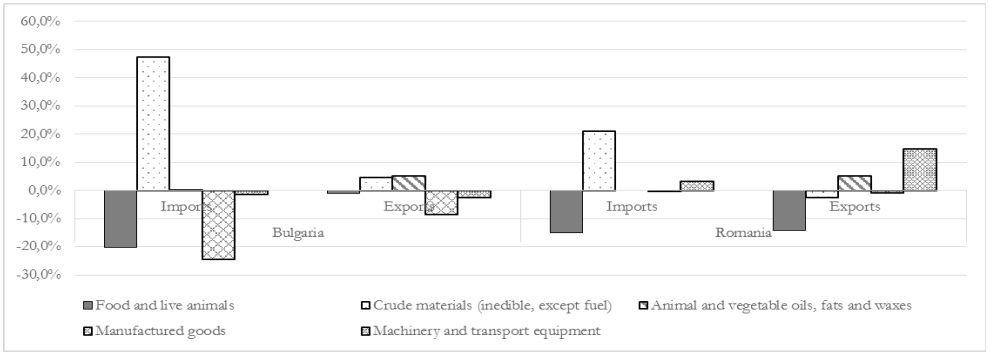
Source: Own calculations based on Eurostat data.

The changes observed within the period under review are in the same direction, making the trends even more pronounced (Figure 5).

The trends in half-year data are quite different (comparing the first half of 2021 with the first half of 2018) – we observe a 50% reduction in imports of fuels in Romania, somewhat compensated by the increase in food and crude materials, 21% reduction in exports of machinery and equipment, somewhat compensated by an increase in food and crude materials.

For Bulgaria there is an increase of 26% in the import of food, set off by a decline in manufactures (15%) and Fuels and lubricants (9%), while in exports we see a positive trend – a 12% decrease in oils and fats and a 8% increase in machinery and equipment.

Figure 5 Main shifts in commodity structure of trade (SITC groups, %, 2020/2016)



Source: Own calculations based on Eurostat data.

These changes lead to a quite different picture of commodity structure of exports in the first half of 2021 – almost 50-50 in Romania, and nearly 60-40 in Bulgarian when aggregated to primary-secondary goods.

2.3. Direction of trade

Turning to the main trade partners, se see a similar, but still differing in the specifics picture for Bulgaria and Romania – a highly concentrated direction of trade both in Bulgaria and Romania – both in imports, as well as in exports (Table 1 and Table 2).

Table 1. Bulgaria top trade partners in SSA (2019-2020, Million Euro)

	Imports		Exports	
	2019	2020	2019	2020
Angola	6,1	0,1	1,4	0,7
Burkina Faso	0,0	0,0	4,6	0,6
Côte d'Ivoire	38,2	22,3	2,2	14,5
Ethiopia	2,7	2,4	8,5	1,0
Ghana	5,0	5,4	3,1	2,6
Kenya	0,2	0,1	2,6	2,9
Mauritius	2,7	3,2	3,9	2,6
Namibia	0,0	0,0	115,1	142,0
Nigeria	1,6	9,3	31,8	29,3
Rwanda	0,5	0,0	1,2	2,3
Sudan	0,0	2,1	16,5	28,6
Senegal	2,1	0,3	0,3	1,3
Somalia	14,7	10,5	0,1	0,2
Tanzania	6,6	110,1	5,8	6,8
Uganda	1,4	3,2	9,6	1,3
South Africa	48,7	28,5	99,7	108,7

Source: Own calculations based on Eurostat data.

For Bulgaria the top 5 countries concentrate 85% of imports and 88% of exports (Table 1). Some changes in import sources – emerging Tanzania in imports, as well as Nigeria at the expense of zeroed imports from Angola, while in exports the main partners remain the same.

Table 2. Romania top trade partners in SSA (2019-2020, Million Euro)

	Imports		Exports	
	2019	2020	2019	2020
Congo	0,1	0,0	4,5	6,8
Côte d'Ivoire	18,9	12,5	8,2	6,0
Djibouti	0,0	0,0	0,7	7,6
Ethiopia	0,7	0,7	60,3	7,4
Gabon	0,4	0,4	4,7	4,1
Kenya	4,4	4,5	8,9	4,4
Liberia	1,8	1,1	40,5	37,8
Mauritius	2,2	2,8	1,7	0,9
Mozambique	4,9	2,2	1,5	1,9
Namibia	0,0	0,0	16,8	0,2
Nigeria	3,9	2,4	37,6	39,2
Sudan	0,1	0,3	92,4	69,8
Sierra Leone	67,0	38,5	0,4	0,5
Senegal	0,6	0,0	3,0	4,9
Eswatini	7,4	0,0	0,0	0,3
Tanzania	3,2	3,1	2,2	2,8
Uganda	6,6	5,1	2,0	0,5
South Africa	30,8	28,2	256,3	139,5
Zimbabwe	2,1	5,0	0,1	0,0

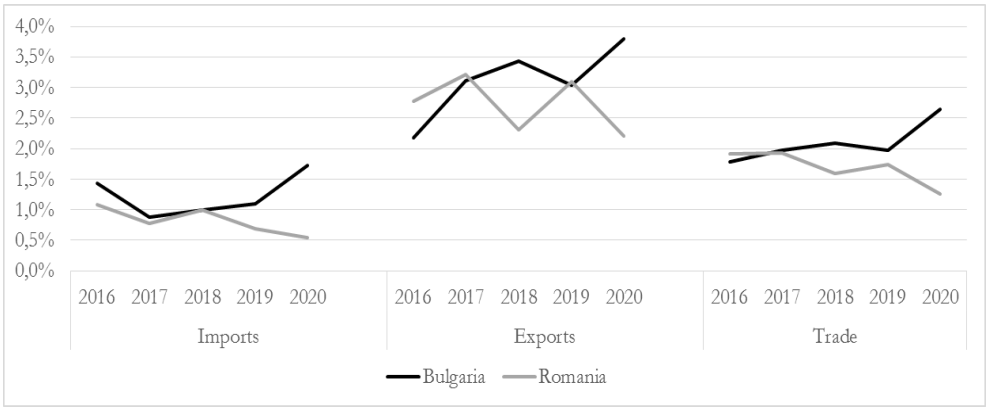
Source: Own calculations based on Eurostat data.

For Romania the top 5 countries concentrate 76% of imports and 83% of exports (Table 2). No great changes in the partners, just a few of the first ones with reduced trade flows, reflecting the total decrease in trade – both in imports (Sierra Leone, Cote d'Ivoire) and exports (South Africa, Sudan, Ethiopia).

2.4. Some further observations

Bearing in mind that Bulgaria is far more open to trade with third countries, when we look at the place of SSA as a trade partner (Figure 6), although starting from a relatively close positions, there is a totally different performance of the two countries in terms of the share of SSA in trade flows – significant decrease for Romania, and a comparatively significant increase for Bulgaria.

Figure 6. SSA as a trade destination for Bulgaria and Romania (% of SSA in countries' trade flows)

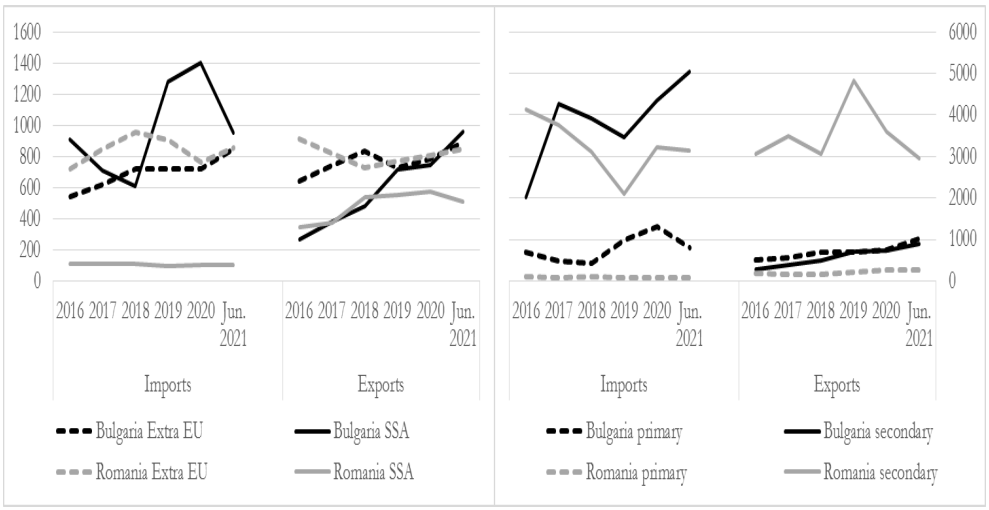


Source: Own calculations based on Eurostat data.

A serious difference is the price of trade flows (Figure 7) – for Romania imports are relatively cheaper than exports – both for general extra-EU trade as well as for SSA with the latter being cheaper, while for Bulgaria we see a great difference – here import and exports are almost equal as a price (with a very volatile price of imports from SSA).

Moreover, when we look at the commodity structure, we see the difference confirmed – Romania shows the normal situation of primary goods being cheaper than manufactures both in imports and in exports, while for Bulgaria exports of manufactures are a bit cheaper than exports of primary goods, while the price of manufacture imports is very high.

Figure 7. Price of trade (2020, Euro/kg)



Source: Own calculations based on Eurostat data.

3. Instead of a conclusion: some policy recommendations

As the analysis showed there is a significant change in the trade relations of Bulgaria and Romania with Sub-Saharan Africa due to the Covid-19 pandemics. Some of the transformations are positive, but for the countries to be able to seek for growth acceleration and overcoming the still unclear economic effects of the pandemic and utilize the potential of the region, they must face and try to overcome the main deficiencies - the concentration of the export structure, the better utilization of the wealth in resources of Sub-Saharan countries and the major fluctuations both in exports and imports.

The concentration of the export structure in a limited number of products in both countries is mostly due to the lack of persistent and sustainable trade relations caused by the weak or even non-existing government policy to support Bulgarian and Romanian companies at these markets. Bulgarian and Romanian enterprises do not utilize adequately the wealth in resources of Sub-Saharan countries – imports are also concentrated in a few products (mostly foods and metals) from a limited number of import sources. The strong trend towards major fluctuations as well as the sudden appearance or disappearance of certain commodities in the trade with Sub-Saharan Africa has a negative impact on both exports and imports.

The growing potential of Sub-Saharan Africa together with the good institutional framework provided by the EU trade agreements are a fine basis for the realization of efficient trade policy by the Bulgarian and Romanian governments. This policy should include at the first place the utilization of the most important government function in supporting international trade – to provide information to potential exporters and importers, as well as the conduction of ambitious and most importantly persistent actions to impose Bulgarian and Romanian enterprises on these markets.

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Anton Kostadinov[13]

CHINA – CEE COUNTRIES TRADE RELATIONS PERSPECTIVES, BULGARIA IN FOCUS

Chinese trade relations with CEE countries should be analyzed in a broader context. China interlaces economic, cultural, and political vectors. Furthermore, CEE countries mistakenly perceive China as a source of economic benefits. Chinese presence in the CEE is facing the two other superpowers – USA and Russian Federation. However, the overall China's economic impact in the region still remain mediocre, despite of the efforts of European and China's governments. Of course, intensification of the trade is obvious, but political tensions impede faster developments. During 3rd China International Import Expo opening, president Xi Jinping emphasized the leading role of China in post-COVID-19 global economy.
Key words: international trade, trade policy.
JEL: F1, F13

Introduction

Trade relations in the initiative 16+1 may be analysed into the context of unlimited opportunities of Chinese market, which every country and every company is willing to explore. After 2012 China further developed and opened its domestic market, which is very competitive. China is a newcomer at Central and Eastern Europe as a major player and offered alluring investment and trade perspectives. Cooperation between China and the rest from the initiative encompasses almost any level – national, provincial, regional, and etc. Cooperation is intended to be comprehensive – political parties, culture, economy, and sports. Chinese initiative was received in CEE with, without exaggeration, large expectations from sixteen countries, but later we witnessed some disappointment in European countries. China was also disappointed, all participating countries in the initiative signed MoU with the USA targeting Huawei's access to their 5G networks or joined Washington's Clean Network initiative. This is a kind of restrictive maneuver against Huawei and other Chinese tech companies. The CEE countries were expected to become important trading partner on European peninsula for China, but this never happened.

1. Countries profiles

In this study we will differentiate all participating countries into three groups. The tree groups are profiled based on structure of their exports and imports, membership status in NATO and /or EU. We have Balkan countries, Baltic countries, Visegrad Four. Some of them are EU members, other are NATO members and we have EU candidate countries still in negotiation process. From another perspective – all the countries have different attitude toward China due to government change. We have the examples of Poland, Czech Republic and Lithuania.

Furthermore, the EU's anachronistic belief that China, influenced by European powers, will liberalize its economy and introduce changes in internal polices, which are expected to benefit the EU in the long run. But this is far from the truth. Pan Wei, a neo-authoritarian Chinese academic, noticed that "the EU is weak, politically divided and militarily noninfluential. Economically, it's a giant, but we no longer fear it because we know that the EU needs China more than China needs the EU."14 John Fox & François Godement (2009) also notice these divisions and systematized them. Czech Republic and Poland may be addressed as the industrialists, Slovenia, Bulgaria, Hungary, Greece – accommodating merchants, Latvia, Lithuania (pulled out of the initiative in May 2021) and Estonia - following common EU attitude. Furthermore, any change in the government in any participating country have significant impact on policy towards China.

Furthermore, different statute in the architecture of international affairs means different stimulus will be needed to for different player. That is why China insisted on loose concepts that easily could be promoted and successful initiatives shifted. As a newcomer in the region, China must clash with powers as the Russian Federation, Turkey, the USA, and pragmatically use the EU's weaknesses.

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[14] ECFR interview, Beijing, 6 June 2008.

1.1. Trade relations China - Balkan countries participating in the 16+1

In the Balkans region we have countries with different trajectories toward EU or NATO, that means different intensity of influence of other major players. The NATO domain is mostly influenced by the USA, countries negotiating EU membership – by the EU. For the USA 16+1 is a China's tool to create region with multilevel influence. The perception of the EU about 16+1 is a mechanism which is aiming at dividing the EU and weakening its position towards China. Here Russian Federation is also represented with its proxy - Serbia. From EU and NATO perspective we have the following selection:

Table 1 . EU and NATO membership

Albania	NATO member since 2009, EU accessions negotiations in progress
Bosnia and Herzegovina	EU accessions negotiations in progress
Bulgaria	NATO and EU member, accommodating mercantilist
Croatia	NATO and EU member
Greece	NATO and EU member, accommodating mercantilist
N. Macedonia	NATO member since 2020, EU accessions negotiations in progress
Montenegro	NATO member since 2017, EU accessions negotiations in progress
Romania	EU and NATO member, accommodating mercantilist
Serbia	EU accessions negotiations in progress
Slovenia	EU and NATO member, accommodating mercantilist

Source: Official NATO web page, https://www.nato.int/

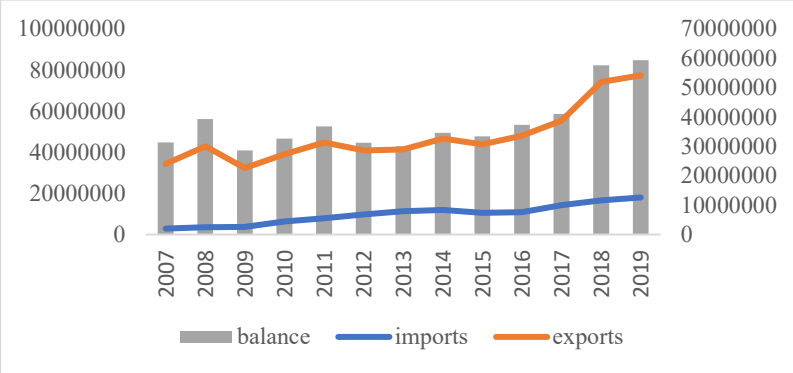
Here China uses vigilant approach. Economic situation in above mentioned countries differ from one to another. The enthusiasm with which 16+1 was extinguished by real differences of Chinese and Balkan economies. From that perspective we have different balance of powers of influence in every country. EU and NATO members are supposed to have predominance both organization members. Just before its membership in NATO, N. Macedonia has finished several infrastructure projects in cooperation with China. Some scholars perceive China as a "true predator" in the region (Mirel, 2019), or a threat to the EU's unity (Turcsanyi, 2014).

Economic benefits which that group of countries expected China to bring through trade and investments were not fully justified. Main China's outward investment flow are going to the North – Germany, Sweden, Norway etc. Beside that fact Balkan countries received limited number of investments, which are significantly smaller than those sent to Nordic countries.

China's most valuable trading partners from Balkans are Romania and Greece, followed by Slovenia, Bulgaria, and Serbia. Imports from China for all Balkan countries since 2012 increased, of which Serbia with 94%, all other countries experienced increase about 50%.

The total trade between Romania and China for 2019 amounted $23.56b, from which imports totalled US$16 billion, and exports $7.55b. The other biggest trading partner for China in the region is Greece which turnover for 2019 is $33,201b. Here enormous trade imbalance is observed $ 30,77b in imports, and exports amounted $2.4 billion for 2019. Big difference here easily could be explained with Chinese Concession of the Piraeus container terminal.

Figure 1 China - Balkan region trade



Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

Romania structure of the export for 2020 is structured as follows of machinery, nuclear reactors, boilers $291.83m, wood and articles of wood, wood charcoal for $194.22m, electrical, electronic equipment 168,45m. Romania's import from China is much more diversified, balanced and includes electrical, electronic equipment for $1.68b, machinery, nuclear reactors, boilers for $1.30b, other made textile articles, sets, worn clothing for $389.85m.

Slovenia, Albania, N. Macedonia, Croatia, Montenegro and Serbia have much smaller trade with China. And here the structure of the trade is important for our analysis. Balkan countries exports consists mainly from low value-added goods, but the imports are very diversified. Deep look into the Balkan exports reveals exports of cooper ores, wood material and other raw materials. Here again we have very diversified imports with Chinese origin, which include high value-added goods, clothing, furniture and etc.

1.2. China - Visegrad Four trade in goods

Visegrad Four have different approach toward China. Czech Republic, Poland and Germany are countries which stand up to China vigorously on both political and economic issues. The balanced stance of this countries could form around them stronger and much beneficial approach toward China. Stronger positions of Poland and Czech Republic toward China are based on their competitive advantages.

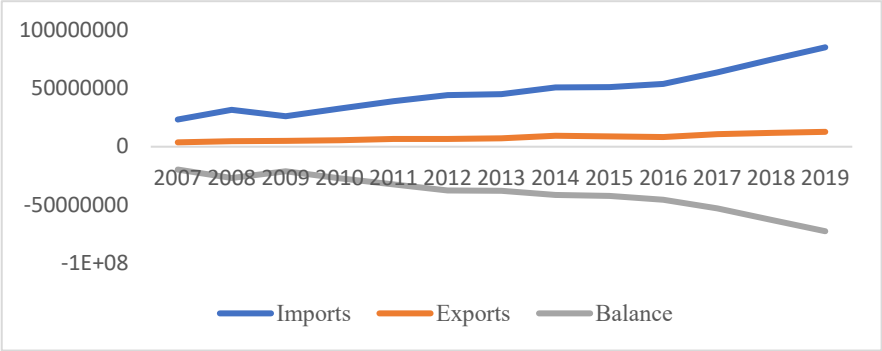
Table 2. Vishegrad four's membership in EU and NATO

Czech Republic	EU and NATO member, assertive industrialist
Hungary	EU and NATO member, accommodating mercantilist
Poland	EU and NATO member, assertive industrialist
Slovakia	EU and NATO member, accommodating mercantilist

Source: Official NATO web page, https://www.nato.int/

Poland is the country, which accepts the largest share of Chinese exports to the region. The Port of Gdansk, where regular shipping connections are dominated by Asian connections and related container services to Chinese ports. Port of Gdansk is only at 24h sailing from Rotterdam. This fact and infrastructure build around ensures Chinese interest. As expected, Poland is recording biggest negative trade balance with China. Annually Poland exports cooper and cooper ores valued at $661M to China, and this is the item with largest share in country's export profile.

Figure 3 Poland – China trade

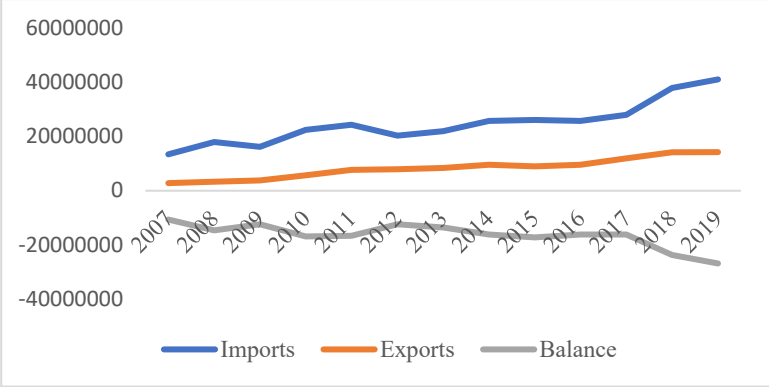


Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

Poland export to China is growing, but export structure is dominated by cooper ores and slag. China's quest for raw materials is getting more intensive. We observe the same export structure in other countries. The small amounts of resources which 16+1 countries could offer to hungry economy of China is also needed.

Czech Republic trade with China is also with negative balance. The country exporting profile differ from Poland's China, here the export of high value-added goods largest. Most items, exported to China are from the groups of machinery, nuclear reactors, boilers with $732.98M, electrical, electronic equipment with $687.19M, and optical, photo, technical, medical apparatus with $225.66M for 2020. Pulp of wood and fibrous cellulosic material, waste for $113M have been exported for 2020. Czech's import again is much more balanced and diversified than it's exports. For 2019 Czech Republic exports goods for $14.26B and imports goods from China for $41,15B.

Figure 4 Czech Republic - China trade

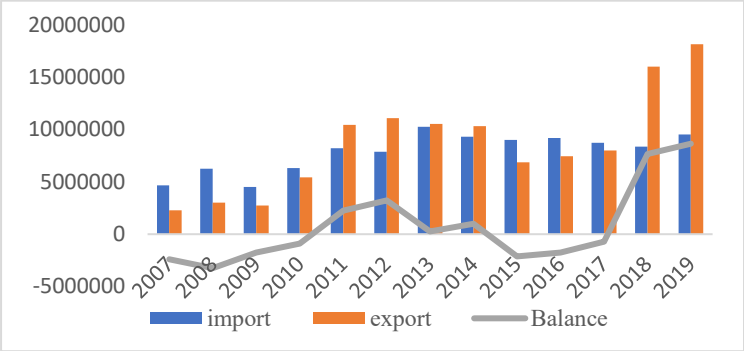


Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

Hungary also records negative trade balance with China - $8.9B for 2019. Here we have structure close to Czech – most traded goods are Electrical, electronic equipment, machinery, nuclear reactors, boilers, vehicles other than railway, tramway.

Slovakia is the only country from 16+1 which records positive trade balance with China after 2017. This is because export's structure is dominated by vehicles and components since 2017. And for 2020 total export amount at $1,9B. Before 2017 Slovakia also recorded negative trade balance with China for the period before 2010, and from 2015 to 2017. Chinese exports to Slovakia for 2019 are slightly more than 3,75B again with diversified and balanced structure.

Figure 5 Slovakia - Chinese trade in goods



Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

1.3. China - Baltic countries trade with goods

Here we have two EU and NATO member states. As an European policy followers Baltic countries prefer to defer to EU when managing their economic relations with China. Here we have the same pattern as before – rising imports from China after 2012.

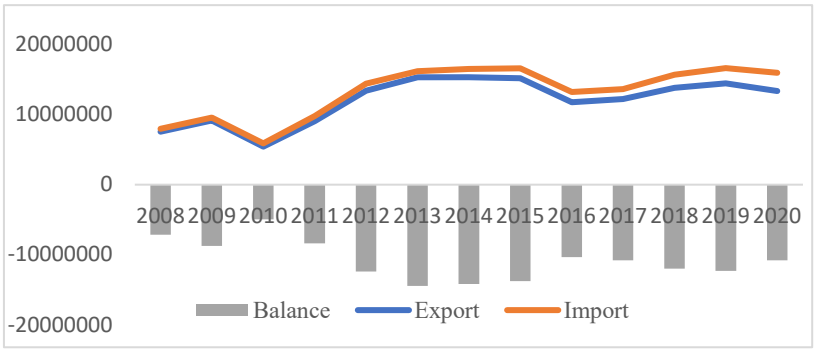
Table 3. Baltic countries membership in NATO

Estonia	EU and NATO member, European follower
Latvia	EU and NATO member, European follower

Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

These countries don't percept their relations with China as a central in their foreign policy. They rely on the EU solutions countering Chinese pressure. Their reluctance to participate in negotiations with China is obvious, and that has been outlined when Lithuania left 17+1 initiative in 2021. Traded volumes of the three countries with China are smaller, when compared to the other participants in the initiative. Most traded goods are industrial machinery and textiles, chemicals, industrial goods, and miscellaneous goods.

Figure 6. Baltic countries trade with China



Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

All three Baltic countries have worked hard to improve trade relations with China. Protocols were signed for exporting wide range of goods to China, including food, wood, machinery and mechanical appliances.

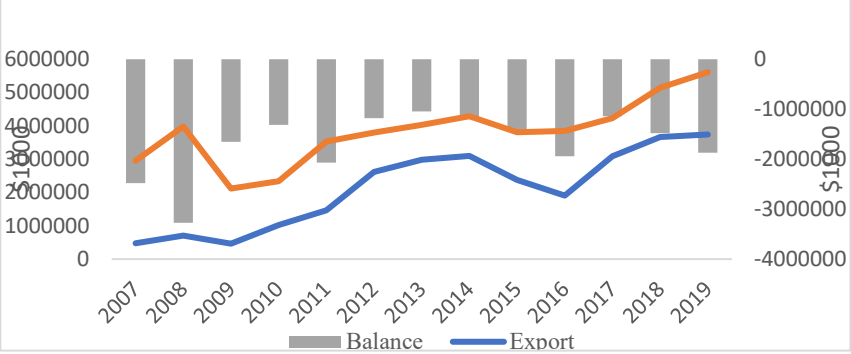
1.4. China – Bulgaria trade with goods

Establishing diplomatic relations between Bulgaria and China 1949 gave way for new opportunities. Development of Sino-Bulgarian relations wasn't smooth, and signs of revival appeared back in 1980s. Several years after diplomatic relations had been established, bilateral trade amounted at $3,75M. Commission for developing economic Sino – Bulgarian relations was held in 13 sessions. Series of agreements were signed in 2000s – Agreement of Economic Cooperation, Beijing 2006. Supplementary protocols to above mentioned agreement:

- Agreement for the avoidance of double taxation from 1990, amended in 2002;
- Agreement on Mutual Encouragement and Protection of Investments from 2007.

In last two decades of Sino - Bulgarian trade stable growth was observed. Bulgarian participation in 16+1 initiative gave a positive impulse in bilateral economic and cultural relations. During the last two decades we recorded growing volumes of goods traded. Opening of China after accession to WTO in 2001 opened the way Asian country to become a global leader. We observe trade intensification in all product categories.

Figure 7. Bulgaria trade with China

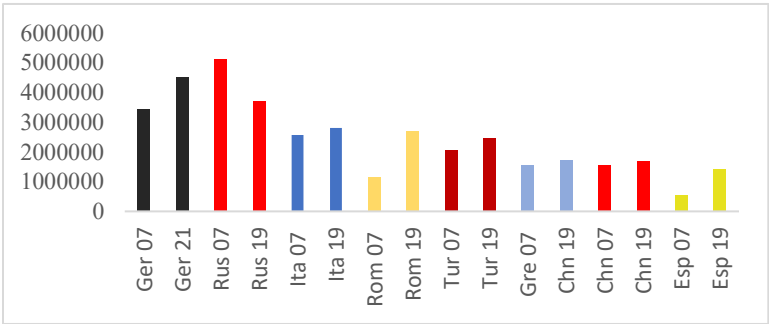


Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

Bulgaria – China trade is specific because not all of it is a direct trade. Here major role plays indirect trade as reexports or reimports. Since 2007 Bulgaria is a member of the EU and large part of Chinese goods find Bulgarian market through other member states. We already mentioned three ports used for Chinese cargo import – Rotterdam, Piraeus, and Gdansk. Chinese companies hold stakes in over dozen of ports, which are used to deliver goods to Bulgaria from: Bruges; Antwerp; Dunkirk; Le Havre; Nantes; Bilbao; Valencia; Marseille; Genoa; Marsaxlokk; Istanbul.

Bulgarian membership in the EU was a factor for the solid interunion trade growth. However, Chinese share in Bulgarian foreign trade after 2007 seems to be stable – approximately 5% share in imports and 2% from the exports. In 2007 China was 29th Bulgarian trading partner, but in 2019 the country is already only 7th.

Figure 8. Bulgarian import partners, 2007 and 2019



Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

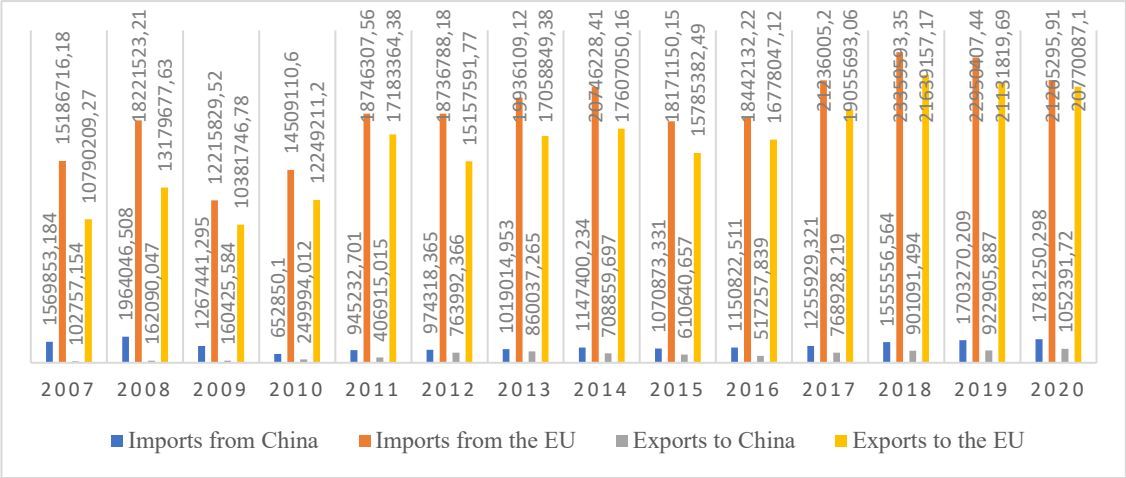
We have intensifying trade in all product categories in Bulgarian imports. Bulgarian direct imports from China amounted $1,56B in 2007 and $1,8B in 2019. Immediately after 2009 Bulgarian imports from China shrank with 50% from $1,2B to $650M in 2010. After this period Bulgarian imports from China grew trifold in categories as electrical, electronic equipment, machinery, nuclear reactors, boilers, furniture, vehicles, organic chemicals and etc. Import is diversified and is consisting high value-added goods and no raw materials.

Chinese imports include wide range of key components and materials for Bulgarian industry and consumption-ready goods. Thus, Bulgarian industry is import dependent on imports coming from China, direct or indirect. Considering Chinese goods, indirectly imported in Bulgaria, the import dependence is larger.

Annual import growth is 5% for Bulgaria. The factors for the modest import growth are:

- lack of direct flights between China and Bulgaria;
- potential of Bulgarian ports is not fully exploited because of their position, and finally intra union trade with Chinese goods.

Figure 9. Bulgaria trade flows with the EU and China



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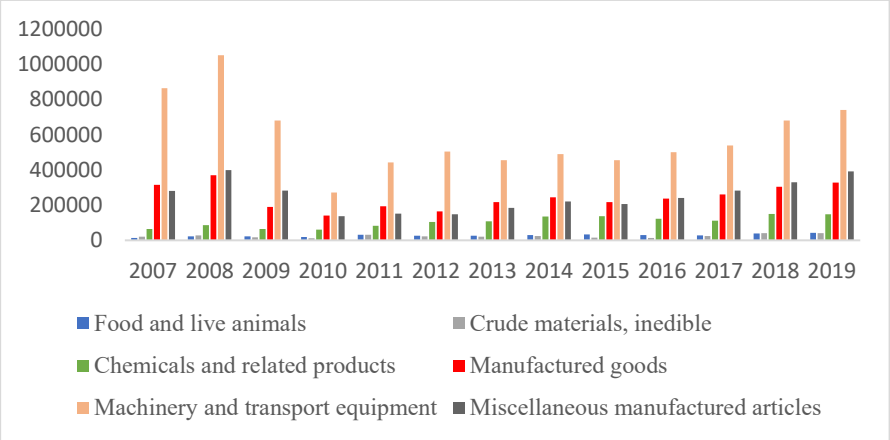
Bulgarian exports to China are dominated by raw materials, and in particular ores and slags. Total exports for 2019 amounted at $1.7B. Here we have the same pattern as we observed in imports – sharp fall after 2009 and slow recovery up to 2020. Bulgarian export structure is not diversified and is dominated by raw materials. For 2019 Bulgaria exported cooper and ores for $700M to China or 72% of all exports to the country, but the second category exports worth was only $76,46M. Cooper ores account for 15% of Bulgarian export to China. Here we see some similarities with Poland's exports to China – again cooper and ores for $662M, or 25% of all export to Asian country. China has appeared as an export destination for cooper and ores after 2011 – 2012.

Other perusal will mean, that Chinese companies successfully compete for resources all over the continent with European ones. Furthermore, we may assume that Chinese companies produce, in some categories, better high value-added products than their competitors. Chinese economy is hungry for resources of any kind. Cooper consumption is related with automotive industry, electronics and machines production. In 2020 China hit a record importing more than 4.67M metric tons of cooper.

For 2019 other product categories with significant shares in Bulgarian export to China are: Other ores and slags – 8,1%; Electric equipment – 7.2%; Machinery – 1%; Organic chemicals – 1%.

Trade structure between Bulgaria and China is conditioned on specifics of companies' profiles in both countries. Bulgarian economy and companies have lower technological level, less market opportunities much more other problems, which will not be discussed here.

Figure 60. Bulgarian import from China by category



Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

2. Sum up and discussion

Analysis of trade countries participating in 16+1 initiative reveals some patterns of trade. Every European country claims it could be a door for Chinese goods to Europe. By now, it is not fully valid for all sixteen countries, except Greece and Poland. Trade analysis reveals growing volumes of trade, but deepening negative trade balance with China. So far, China is the winner from 16+1 format – larger quantity of exports and growing positive trade balance.

Some countries forecasted strong demand for their agricultural products in China. Contrary to these expectations large volume exports of high-quality foods just didn't happen. This is because of technological advance in Chinese agricultural sector. Instead, structural changes in exports to China are characterized by rise in high-tech products. Hungary records highest share of high-tech goods exports to China. This is due to electronics, telecommunication and automotive goods flowing through supply chain of multinational companies. That is why a single decision of a multinational company may significantly change trade structure.

Balkan countries expectations also didn't come to live. They also recorded intensifying trade with China and growing negative trade balance. Here Greece is the most important trade partner for exports and imports from China. Other Balkan countries importance as an importer is growing, but the trade volumes are relatively small.

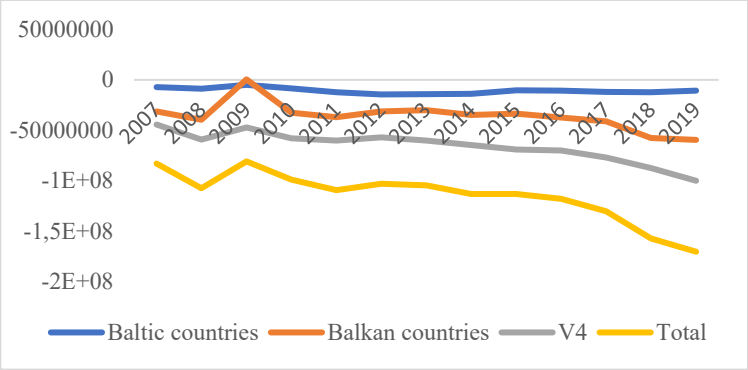
Imports from China for all countries in the initiative have risen similarly – with similar rate and structure. We found some differences in export patterns. V4 exports include high tech goods, but analysis of Balkan exports structure reveals low value-added goods, raw materials exports. Bulgaria export to China cooper ores and alloys for approximately $660M yearly with share of 80% of the countries' total export. N. Macedonia exports iron alloys which constitute about 60% of total exports to China. Chromium exports to China accounts to 86% of total Albania's exports. Share of 80% of Bosnia and Herzegovina exports have textiles and lumber.

Baltic countries worked to get improvement in their trade relations with China. As a result, they got higher overall trade value and deepening trade deficit. Import structure for all Baltic countries is similar to the other member of the initiative. Ericsson production facility in Estonia make the difference. The export structure is characterized by export of wood, grains, furniture and prefabricated buildings.

To sum up:

- main trend for all sixteen countries is negative trade balance;
- import structure for all sixteen countries in the initiative is similar;
- export structure for V4 countries include high-tech goods (machinery and electronics);
- exports for Balkan countries are dominated by low value-added goods and raw materials – which is similar to export structure of Baltic countries.

Figure 7. Overall trade 16+1 balance with China



Source: World Integrated Trade Solution (WITS), https://wits.worldbank.org/

We also observed some asymmetries – in the size of the economies of countries 16+1, and the technological level of the companies. These asymmetries may be the probable basis of the way export an import structure look like. More technologically advanced Chinese economy exploit successfully its competitive advantages. Balkan economies are lagging and there are proofs for import dependence on Chinese consumer and industry goods. Furthermore, China's resource quest is shaping export structure of Balkan, Baltic countries and Poland.

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CHAPTER 2. EUROPEAN UNION'S GREEN ECONOMY

Rossitsa Chobanova[15]

A NEW ECONOMIC DEVELOPMENT CONCEPT: RESPOND TO CHALLENGES OF THE NEW GLOBAL REALITY

The paper provides arguments for understanding circular economy as a concept, responding to challenges of the new economic reality: global warming, limited resources of vital importance - clean water, soil, air, etc., and intensive usage of resources in limited quantities. The theoretical and methodological background of the study is the Hegelian doctrine for economic and social development. Applying this doctrine circular economy is defined here as a new stage of economic development with a changed content of the object/goal, subject, and means for achieving the goal. The evidence for these notions is based on the assumption of the trends of the EU and USA contemporary policies for economic development implemented. Some recommendations are drawn respecting the countries of Bulgaria and Romania.
Key words: economic development, challenges, circular economy, concept
JEL: A10, B41, O10,03, 038

Introduction

By 2050, the world will be consuming as if there were three planets (OECD, 2018). Global consumption of materials such as biomass, fossil fuels, metals, and minerals is expected to double in the next forty years (OECD, 2018). On the other hand, annual waste generation is projected to increase by 70% by 2050, (World Bank, 2018). Accelerating the transformation of knowledge into an economic resource is another characteristic of contemporary reality. This transformation resulting from digitalization has had not only positive but also many negative consequences for the individual and for society as a whole (global warming, limited resources of vital importance, erosion of social identity and of personal freedom, etc.). These challenges have shaped a new global reality. On the other hand, they have generated a growing variety of concepts for economic development, such as knowledge economy, digital economy, circular economy, etc.

The concepts provide a corresponding variety of goals, strategies, and policies for their implementation. Thus, both researchers and policymakers are faced with the problem of defining the specifics and respective national priorities for developing the national economy. The country-specific problems have required specific solutions. Copying of other countries or the EU as such a model does not lead to the expected achievement of the goals. Thus, both researchers and policymakers are faced with the problem of defining the specifics and respective national priorities. The copying of other countries or of the EU as such a model does not lead to the expected achievement of the goals. In this respect here we will try to contribute to a better understanding of the content of the term "development of a national economy", and of its goals, strategies, and policies for their implementation.

1. Understanding of the development of a national economy – some methodological issues

The term "economic development" is one of the most often used in economic literature and in policymaking. The problem here has concerned the fact of insertion of different content, which could lead to misunderstandings. In this respect further, we will try to define economic development on the basis of its origin and on the basis of the context of its use in the contemporary scientific literature. In the end, a definition of economic development in the tradition of Hegel's historical dialectical thinking is proposed and further applied.

1.1. Etymology of the concept of economic development

The concept of economic development refers to the understanding of the content of two related terms: economy and development. The first comes from the Greek word οἰκονόμος (i.e., "household or household management"), a compound

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word derived from οἶκος ("house; household; home") and νέμω ("territory in which I manage; exchange, distribute; rule, law"). When translated literally, it means "rules for running the household". The second compound concept – development, has a very wide and quite imprecise use. It is most often associated with a continuous process of transition from one stage to another more progressive one, but it can also be used with a negative semantic load, such as in the "development of the pandemic". This allows us, in etymological terms, to define economic development as a constant process of changing the state of the economy (most often understood as the national economy) from one stage to a new one.

1.2. Understanding of economic development in contemporary literature

The distinction can be made between different understandings in the widespread use of the concept of economic development. According to the first one, which occurred after World War II, it is a process of transformation of national economies with low incomes (less developed) into advanced industrial economies. Theories of such economic development (see Copestake, 1999) are distinguished according to whether the economies are (a) relatively open or closed to international trade, (b) actively managed by the state (dirigiste), or rely on private activity (laissez-faire). All these theories deal primarily with explaining variations in long-term economic growth.

The second understanding of economic development in the modern literature is that it is synonymous with economic growth, the level of which is measured by GDP growth. It is used to describe a change in a country's economy over a period of time, including qualitative as well as quantitative measures that lead to an increase in GDP. In some studies, for example, increasing the share of the GDP produced in the services sector above 50% is accepted as a criterion for the development of the knowledge economy. On the basis of international comparisons, rankings of the countries are made based on comparable data and relevant assessments and recommendations are given.

In Bulgarian literature, the concepts of economic development that have been developing since the beginning of the 21st century mainly discuss the goals of economic development. A number of scientists, united in the teams of leading representatives of the economic (Angelov, 2003) philosophical (Prodanov, 2004) Institutes of the Bulgarian Academy of Sciences, have published studies dedicated to the strategies for catching-up economic development. According to them the goal of economic development is to achieve a certain level of some of the most important indicators by 2010 and to reduce the distance between Bulgaria and other countries by 2020. Ivan Angelov (2000) determines the purpose and means of economic development. He also defines a fundamental ultimate goal of economic policy – one that improves people's lives and offers a set of indicators for measuring: the quality of life; income level; consumption of the most important goods and services; consumption structure; structure of household expenditures; income and property differentiation; unemployment rate; access to quality healthcare, education and other public services; healthy ecological environment; lower infant mortality; less morbidity, longer life expectancy, etc. To these are added: participation in the resolution of public affairs; transparency of government; reliable protection of personal safety, dignity, and property against criminal and corrupt encroachments, etc. He also determines the *means for achieving the goal* of improving the quality of life – through monetary policy, budgetary policy, foreign economic policy, income policy, employment, and unemployment policy, structural policy, scientific and technical policy, investment policy, institutional policy, etc. Research on the ultimate goal of economic development and the means to achieve it continues to this day (Angelov, 2020).

Another approach to developing strategy has appeared in the report of the Economic Research Institute at BAS to the President of the Republic of Bulgaria, named, "Strategy for the Accelerated Economic Development of the Republic of Bulgaria" (Dimitrov, 2007). There contemporary acceleration of economic development is understood as a knowledge and innovation drove one, based on the fast penetration of ICT (information and communication technologies) in each sector of the societal life (Chobanova, 2007).

Political economy's approach to understanding recent development is the one defining it as a process of change in the relations in the production, exchange, distribution, and consumption of goods is a result of the fourth industrial revolution has recently been in the process of formation.

The vast majority of the recent economic literature is associated with new diverse modern concepts of development, including circular (waste-free) economy, knowledge economy, and digitalization. This growing variety of concepts makes the attempt to define economic development even more difficult. It implies a search for scientific grassroots in the theoretical heritage. As a result of the study, an opportunity arose to define the concept by applying Hegel's philosophical

interpretation of economic development. Compared to other understandings, it provides arguments for determining the features that characterize the individual stages of economic development, as well as the transition from one stage to another. Its characteristic feature is that it emphasizes the interrelationship between the development of the economy and freedom (Eecke, 1983) and justice (Pinkard, 2017), i.e., between the development of the economy and social evolution.

2. New understanding of economic development

Here the focus will be placed on the characteristics and interpretation of economic development from the point of view of Hegel's doctrine. This is important as recently the *interrelationship between the development of the economy and the development of man and society* is becoming crucial. Hegel's understanding of economic development offers an interpretation of this question. He discussed this problem in 1804, at the beginning of industrial development and market relations, in his lecture to the academic staff of the University of Jena. More concretely, Hegel discussed the influence of the development of the market economy on the freedom of the individual, as well as on social integrity. He concluded that the development of the economy, especially through the division of labor, leads to negative changes – fragmentation and disintegration of society on the one hand, and erosion of individual freedom on the other hand. Hegel provided arguments that market forces do not have enough capacity and that the state must be involved in dealing with the abovementioned social problems, in addition to providing social self-awareness.

Another problem discussed by Hegel that is still relevant today *is how to overcome the negative impact* of the market mechanism for economic development on the development of man (his freedom and community identity) and society (its integrity). The problem of the disaggregation of society discussed by Hegel is analogous to the impact of the consequences of the widespread use of the Internet, and the widening gap between national economies in terms of the creation and use of new knowledge as a resource for economic development. The possible solutions to the problems of global warming, the lack of vital resources, and the generation of social tensions are similar. New global colonialism is being formed, emerging on the basis of a large established technological monopoly in the world economy. In terms of solutions to these social problems, the economy, if left to function only through its inherent market mechanism, is blind to the needs of the social community, according to Hegel.

The next output, applying Hegel's theory has concerned *stages of economic development*. They are distinguished based on whether there is a difference in the content of the three components (features) that characterize the economy and its development. In this regard, each stage differs qualitatively from the previous ones in the content of the goals – the object (goal), subject (state and/or another main player), and means to achieve the goals (instrument – through a free market or with state regulation, etc.). Applying Hegel's understandings, *economic development can be defined as a process of continuous change, the quantitative accumulation of which leads to qualitatively new characteristics of the goal, subject, and means to achieve the goals associated with the emergence of new "stages" of this development.*

Logically, the need arises *to determine the current state and development* of the national economy. From the point of view of the abovementioned interpretation of development, today there is a transition from the stage of economic development the aim of which is to increase the profit at the enterprise level and the GDP at the national/macro level. The means or mechanism for achieving the goal is a free market and the main subject, which is implemented by this development, is the entrepreneur or, the business sector in general. The need for a transition to a new stage of development is justified by the inability of the goals set within the old stage to be achieved by applying the relevant tools. I.e., it is necessary to change the paradigm for economic development due to the discrepancy between the set goals and the achieved results of the implemented policy (Chobanova, 2020). On the other hand, the development of society faces new challenges, the overcoming of which is vital, and their solution becomes more important than increasing profits. They are accompanied by creating a huge variety of new concepts for development and, accordingly, for economic policy. Furthermore, as summarized in three directions – innovative economic development based on new knowledge; the circular (non-waste) economy; and digitalization – these concepts are characterized in terms of the argument for transition to a new stage of economic development argued here.

3. Discussions

Applying the above definitions to the modern concepts for developing a national economy the following assumptions could be formulated for further discussions:

- In the framework of the concept of circular economy, the change in the purpose of economic development is to maximize the profits of companies and maximize the GDP growth at the national level to a cost/waste-free and secondary use of resources, especially those whose depletion threatens the lives of humanity, such as limited amounts of water, soil, air and water. I.e., moving towards an economic development goal aimed at creating ecosystems that overcome the causes of new global social tensions. Regarding the subject and the mechanism for achieving this goal, the literature review shows that current circular economy concepts discuss the new use of resources, but not how and by who such changes will be ensured.

- Within the concept of the knowledge economy, the goal of the development of the national economy is to solve the current and meet the new challenges to the mobilize a national and attracted from abroad resource of knowledge to identify the problems of the development of society and generate ideas for solving them.

The concept of digitalization highlights a change in the way national economies function. Digitalization as a new phenomenon in the development of the economy and society is associated with accelerated quantitative and qualitative changes as a result of the creation, implementation, and use of new ICTs, as well as their combination with other technologies in the economy. New raw materials, new products, services, and technologies appear; the organization of production changes, and so do business relations. New industries are emerging, transforming, or disappearing. The digitalization of public services has an impact on public relations.

The countries and the European Union are drawing up policies aimed at meeting the new challenges. Due to the variety of opportunities, the dynamics of their change and the emergence of new 56 ones, as well as the ambition to use all opportunities, there is a risk of losses. Both at the business and at the national and international levels, development strategies need to be rethought with particular urgency.

4. Conclusions

In summary of the presented study, it could be stated that all national economies and the world economy are developing in a new reality. They are in a process of transition from one stage of economic development to another. The period of transition is accompanied by *rapid changes in the target, subject, and means for achieving the target*. Along with this, a rethinking of strategy and its priorities for development on different levels is taking place. New alliances are developed and are developing in order to achieve common goals. European Union plays important role in this respect.

The contemporary globalization of economic processes has placed new emphasis on the discussion around understanding the content of economic development. Neglecting the need of rethinking the strategy, better-defining priorities, and of including in alliances are among the reasons for such performance. If a respective change does not take place, the tendency for lagging behind will become constant. If clearly well-defined priorities will not be argumented, difficulties in finding partners for developing alliances within the EU will lead to self-isolation. The question now is whether in choosing alternatives (provided that they are available) for transition the human mind will prevail and choose the free development of the individual in a democratic, integrated society, or whether it will take the path of a new kind of colonialism – technological, economic, social and personal, based on a totalitarian organization for mobilizing knowledge for achieving the societal purposes. The future will tell, but until then, it is necessary to concentrate the knowledge resources for establishing worthy alternatives, corresponding to the new stage of economic development challenges.

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PUBLIC POLICIES FOR STIMULATING GREEN ENERGY AND INNOVATION: CASES OF BULGARIA AND ROMANIA

The paper reveals the effects of the public spending with the EU funds for stimulating green energy and innovation of Bulgaria and Romania aligned with the EU priorities, regarding economic recovery after Covid-19 and towards climate neutrality in the EU till 2050. The structure of the paper involves analysis on two major issues. First, the paper presents the state of play of Bulgaria and Romania towards their objectives for reduction of energy intensity and energy final consumption till 2020. The analysis shows the role of the EU funds as a tool for stimulating green transition during the EU program periods 2007-2013 and 2014-2020. The focus of the analysis is on challenges in reduction of the energy intensity of the economy and promotion of environmental and innovative investments in the energy sector and residential buildings' energy efficiency. Both countries are "caching-up" innovators and must address long-standing structural challenges related to moving towards clean fuels and green technologies, raising living standards, reducing inequalities, but efforts they should be aimed at improving the implementation and management of projects during 2021-2027. Second, the paper analyses the national recovery and sustainability plans of Bulgaria and Romania and their role in public policies for stimulating green energy and innovation for the period 2021-2027. The study's found that fiscal policy for green public investment and environmental taxes in both countries have positive, but slightly different impact on net savings adjusted by depletion of natural resources and reduction in greenhouse gas emissions as indicators of sustainability.
Keywords: Fiscal Policy, Environmental Taxes and Subsidies, Innovation and Invention
JEL Classification Numbers: H30, H23, O31

Introduction

Since early 90s policymakers in advanced EU economies started using various public policies to confront issues about resource exhaustion and alleviate the adverse consequences of climate change. The more ambitious efforts for transition towards green economy have been seen after the 2008 global crisis as a response to the financial difficulties at first and then became a vehicle for environmental-friendly growth and development. With its budget for the EU 2021-2027 Multiannual Financial Framework (MFF) the EU endorsed the long-term EU objective of creating an efficient strategy towards sustainable growth and transition towards green economy.

To fulfil the goals of the Paris Agreement on climate change the EU has committed to reduce greenhouse gas emissions (GHE) by at least 40% by 2030 as compared to 1990, increase energy efficiency by at least 32.5% and the share of renewable energy to at least 32% of EU energy use and to guarantee at least 15% electricity inter-connection levels between neighbouring member states. For reduction of GHG emissions from the industry and energy sectors the EU Emissions Trading System (ETS) was launched in 2005, while for reduction in GHE of non-ETS sectors (building stock, agriculture, waste management and transport), each member state has drafted a 10-year national energy and climate plan with binding national targets[17]. The target for non-ETS sectors is 0% GHE by 2030 compared to 2005. Additionally, the EU Green Deal set up a goal for reduction of GHE by 55% by 2030 compared to 1990 and no net GHE by 2050.

This paper contributes to the analysis on economic impacts of public policies of Bulgaria and Romania for stimulating green energy, energy efficiency and innovation aligned with the goals of the Paris Agreement and the EU Green Deal for climate neutrality till 2050. The study presents the state of play of Bulgaria and Romania towards their objectives for reduction of energy intensity and energy final consumption till 2030, and examines the role of the EU funding for smart energy and the impact of public policies on stimulating green energy and innovation. The paper also analyses the national recovery and sustainability plans of Bulgaria and Romania and their role in public policies for stimulating green energy and innovation for the period 2021-2027.

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[17] Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement

1. Energy Efficiency in the Paris Agreement and EU Green Deal Prospects

1.1. State of Play

While the structure of final energy consumption (FEC) in Bulgaria and Romania is quite similar to that of the other EU countries, in 2020 Bulgaria's energy intensity was still 3.5 times and Romania's 1.5 times higher than the EU-27 average[18]. Bulgaria remains the most energy-intensive economy in the EU and the country has made no progress towards its 2020 target for energy efficiency (European Energy Agency, 2019).

The high energy intensity hinders the competitiveness of both economies with some better performance of Romania. From 2000 to 2018 overall energy efficiency of Romania measured by energy efficiency ODEX index[19] improved by 41%, while in Bulgaria by 36.2%[20].

Bulgaria and Romania lag behind in their progress towards indicative national targets for energy efficiency for 2020 and their energy sector's sustainability depends on coal sector and diversification of energy mix. Investments in the energy infrastructure of coal mining and coal-fired power plants are needed primarily because of the low efficiency and high pollution generated by some energy production facilities, which is in contrast with the EU Green Deal's objectives.

Bulgaria is heavily dependent on fossil fuels in energy mix or production of electricity (49%). To help diversify imported gas of Bulgaria through additional sources of supply from the Caspian region, the Middle East and the Eastern Mediterranean a grant assistance in the amount of EUR 45 million from the European Energy Program for Recovery[21] was provided for the construction of the Greece—Bulgaria interconnector with a deadline for its completion June 2022. It is critical especially in the circumstances of the EU sanctions to Russian and new energy prices' shock in 2022 due to the Russian invasion in Ukraine. It should enable the construction of gas transmission infrastructure for the Southern Gas Corridor and ensure the security of gas supply for Bulgaria by enhancing transit capacity to the countries of South East Europe. The energy and energy efficiency infrastructure projects are financed under an Innovation Strategy by Bulgaria's Operational Program (OP) Science and Education for Smart Growth 2014—2020. In 2015, Bulgaria adopted a National Program for Energy Efficiency of Multi-Family Residential Buildings aimed at the renovation of multi-family residential buildings by implementing energy efficiency measures. However, the results are still vague.

Romania's phasing out coal mining and coal-fired power plants would also have a significant negative socio-economic impact on the regions and local communities (European Commission, 2020b). Second, outside Bulgaria, in the Central and Eastern Europe, Romania has the worst situation in terms of arrears of utility bills (14.4% of the country's population have delays in payment of utilities), and almost 10% of households fail to keep their homes adequately heated. In the absence of investments in alternative energy production sources, the closure of coal-based energy production will worsen these indicators (Voicu-Dorobant et al.).

According to EU climate legislation, coal-fired power plants should be closed by 2030 throughout Europe, which is a challenge for Bulgaria's and Romania's energy sector. The transition to cleaner sources of energy and advanced technology is imperative to fulfil the EU's commitment to reduce CO2 emissions by at least 55% by 2030 and to become the world's first climate-neutral region by 2050. However, coal is a key fuel in the European energy mix and it represents a fifth of the EU electricity generation mix and three-quarters of CO2 emissions from the EU electricity sector (Tagliapietra et al.). The Just Transition Mechanism represents the EU's effort financially supported by EUR 150 billion to ensure that the transition toward a climate neutral economy happens "in a fair way, leaving no one behind" (European Commission, 2020c). The Just Transition Fund will provide support to EU regions most affected by the transition to a low carbon economy. However, the absorption of EU funds under the InvestEU program and the Just Transition Mechanism will depend on the successful development and implementation of territorial plans for a fair transition which countries are being developed.

The share of energy from renewable sources in Bulgaria and Romania is much less than in advanced performers. As for EU countries, in 2020 Austria and Sweden reached the highest number of 78% and 75% Sweden, Denmark, Finland, Latvia, Denmark and Austria reaching their 2020 targets. In 2019 renewables increased in the gross final energy

[18] Eurostat, Energy Statistics, https://ec.europa.eu/eurostat/web/energy/data/main-tables

[19] ODEX measures energy efficiency progress of the whole economy (all final consumers) as well as by the main sectors (industry, transport, households) in 27 EU Member States, UK and Norway, https://www.eea.europa.eu/data-and-maps/figures/energy-efficiency-index-odex-in-2

[20] https://www.odyssee-mure.eu/publications/efficiency-trends-policies-profiles/bulgaria.html

[21] https://ec.europa.eu/commission/presscorner/detail/en/IP_18_6342

consumption of Bulgaria to 22% and for Romania to 24%, reached national targets under the Europe 2020 strategy (16% for Bulgaria and 24% for Romania), exceeding the EU target of 20% for 2020.

1.2. Objectives for 2030

The implementation of Bulgaria's policy measures on energy efficiency for 2020-2030 should lower energy consumption in all sectors by 27.9% in primary energy consumption (PEC) and 31.7% in FEC by 2030, contributing to a further reduction in GHG emissions. Bulgaria should also diversify its energy sources in order to increase the use of renewables, with biomass, solar power and wind power projected to reach its national target of 27 % in final energy consumption by 2030 which is below the collective EU target of 32%.[22] Despite the developed legislation and the changes in the energy law, the adopted climate law and the plan for adaptation to climate change, the study for SMEs in Bulgaria for the period 2019-2020 shows that there is great potential for energy saving policies, because only 33.4% of SMEs surveyed still have an energy efficiency policy (Zhechkov, 2019).

Romania is ambitious in its national energy and climate plan for 2020 – 2030 to meet the reduction in its greenhouse gas emission target in 2030 by 2% compared to 2005 for non-ETS sectors, implementing policies and measures notably in the transport and agriculture sectors. Romania considers setting-up an energy efficiency investment fund financed by private, public and EU funds, and the intention to use ETS auction revenues and new EU ETS support mechanisms to co-finance decarburization technologies and processes as well as renewable energy and energy efficiency projects. Depending on its implementation, such a fund could efficiently pool resources to trigger needed investments in those sectors.[23] The implementation of Romania's policy measures on energy efficiency for 2020-2030 should lower energy consumption in all sectors by 36.7% in PEC and 27.5% in FEC by 2030. Romania envisages increasing the share of energy from renewable resources in gross final energy consumption to 27.9 % by 2030, which similar to Bulgaria is below the collective EU target (European Commission, 2020).

2. Public Spending for Green Energy

2.1. R&D Expenditure for eco innovation

The average share of public R&D expenditures is much higher in developed economies (2% of GDP) than in emerging market and middle-income countries (0.65% of GDP) or in low-income developing countries (0.15 percentage of GDP) (IMF, 2019). Bulgaria and Romania are among the countries with low levels of public R&D budget expenditures in the EU with 0.84% and 0.48% of GDP for Bulgaria and Romania respectively with a target for reaching 2% of GDP by 2020 for Romania and 1% by 2025 for Bulgaria.

The report for Bulgaria during the European Semester for 2020 emphasizes the structural shortcomings in the Bulgaria's research and innovation system and that the needs for eco investments in the field of energy and climate are significant. The deficiencies include "low levels of public and private R&I investment, fragmentation of the public science base, lack and ageing of skilled human resources, weak science-business links and inefficient governance" (European Commission, 2020a).

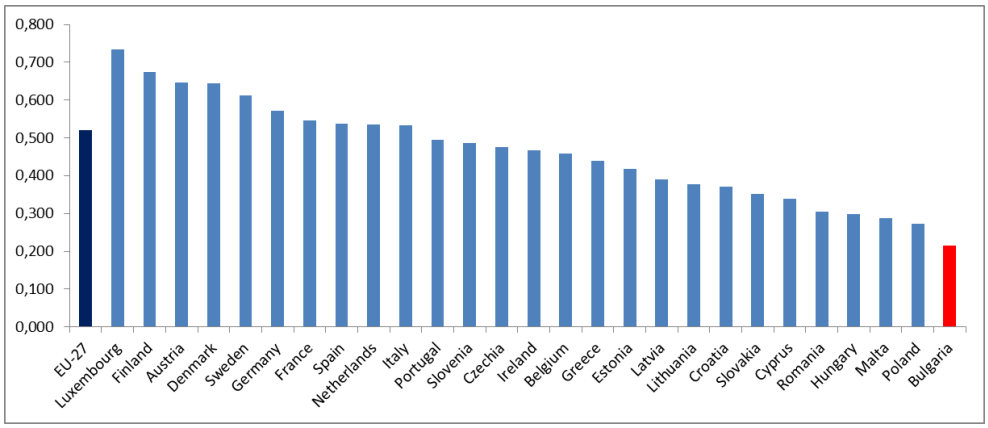
In 2009, the EC introduced the Eco-IS Index for assessing the degree of innovation of member states' economies and Eurostat maintains reporting with data from 2010. Luxembourg, the Nordic countries, Austria, Germany, France, Spain and the Netherlands are represented as "advanced innovators" well above average. Average Eco-Innovation performers are Italy, Portugal, Slovenia, Czech Republic, Ireland, Belgium, Greece, Estonia, and Latvia while Lithuania, Croatia, Slovakia, Cyprus, Romania, Hungary, Malta, Poland and Bulgaria are "catching-up" with eco-innovation.

Bulgaria and Romania remain "modest innovators" according to the Eco-Innovation Index for 2021. Despite the efforts made in recent years by both governments to improve legislative framework and to promote innovation, eco-innovation and the circular economy, they still lag behind and Bulgaria ranks last in the EU according to the latest results from the Eco-IS scoreboard, with some better ranking place for Romania (Figure 1). The relatively high number of companies certified with environmental management systems in both countries should start having positive uptake in terms of green product offer and eco-innovation.

[22] Integrated Energy and Climate Plan of the Republic of Bulgaria, 2021-2030

[23] Romania, Summary of the Commission assessment of the draft National Energy and Climate Plan 2021-2030

Figure 1: Eco-Innovation Index for 2021



Source: European Commission (2021), Eco-Innovation Scoreboard, https://ec.europa.eu/environment/ecoap/bulgaria_en

2.2. EU Funding for Smart Energy for 2007-2013 and 2014-2020

The results of policies on other environmental objectives under the EU's taxonomy regulation also echo the findings of poor performance and lagging behind other Member States. Despite the developed legislation and changes in the energy law, the adopted climate law and the plan for adaptation to climate change, the study for SMEs in Bulgaria for the period 2019-2020 shows that there is great potential for energy saving policies, because there are still only 33,4% of surveyed SMEs have an energy efficiency policy (Zhechkov, 2019). Bulgaria is also lagging behind in developing effective projects funded by the EU's new Social Climate Fund, which will provide special funding to Member States to support citizens' investments in energy efficiency, new heating and cooling systems and greener mobility[24]. According to the EU Early Warning Report, Bulgaria is considered at risk of missing the 2020 target of 50% preparation for recycling of municipal waste (European Commission, 2018).[25]

The EcoAp Action Plan[26], adopted by the European Commission in December 2011, is a follow-up to the Environmental Technology Action Plan[27] and builds on the experience gained under the previous plan. EcoAp aims to boost European competitiveness through the development and application of environmental technologies.

EU funding has a significant share in Bulgaria's and Romania's total public investment, including for energy efficiency. For Bulgaria in the multi-annual financial framework for the period 2014—2020, the financial envelope from the ESIF earmarked as support intended to help address reform challenges is in the amount of EUR 11.7 billion or approximately 2.8 % of Bulgaria's GDP per year. At the same time, many Bulgarian research institutions, innovative companies and researchers have received grants from other sources and EU programs, such as the Horizon 2020 Program. Their currently stands at approximately EUR 65 million EU financing helps companies and research institutions mobilise additional private investments. Grant assistance from the European Regional Development Fund (ERDF) alone has generated approximately EUR 113 million in additional private capital for companies. A total of 5.2 % of the financing available under the ERDF has been earmarked for RD&I and SMEs, entrepreneurship, energy efficiency, urban development and environmental management. These funds will help raise an additional EUR 247 million in public and private investment. Six infrastructure and innovation projects in which Bulgaria will participate have been approved to date. Their total amount is EUR 302 million, which in turn is expected to generate EUR 769 million in investments.

Romania is also one of the countries benefiting most from EU support for the MFF 2014-2020. The financial allocation from the ESIF amounted to EUR26.8 billion, which is around 2% of the GDP annually, including EUR 2.7 billion for

[24] Zheckov R. (2019). Eco - Innovation in Bulgaria , Eco - Innovation profile 2018-2019
[25] SWD (2018) 413 final
[26] EcoAP is mainly linked to the Innovation Union flagship initiative under the Europe 2020 strategy. It aims to broaden the scope of innovation policies to include environmentally friendly technologies and eco-innovation, and to emphasize the role of environmental policy as a driver of economic growth. https://www.europarl.europa.eu/factsheets/bg/sheet/77/consumul-si-productia-durabile
[27] COM (2004) 0038, Communication from the Commission to the Council and the European Parliament - Stimulating Technologies for Sustainable Development: An Environmental Technologies Action Plan for the European Union

smart growth, EUR13 billion for sustainable growth and sustainable transport and EUR6.2 billion for inclusive growth. By the end of 2019, around EUR 2 billion more than the total amount planned was allocated to specific projects, promoting growth and employment via investments, among others, in research, technological development and innovation, competitiveness of enterprises, sustainable transport, employment and labour mobility (European Commission, 2020b).

3. Measuring impact of public policies on environmental sustainability

3.1 Data and Modelling

The information base of this study is annual data of the database of Eurostat, the European Commission, the World Bank and the IMF. The logarithmic values of the indicators for 2000 – 2020 for Bulgaria and Romania were used.

Many economic studies look for the link between fiscal policy on environmental taxes and subsidies to stimulate environmental technologies and minimizing the impact of GHE on environment, given the limitation of global and regional resources and their access to the economy. The literature suggests that environmental taxes can discourage behaviour that is potentially harmful to the environment and can provide incentives to reduce the burden on the environment. The tradition towards cleaner energy and reduced energy consumption requires overcoming externalities, which occur when firms and individuals affect others through their actions but do not pay the price for doing so.

We study the impact of fiscal policies of Bulgaria and Romania on sustainability, applying the model of Ganda, Garidzirai (2020). The model examines the relationship between the level of environmental taxes[28] on energy and transport and public expenditure, including R&D and environmental expenditure as explanatory variables, on the one hand, and indicators for environmental sustainability measured by net savings adjusted by depletion of natural resources and GHE as dependent variables, on the other hand.

Environmental sustainability is among the key objectives of the Paris Agreement on Climate Change (2015). Article 2.1c of the Paris Agreement aims to make "financial flows consistent with the path to low GHE and climate sustainable development". With this wording, the Paris Agreement calls for the mobilization of funding for investment (public and private) to help mitigate climate change, while supporting sustainable economic development. Public policies should have impact on environmental suitability with the mitigation and adaptation activities to climate change and transition to environmental technologies. Public expenditure, including environmental protection and R&D as part of the budgetary parameters, is an instrument of fiscal policy for green transition. However, we expect public spending to be kept within the healthy level as a share in GDP in order to prevent crowding out effect for private sector.

The main environmental taxes include taxes on energy and transport, which are expected to be an incentive for achieving environmental sustainability depending on demand price elasticity of energy and transport costs. They are used by fiscal policy to raise budget revenues, but energy taxes also target polluters who make use of petrol, diesel, biofuels, electricity consumption and carbon fuels, while transport taxes are levied to the use of all vehicles in the EU. The EU reports that transport is the main polluter of the EU cities.[29]

Control explanatory variables are added, including GDP at current prices LogGDP, production index at 2015=100 LogPDN, final energy consumption LogENC. Production index reflects production of goods and service, anticipating tohave positive impact on environmental sustainability in long run. Final energy consumption is the energy used in industry and households measured in tonnes of oil equivalent. The study is expected to find a reverse relationship between final energy consumption and environmental satiability, while GDP would suggest that it stimulates introduction of environmental technologies. Eco-IS measures the performance of EU member states on environmental innovations.

The following hypotheses are formulated to test the model:

Hypothesis 1: The environmental taxes have positive long-run effect on environmental sustainability, as they create incentives to switch to clean fuels, improving energy efficiency and transition to environmental technologies.

Hypothesis 2: The public spending has positive relationship with environmental sustainability and is an instrument for improvement of indicators of sustainability, when it is kept within the healthy level as a share in GDP in order to prevent crowding out effect for private sector.

[28] Pollution taxes are still insignificant is a macroeconomic plan.

[29] Official site of the European Commission, European Strategy for low-emission mobility, https://ec.europa.eu/clima/eu-action/transport-emissions_en

The model assessment is limited to the data for the last 10 years as the Eco-IS Index has been introduced by the EC in 2009 for assessing the degree of innovation of Member States' economies and Eurostat maintains reporting with data from 2010.

The Breusch-Pagan test for determining whether or not heteroscedasticity is present in a regression model has been applied. We control for Durbin-Watson statistics to ensure that it is close to the value of 2, which suggest that there is no autocorrelation.

3.2. Econometric results and tests for net savings adjusted by depletion of natural resources (LogNSA)

(Bulgaria) LogNSAit = 18,245+ 0,391 LogENTit + 0,024 LogTRTit – 0,616LogGDPit + 9,529 LogPDNit – 7,991 LogENCit – 1,155 LogGEit (1)

Durban Watson test 2,4067093
Breusch-Pagan Test (χ^2) 0,440493285
R Square 0,98

(Romania) LogNSAit = 141,761+ 2,592 LogENTit – 4,213LogTRTit + 9,073LogGDPit – 20,555LogPDNit –31,89 LogENCit – 7,696LogGEit (1)

Durban Watson test 2,4238530
Breusch-Pagan Test (χ^2) 0,440493285
R Square 0,95

The econometric results do not give statistical evidence for environmental taxes on energy as fiscal instrument to raise budget revenue and to target polluters have direct effect on environmental sustainability measured by LogNSA for Bulgaria and Romania, and a positive relationship for taxes on transport for Romania. A decrease in public spending by 1percent leads to improvement in LogNSA by 1.15 pp for Bulgaria and 7.69 pp for Romania. Our conclusion based on the econometric results is that public investment during green transition should be within total public spending limits.

The study also suggests that public spending, which stimulates a decrease in final energy consumption would have the most important positive impact on environmental sustainability. The econometric results show that if public policies manage to decrease final energy consumption by 1% it would lead to enhancement in environmental sustainability for both countries (8 pp for Bulgaria and 32 pp for Romania). Regarding the relationship between government spending and final energy consumption as explanatory variables and environmental sustainability as dependant variable these results are also confirmed by other studies (Ganda and Garidzirai, 2020, Asheampong, 2018).

For Romania the results show statistical significance and positive effect of transport taxes on environmental sustainability. In Bulgaria both taxes on energy and transport do not show statistical significance. Bulgaria achieved the 10% level target as a share of GDP for the EU average target for 2020 reporting 10.28% for 2019, while in Romania environmental taxes reached 7.91% of GDP.

The study's conclusion is that fiscal policy in the green transition should respect a healthy level of environmental taxes and public spending, which for Bulgaria and Romania is below 40%, to ensure macroeconomic sustainability and to protect crowding out effect of public investment for private sector and to stimulate reduction of final energy consumption.

3.3. Econometric results and tests for greenhouse gas emissions (LogGHE)

(Bulgaria) LogGHE it = –0,965 + 0,111LogENTit -0,401LogTRTit –1,01LogGDPit + 1,905LogPDNit + 1,566LogENCit+ 0,057LogGEit (2)

Durban Watson test 2.445623263
Breusch-Pagan Test (χ^2) 0.440493285
R Square 0, 97

(Romania) LogGHEit = 0,463 – 0,145LogENTit – 0,046LogTRTit – 1,123LogGDPit + 1,619LogPDNit + 1,123LogENCit + 1,424LogGEit (2)

Durban Watson test 2,4238530
Breusch-Pagan Test (χ^2) 0,44049328
R Square 0, 98

The regression coefficients of environmental taxes for Bulgaria showed statistical significance and direct relationship between environmental taxes on transport and reduction in GHE, but not for environmental taxes on energy and public spending and GHE. The presumption that the taxes on transport raise the awareness of transport consumers to use new environmental technologies was confirmed. The regression coefficients of equation (2) show that an increase of 1% of environmental taxes on transport in Bulgaria would lead to a reduction of GHE by 0.40 pp. Such statistical significance of environmental taxes on energy and transport has not been found for Romania.

Regarding public expenditures the result displays that public spending has no statistical significance on reduction in GHE in Bulgaria, while for Romania public spending has statistical relationship with reduction in GHE. The regression coefficients for Bulgaria show that a 1% decrease in final energy consumption will decrease GHE by 1.6 pp, while for Romania it is statistically insignificant. Adding Eco-IS index in the model for Bulgaria and Romania the estimates coefficients show that they are statistically insignificant. Bulgaria and Romania remain “modest innovators” with 34 and 57 points respectively for 2021 at 100 points for the EU average. Luxembourg, the Nordic countries, Austria and Germany are represented as "advanced innovators" well above average. Despite the efforts made in recent years by both governments to improve legislative framework and to promote innovation, eco-innovation and the circular economy, they still lag behind and rank last in the EU according to the latest results from the Eco-IS scoreboard, with some better ranking place for Romania.

The study’s conclusion is that healthy levels for total taxes and public spending would allow both countries towards sustainable development. Fiscal policy in the green transition should respect a 40% level of public spending for Bulgaria and Romania to ensure macroeconomic sustainability and to protect crowding out effect of public investment for private sector.

4. The ways forward

The EU 2021–2027 MFF provide a unique opportunity to invest in the sustainable recovery and green transformation for Bulgaria and Romania. During the programming periods 2007-2013 and 2014-2020, many of the activities for the ecological transition have been funded through ESIF instruments and national co-financing, while from 2021 under the EU 2021-2027 MFF with an additional EU source from the NGEU initiative. The 50 percent of the NGEU funding will be spent on modernization of the EU economies, such as research and innovation via Horizon Europe; fair climate and digital transitions via the Just Transition Fund; the Digital Europe Program; preparedness, recovery, and resilience via the Recovery and Resilience Facility (RRF), RescEU; and a new health program, EU4Health.The RRF is designed to finance investment and structural reforms, with certain shares required to be dedicated to green and digital transitions as well as measures aimed at enhancing the resilience of national economies. The introduction of new economic instruments as part of a broader package of measures provides an opportunity to identify them and to ensure coherence with other policies, especially important during the new COVID-19 new reality. Clear communication by policy makers with stakeholders and civil society is crucial to the success of an economic instrument and can contribute to greater public acceptance.

Bulgaria is expecting EUR10.9 billion from the 2021-2027 MFF and EUR 6.9 billion in grants from NGEU under the Recovery and Resilience Plan of Bulgaria (Council of Ministers, 2021a and b). The country does not plan to use loans from NGEU for the projects under the Recovery and Resilience Plan of Bulgaria. It should help Bulgaria towards green transition and sustainable development. Bulgaria’s plan outlines policy objectives and needed investment in four areas: (i) Green Bulgaria (41.9%) is focused on reducing the energy intensity of the economy and promoting the green transition, and increasing the competitiveness of the agriculture sector; (ii) Innovative Bulgaria (25.3) aims to increase the quality and scope of education and training, provide support for research and development, and support the industrial sector; (iii) Connected Bulgaria (18.3%) aims to build a modern and secure digital infrastructure, reduce the carbon footprint of the transport sector, and increase the competitiveness and sustainable development of regions; and (iv) Fair Bulgaria (14.6%) is dedicated to achieving inclusive and more sustainable growth, expanding the scope of social services, and strengthening the health system. The plan includes measures to phase out gradually coal and lignite power production by 2038.

Romania will have a budget from the 2021–2027 MFF estimated at EUR79.9 billion, out of which EUR30.4 billion are dedicated to NGEU (loans and grants) to mitigate the economic and social impact of COVID-19 pandemic (Council of Europe, 2021). Romania's Recovery and Resilience Plan has been approved by the EC in 2020 as an important step towards the EU disbursement of EUR14.2 billion in grants and EUR14.9 billion in loans to Romania under the RRF. Romania will rely on the EU funding amounting to EUR 470 million for the energy sector under the 2021–2027 MFF, mainly through its Sustainable Development Operational Program 2021 –2027. It will focus on promoting energy efficiency measures and GHG emissions reduction and developing smart energy systems, grids and storage outside TEN-E (Romania’s Ministry of Environment, 2020). Romania's plan devotes 41% of the plan's total allocation on measures that support the green transition. The plan includes measures to phase out coal and lignite power production by 2032.

6. Conclusion

The study's results imply that public green investment of Bulgaria and Romania could contribute to environmental satiability, while environmental taxes are used by fiscal policy to raise budget revenues, targeting polluters who make use of petrol, diesel, biofuels, electricity consumption and carbon fuels. The main conclusion of the empirical assessment is that healthy levels for total taxes and public spending, protecting crowding out effect of public investment for private sector, would allow both countries to move towards green economy, ensuring macroeconomic sustainability and stimulating reduction in GHE and supporting net savings adjusted by depletion of natural resources.

The study gives statistical evidence of the relationship between public spending and net savings adjusted by depletion of natural resources as an indicator of sustainability. The econometric results show that an increase in public expenditures would lead to improvement in net savings adjusted by deletion of natural resources for Bulgaria and Romania. The study also displays that environmental taxes on energy have no statistical relationship to net savings adjusted by deletion of natural resources for both countries, while taxes on transport of Romania have a positive impact.

Regarding reduction in GHE the results show that environmental taxes on transport have statistical significance and positive relationship with reduction in GHE for Bulgaria, while in Romania both environmental taxes on energy and transport show statistical insignificance. Public spending has no statistical significance on reduction in GHE in Bulgaria, while for Romania public spending have relationship with reduction in GHE. Our study suggests that improving final energy consumption would have an important positive impact on environmental sustainability for both countries.

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George-Cornel Dumitrescu[30]

EU, BULGARIA AND ROMANIA - ANALYSIS OF THE HEALTHY LIFE YEARS AT BIRTH THROUGH THE PRISM OF POLLUTANT EMISSIONS FROM TRANSPORT AND THE GENERAL GOVERNMENT EXPENDITURE ON HEALTH

Pollution became a discord apple among the supporters of the circular economy model and the conservatives, that do not see climate change as a serious matter to be addressed and would desire to continue following the linear economic model principles. Emissions from transport are a significant contributor to air pollution. Fine particle air pollution decreased across the EU but is still responsible for many premature deaths a year.
The analysis looks at the healthy life years at birth through the prism of pollutant emissions from transport and the general government expenditure on health to find statistically significant correlations that can provide valuable inputs for the people that have not chosen a side yet.
Keywords: health, transport, pollution, circular economy, regression
JEL: H51, I10, Q53,

Introduction

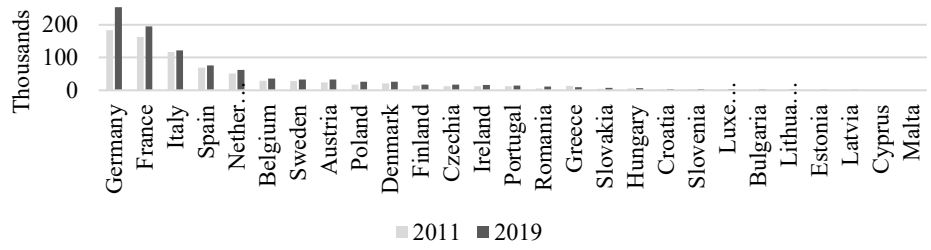
For the people living in crowded urban areas, in particular, transport became a significant issue to be addressed. The noise, the fine particles and greenhouse gas emissions pose a serious threat to their health. Even if electric vehicles could decrease greenhouse gas emissions, the topic is subject to debate since they cannot solve the problem of fine particulates generated by tyres, breaks, and other vehicle parts.

This paper analyses the following indicators: general government expenditure on health in the EU27 and the member states, in million euros and as a percentage of GDP and per capita; the healthy life years in absolute value at birth, in years and the pollutant emissions from transport (non-methane volatile organic compounds, particulate matter – PM10 and nitrogen oxides), looking for statistically significant relations that can reveal the extent to which the number of healthy life years of the European citizens is influenced by the pollutants generated by transport.

1. General government expenditure on health

Data provided by Eurostat (2021a) reveal that, overall, general government expenditure in the EU27 increased by 23% between 2011 and 2019, from around 800 billion euros to 980 billion euros. Romania recorded the highest increase, 104%, followed by Malta (98%) and Estonia (82%). At the lower end of the ranking are Spain (9%), Italy (4%) and Greece (-27%). Bulgaria had the fourth-highest percentage increase in the EU27, namely 78%. It is worth mentioning that despite the increase, the general government expenditure on health in Romania, Malta, Estonia and Bulgaria is lower than the rich EU countries such as Germany, France, and Italy. The ranking regarding the actual spending places Germany in the first position, with general government spending on health of 254 billion euros, followed by France (195 billion euros) and Italy (122 billion euros).

Figure 1. General government expenditure on health, in Million euro



Source: Eurostat (2021a)

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Romania ranked 15th (11 billion euros) and Bulgaria 22nd (3 billion euros). The last three EU27 countries in terms of health spending are Latvia (1.3 billion euros), Cyprus (880 million euros) and Malta (735 million euro).

Regarding the share of general government expenditure on health in GDP (Eurostat, 2021a), in 2019, the top three EU27 countries were Belgium (8.3% of GDP), Bulgaria (8% of GDP) and Czechia (7.7% of GDP). Romania ranks 23rd (4.9% of GDP). The last three countries in the ranking are Slovakia (4.5% of GDP), Finland (4.2% of GDP) and Sweden (4% of GDP).

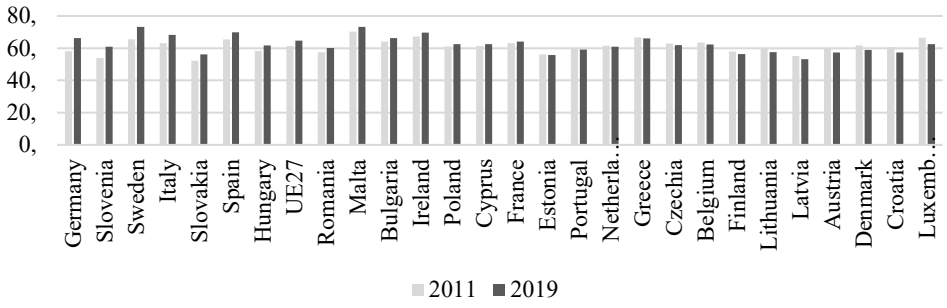
Latvia (677 euros), Romania (576 euros) and Bulgaria (437 euros) close the ranking of government expenditure on health per capita in 2019 (Eurostat, 2021c). The top performers were Luxembourg (5.123 euros), Denmark (4.424 euros) and Austria (3.710 euros).

2. Healthy life years in absolute value at birth

According to Eurostat(2021b), the indicator reflects the number of remaining years that a person of a specific age is expected to live without severe or moderate health problems. In 2019, Sweden ranked first in the EU27 in terms of healthy life years at birth (73.3), followed by Malta (73.2) and Spain (69.9). Bulgaria ranked sixth (66.3), the same as Italy and Germany, while Romania ranked 18th (60.2), better than Portugal, Denmark, Austria, and Finland, to name just a few.

The highest increase was registered by Germany (14%), Slovenia (13%) and Sweden (12%).

Figure 2. Healthy life years in absolute value at birth, in years



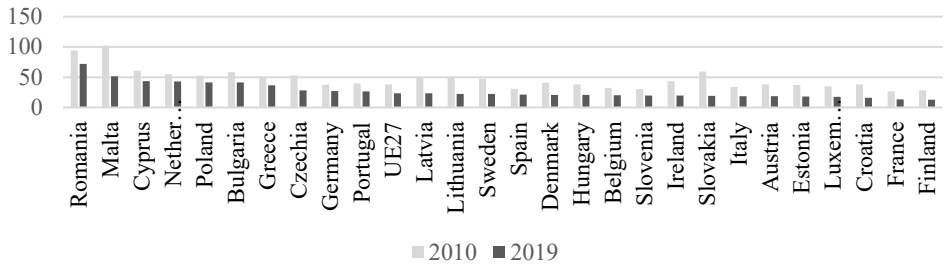
Source: Eurostat (2021b)

Several countries recorded a decrease in healthy life years, namely Luxembourg (-6%), Croatia (-5.44%), Denmark (-4.69%), Austria (-4.18%), Finland (-2.76%), Belgium (-1.73%), Netherlands (-0.81%) and Portugal (-0.67%).

3. Pollutant emissions from transport

Emissions from transport are a significant contributor to air pollution. Non-methane volatile organic compounds are mainly emitted from transportation. They include compounds such as formaldehyde, benzene, and xylene, a few out of 323 in total. Some have direct toxic effects, and some can also have indirect effects on health by contributing to the formation of ground-level ozone, which causes respiratory and cardiovascular problems (EPA, 2021). Romania recorded the lowest decrease in non-methane emissions compared to the level registered in 2000. Bulgaria ranked sixth.

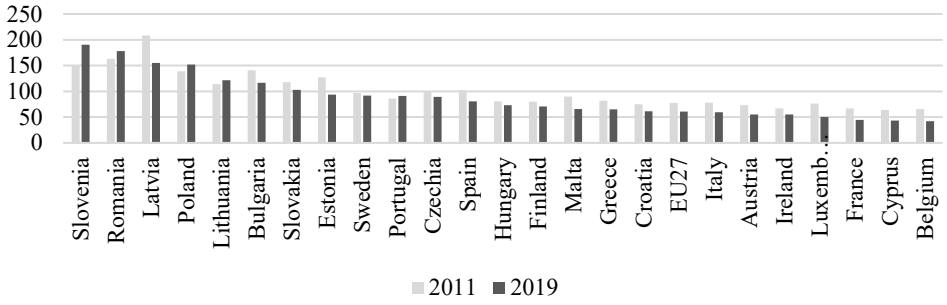
Figure 3. Pollutant emissions from transport - Non-methane volatile organic compounds, in % (index 2000 = 100)



Source: Eurostat (2021c)

PM-10 emissions consist of finely divided solid or liquid materials with a diameter less or equal to 10 micrometres emitted to the ambient air. PM10 are inhalable into the lungs and can induce adverse health effects.

Figure 4. Pollutant emissions from transport - Particulates (Particulate matter – PM10) < 10µm, in % (index 2000 = 100)

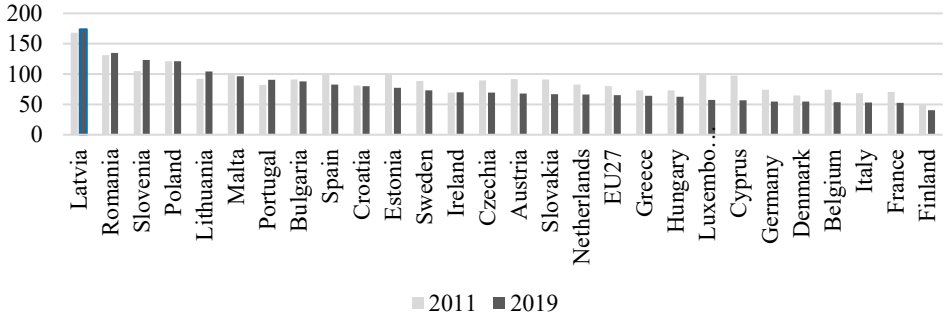


Source: Eurostat (2021c)

According to Statista (2021), in 2018, in the EU28, transportation produced 240,000 metric tons of PM10 particulate matter emissions. Of this total, road transportation accounted for 84%, at around 200,000 metric tons. Annual PM10 emissions from road transportation have reduced by more than 44% since 2000 (Statista, 2021a). Romania recorded the second-lowest decrease in this kind of emissions compared to the level registered in 2000. Bulgaria ranked sixth. It is worth mentioning that electric vehicles produce PM10 emissions.

Nitrogen oxides consist of gases composed of nitrogen. People living in areas with congested traffic are exposed to higher nitrogen oxides. Nitrogen oxides contribute to the formation of ground-level ozone, responsible for severe respiratory problems.

Figure 5. Pollutant emissions from transport - Nitrogen oxides, in % (index 2000 = 100)



Source: Eurostat (2021c)

Nitrogen oxides emissions produced by road transport in the EU-28 have experienced considerable reductions over the past three decades. In 1990, road transport emissions in the EU totaled 7.6 million metric tons, but by 2018 had fallen to 2.8 million metric tons (Statista, 2021b). Romania recorded the second-lowest decrease in nitrogen oxide emissions compared to the level registered in 2000. Bulgaria ranked eighth.

4. Romania`s transportation means

Why does Romania perform that poorly regarding the analysed pollutants from transportation? According to the data provided by Eurostat (2021d), in 2019, Romania ranked first in the number of motor coaches, buses and trolleybuses registered (10.935), followed by France (5.776) and Portugal (5.708). Bulgaria recorded a decrease of 2.572 units.
Romania ranked fourth (2.4 million units), below Italy, Germany, and Poland regarding the passenger cars registered. Bulgaria only added around 23.000 units (Eurostat, 2021e).
Regarding the number of lorries in 2019, Romania ranked 8th with (737.000 units).
Thus, our country did not develop greener transportation means, such as railway transport (Eurostat, 2021f).

Could that be linked to the increase in public spending on health? That should also be further investigated.
How many of these vehicles were new, how many were used already, and how old were they?
Can this situation be corrected without applying the principles of circular economy? There are several questions that policymakers have to answer sooner or later.
First, we must focus on changing the transportation mix and greening whatever is possible within the allocated budgets. We have to prioritise the congested urban areas and transform them into examples of good practices. This way, we can involve local industries to contribute to the transition.
Why that?
Electric cars produce more CO2 during manufacturing than internal combustion, so they are not ecological. Polestar has admitted that Polestar 2 creates a 26-ton carbon footprint before leaving the factory, which is more than Volvo requires to make a petrol-powered SUV. However, because the all-electric Polestar 2 can be powered from renewable energy, with no carbon footprint, after 50,000 km, the petrol-powered SUV is more polluting.
These vehicles are not cheap also. Changing the fleets would require substantial investments since their share is still meagre.

5. Econometrical analysis

The relationship between healthy life years in absolute value at birth, dependent variable and PM10 independent variable (Table 1) was used as an example for the other pairs of variables assessed (Table 3). The relationship was analysed using Microsoft Excel tools.

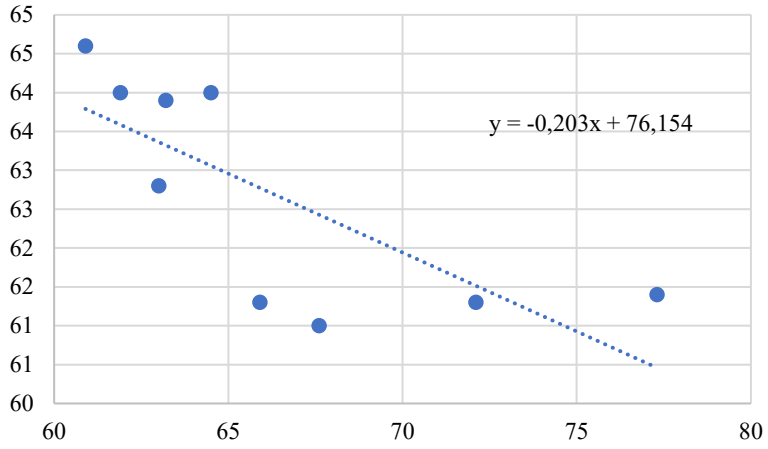
Table 1. EU27- Econometric analysis of the Relationship between healthy life years in absolute value at birth (Y) and PM10 (X)

Year	Transport Particulates PM10, %, index 2000=100	Healthy life years in absolute value at birth (HLYB), in years
2011	77.3	61.4
2012	72.1	61.3
2013	67.6	61.0
2014	65.9	61.3
2015	63.0	62.8
2016	64.5	64.0
2017	63.2	63.9
2018	61.9	64.0
2019	60.9	64.6

Source: Eurostat (2021b, 2021c).

The value of the correlation coefficient r (Multiple R in Table 2) is -0.746044. There is a robust linear relationship between the analysed indicators, with a negative slope (Figure 6). Therefore, if one indicator increases, the other one decreases.

Figure 6. Relationship between healthy life years in absolute value at birth (Y) and Particulates <10µm (X)



Source: Author`s representation of the results provided by Microsoft Excel tools.

Table 2. Regression statistics

Multiple R	-0.746044013					
R Square	0.55658167					
Observations	9					
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	76.15380782	4.551889815	16.73015185	6.66642E-07	65.39029877	86.91731686
PM10	-0.203025269	0.068492567	-2.964194169	***0.020979816***	-0.364984455	-0.041066083

Source: Author`s representation of the results provided by Microsoft Excel tools.

The coefficient of determination (r^2) is 0.5565, implying the relationship between the analysed variables explains 56% of the variation in the healthy life years in absolute value at birth. It does not mean that one variable causes the other.
The linear relationship is tested at a 95% confidence level (0.05 level of significance) to see if it is statistically significant.
The null hypothesis (H_0) implies no statistically significant linear relationship in the EU27 between healthy life years in absolute value at birth and PM10.
The alternate hypothesis (H_a) implies a statistically significant linear relationship.
H_0: $\rho = 0$.
H_a: $\rho \neq 0$.
Since P-value is smaller than the significance level: $\alpha = 0.05$, the null hypothesis (H_0) is rejected.
Therefore, we are 95% confident that there is a statistically significant linear relationship in the EU27 between healthy life years in absolute value at birth and PM10.
Since the relationship of the variables is statistically significant, it was aimed to find the linear regression line equation.
The goal is to find out how much additional y is generated by one additional unit of x. According to the model, for one additional percentage of PM10, the EU27 Healthy life years could decrease by 0.2 years.
The equation of the sample regression line is displayed in Figure 6.

Table 3. The results of the analysed pairs of variables.

Relationship between healthy life years in absolute value at birth and Particulates <10µm	r	r^2	P-value	Slope ($b1$)	**Relationship between healthy life years in absolute value at birth and non-methane volatile organic compounds**	r	r^2	P-value	Slope ($b1$)
EU	-0.7460	0.55658	0.02098	-0.20302	EU	-0.8457	0.7153	0.0040	-0.3288
Bulgaria	-0.6583	0.43341	0.05386		Bulgaria	-0.7478	0.559232	0.0205	-0.15889
România	0.33182	0.11010	0.38301		România	-0.9467	0.8963	0.0001	-0.15055
Relationship between healthy life years in absolute value at birth and nitrogen oxides	r	r^2	P-value	Slope ($b1$)	**Relationship between healthy life years in absolute value at birth and general government expenditure on health**	r	r^2	P-value	Slope ($b1$)
EU	-0.7622	0.5810	0.0169	-0.2478	EU	0.9162	0.8394	0.0005	0.0000
Bulgaria	-0.5157	0.2659	0.1552		Bulgaria	0.6288	0.3954	0.0696	
România	0.2250	0.0506	0.5605		România	0.8082	0.6532	0.0083	0.0003

Source: Author`s representation of the reports provided by Microsoft Excel.

All the analysed relationships in the EU27 were statistically significant at a level of confidence of 95%. Solid correlation coefficients and relevant coefficients of determination were identified. That suggests that to a certain percentage, namely

55%, 71%, 58%, and 83%, the variation of healthy life years could be explained by its relationship with PM10, non-methane volatile organic compounds, nitrogen oxides, and the general government expenditure on health.
The same applies to Bulgaria and Romania regarding the relationship between healthy life years and non-methane volatile organic compounds. The linear relationship is more robust in Romania, explaining 89% of the variation in healthy life years compared to 55% in Bulgaria. According to the model, for one additional percentage of non-methane volatile organic compounds, Romania's healthy life years could decrease by 0.15 years.
Romania and Bulgaria show weak correlation coefficients without statistical significance regarding the relationship between healthy life years and nitrogen oxides. Therefore, there are no positive or negative synergies between the pairs of indicators investigated.
The relation between healthy life years in absolute value at birth and general government expenditure on health proved to be more assertive in Romania (correlation coefficient = 0.8, compared to Bulgaria's 0.6) and statistically significant in Romania, with a confidence level of 95%.
According to the model, for one additional million euros in general government expenditure on health, Romania's healthy life years could increase by 0.0004 years.

6. Conclusions

Both Romania and Bulgaria are close to the EU27 ranking regarding general government expenditure on health per capita.
In terms of healthy life years in absolute value at birth, Bulgaria ranked sixth (66.3), while Romania ranked 18th (60.2).
Romania is not performing very well in terms of pollutant emissions from transport, leading in the pollution charts displayed at all three analysed indicators.
Bulgaria is better situated in the rankings but still well over the EU27 average.
Bulgaria and Romania register statistically significant relationships, at a confidence level of 95%, with solid correlation coefficients and relevant coefficients of determination, suggesting that the variation of healthy life years could be explained by its relationship with non-methane volatile organic compounds.
There is a vicious circle that has to be broken. More vehicles on the roads mean more pollutant emissions that decrease the healthy life years of EU citizens, putting pressure on government spending on health.
Therefore, the transportation mix must be addressed first. Afterwards, according to available budgets, the fleets could be greened.

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CHAPTER 3. EU FINANCIAL AND GOVERNANCE ISSUES

Iulia Monica Oehler-Şincai[31]

ACCELERATED DIGITALIZATION OF PAYMENTS: DETERMINANTS, CONSEQUENCES AND REGULATIONS

The "Covid-19 stage" of accelerated digitalization of payments means, on the one hand, a focus on the optimised and personalized experience of users. On the other hand, in terms of supply, the phenomenon of super-applications, the large-scale multilateral platforms, the systemic importance of BigTechs, the spectacular evolution of digital commerce, the far-reaching strategic alliances between key players, rapid evolution of private cryptocurrencies and the global testing of CBDCs have become more obvious than ever. However these trends have not been accompanied only by opportunities, but also by multiple challenges, such as possible winner-takes-all dynamics. The key objective of this paper is to analyse these advantages and risks, the latter justifying the need of a well-timed, well-thought-out and fair regulation, worldwide and in the European Union.
Keywords: digital payments, FinTechs, BigTechs, cryptocurrencies, central banks digital currencies CBDCs, payment security and regulation.
JEL: E42, E51, E52, E58, F33, O33.

Introduction[32]

In almost all countries and regions around the world, the financial market infrastructure has been modernized rapidly through new technologies and means of payment that can be carried out anywhere, at any time, in real time and including a multitude of innovative services with high added value (Yanagawa, 2021).

In the global payments, non-financial actors tend to hold at present a more important role than banks. E-commerce marketplaces such as Amazon with their payment solutions (Amazon Pay) belong to the most renowned BigTech companies. Other BigTechs focus also on **embedded payments within specific applications (apps)**. Mobile payments based on the quick response QR codes (read via a portable electronic device, such as smartphone, intelligent watch) are most popular in Asia and Africa, but are also present in Europe, America and Australia. Some of them are focused on supper apps or multi-purpose platforms: Chinese WeChat, Singaporean Grab or Indonesian Gojek, for example. They meet all consumer needs in one digital place, both for financial and non-financial goals. These super apps become a "reliable companion" in the daily life of users. In this way, the digitalization of everyday activities is becoming a reality.

The environment of digital global payments is more and more complex. Banks face an intense competition. The technological progress is accompanied by both **opportunities** (innovation, rapidity, comfort, cost reduction, financial inclusion) and **risks** (illegal activities, threats to the level playing field).

In this context, the present paper starts from three main **research questions**: Which are the key determinants and actors of the accelerated digitalization of payments? Which are the principal consequences? Why is needed a well-timed, well-thought-out and fair regulation, worldwide and in the European Union?

1. The system of digital payments and its catalysts

The payment ecosystem is made up of a variety of actors: merchants, consumers, taxpayers, public administration and regulators, card networks and issuers, financial institutions and payment service providers. The traditional players (e.g.

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banks, card issuers and networks) and non-traditional ones (such as BigTechs[33] and FinTechs[34]) are under a high competitive pressure, as "quality of tech platform ranks as the No. 1 attribute" multinational merchants "seek when selecting a payment processing partner" (McKee and Wooldridge, 2022).

Besides, cryptocurrency payment gateways are becoming more popular, even if they cannot be compared to the amplitude of other modern means of payment. Currently, there are approximately 300 million users of cryptocurrencies worldwide. A number of between 200 and 500 exchanges trade cryptocurrencies and around 18,000 companies accept it as a means of payment. [35]

The Covid-19 crisis determined a visible acceleration of digital payments (Auer, Frost, Lammer, Rice and Wadsworth, 2020). Experts appreciate that certain changes in consumer behavior, including those related to the preferred means of payment, are long-term (Alfonso, Boar, Frost, Gambacorta and Liu, 2021).

The digital revolution is accompanied by an increase in the global dimension of competition in digital payments, given that they generate strong **network effects**: the higher the number of users of a payment system or solution (or set of interoperable solutions), the stronger the force of attraction for old and new users. This can lead to significant **market power** for several actors, damaging genuine competition (Bindseil, 2021). Therefore, the market is developing at a much faster pace than the regulations, which indicates the need to test new measures, but without holding back the adoption of new technologies (Šostakaitė, 2019).

The **regulation of financial services** is needed because potential market failures and negative externalities that pose risks to financial stability. Efficient regulation (including new products and services based on innovative technologies) helps to increase efficiency and reduce transaction costs (BIS, 2021a; 2021b; 2021c; 2021d). At the same time, it promotes long-term economic stability and reduces the negative externalities generated by financial instability (Cuervo, Morozova and Sugimoto, 2019).

It is worth noting also that there is evidence of situations when regulation itself has given an impetus to the digitalization of payments. In the European Union, for instance, the initial Payment Services Directive (PSD) and the updated PSD2 contributed to increased consumers' protection and a more level playing field for businesses.

Consumers' attitude towards new means of payment (taking into account criteria such as ease of use, perception of usefulness and quality, but also confidence in digital financial service providers) must be associated with the acceptance of technology and the readiness of the population for digital payments (Caldeira, Ferreira, Freitas and Falcão, 2021). **Customers' expectations** regarding the speed, security and personalization of payments have stimulated the digitalization process, even in countries where the use of cash is deeply rooted in the culture and thinking of the population. For example, in Germany, the saying "nur Bares ist Wahres" - "only cash is real" - has not lost its relevance (Arneson, 2020).

In the payments industry, among the attributes considered essential for payment service providers (PSPs) to hold leadership positions are the following: speed of innovation; the ability to enhance the **customer experience CX** (rapid response capacity and an offer that exceeds customers' expectations) and the quality of strategic alliances with key market players (Capgemini, 2019; 2021a; 2021b).

The factors influencing the evolution of digital payments fall into four broad categories:

(1) supply-side (technological progress, development of digital infrastructure, new solutions and payment instruments, new actors, new initiatives);

(2) demand-side (the development of consumers' digital skills, the large number of users enthusiastic about modern digital technologies and the shaping of new consumption/payment habits);

(3) regulation (or the absence of strict rules, for example, in the field of crypto-assets and the activity of BigTech companies) and

(4) other factors, including force majeure (such as the Covid-19 pandemic, which has heightened the need for digital payments).

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[33] Big Technology companies, large in terms of users, profits, sales, market capitalization, market shares, such as Amazon, Google-Alphabet, Apple, Meta (Facebook), Microsoft, Alibaba and Tencent, with well-defined platforms, which already have an extensive network of customers, enjoy reputation and trust, have considerable financial resources and access to cheap capital, which allows them to directly offer financial services, thus being rather competitors of banks.

[34] Innovative companies using financial technologies as a source of innovation in financial activities.

[35] Please consult: https://crypto.com/exchange/markets and https://earthweb.com/cryptocurrency-statistics/.

The effervescence of digital payments is closely linked to all these categories of determinants. The supply-side is that uses the advantages of artificial intelligence (including machine learning), cloud computing, distributed ledger technology (DLT) and other computer technologies in order to anticipate the demand evolution (or even influence it) and offer customers the expected payments experience. Open banking and application programming interfaces[36] count among the enablers of new business opportunities for both traditional (banks) and new actors.

2. BigTechs

Large-scale technology companies are individualized by the unique features of their business models, a special role being that played by sophisticated digital platforms and digital commerce (defined as an ecosystem of actors, processes and technologies, transcending the boundaries of the classical e-commerce and characterized by strategically personalized offers and interactive customer experience). They have the scale of big companies active in fields such as energy, automotive, banking.

The following Table underscores the market power of BigTechs, in terms of sales, profit, assets and market value. Among the first seven, five are from the USA and two from China. Since the data release, the market value of most of these companies has continued to increase, as shown by Apple, heralded in the mass media in 2022 as the first company whose market value surpassed USD 3000 billion.

Table 1. Ranking of BigTechs according to the Forbes Global 2000 (values in billion USD)

Ranking	Company (year of founding)	Country of origin	Sales	Profit	Assets	Market value
6	Amazon (1994)	SUA	469.82	33.36	420.55	1468.40
7	Apple (1976)	SUA	378.70	100.56	381.19	2640.32
11	Google-Alphabet (1998)	SUA	257.49	76.03	359.27	1581.72
12	Microsoft (1975)	SUA	184.90	71.19	340.39	2054.37
28	Tencent Holdings (1998)	China	86.86	34.94	252.99	414.28
33	Alibaba Group (1999)	China	129.76	10.17	276.25	237.78
34	Meta Platforms (2004)	SUA	117.93	39.37	165.99	499.86

Source: Forbes (2022).

Amazon is a leader in online sales, with 12 million products and 300 million customers (out of which 95 million premium members).[37] It recorded a sharp increase in net revenues, with doubling its level between 2018 and 2021 (Figure 1).

BigTechs dominate the mobile payments market in countries such as China and India. Already in 2020, WeChat Pay (developed by Tencent) and AliPay (established by Alibaba Group) accounted for more than 90% of the mobile payments market in China (Crisanto, Ehrentraud, Fabian and Monteil, 2022). WeChat and Alibaba have their own payment platforms, and more than 1 billion clients each.

With cross-border and cross-sectoral activities, BigTechs have an extensive network of clients, enjoy reputation and trust, have considerable financial resources and access to cheap capital. Online payment services are among the first financial services offered by these companies, some of them developed as part of their own online retail platforms. The **BigTech business model** is based on direct interactions among users (including clients and suppliers) and data generated as a by-product, but one of utmost importance (FSB, 2020; 2019a).

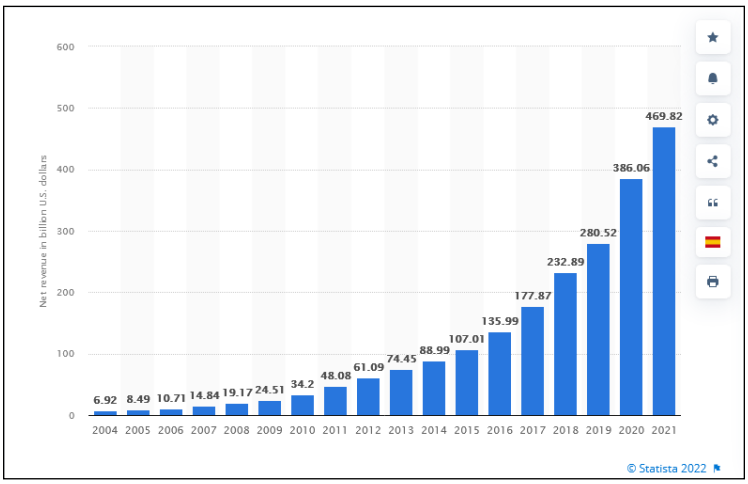
Knowing consumer preferences gives BigTechs the opportunity to offer personalized services to those insufficiently served by traditional creditors. The successive generation of increasingly consistent data reinforces the benefits of

[36] *"**Open banking** – the sharing and leveraging of customer-permissioned data by banks with third party developers and firms to build applications and services, such as those that provide real-time payments, greater financial transparency options for account holders, and marketing and cross-selling opportunities. Individual jurisdictions may define open banking differently". "**Application Programing Interfaces (APIs)** - a set of rules and specifications for software programs to communicate with each other, that forms an interface between different programs to facilitate their interaction". (Source: Banking Committee on Banking Supervision, 2019).*

[37] *Please consult: https://www.bigcommerce.com/blog/amazon-statistics/#10-fascinating-amazon-statistics-sellers-need-to-know-in-2020 and https://de.statista.com/themen/757/amazon/#topicHeader__wrapper.*

network effects. The data-network-activities loop (DNA loop) - through which data extracted from social networks and digital commerce platforms multiplies extremely quickly once the critical mass of users is formed - offers BigTech companies considerable advantages in terms of data and market power (Carstens, Claessens, Restoy and Shin, 2021). That is why their **systemic footprint in the financial system** is a reality, in contrast to FinTech companies, which do not have such a systemic importance (FSB, 2019a; 2019b), even if they are crucial in terms of innovation.

Figure 1. Amazon – net revenues between 2004 and 2021 (billion USD)



Source: Statista (2022).

Unlike FinTechs, which operate primarily in the financial services business, BigTechs offer financial services as part of a wide and complex network of activities. According to recent studies, their core business is concentrated in the sector of information and communication technology and consulting (cloud computing and data analysis) (around 46%), other activities being related to consumer goods (22%), communications services (15%), financial services (11%) and other activities. Even if BigTechs provide global services, their headquarters are concentrated in North America and Asia-Pacific. Their expansion in financial services has been stronger in China, but this is also noticeable in other emerging economies, such as those in Southeast Asia, East Africa and Latin America (BIS, 2019).

The penetration of BigTech companies in the financial services sector in developing/emerging countries has generally been faster and more extensive than in developed countries. This is largely explained by lower levels of financial inclusion in the first category of countries, where residents are under-served by traditional financial institutions, which generates a high demand for financial services provided by BigTechs.

Currently, there is **no specific regulatory framework for BigTech companies with financial activities**. They are subject to a combination of regulations for the activities carried out (financial or cross-sectoral / horizontal). Their financial operations are subject to the same rules as for other market players (holding either their own licenses or providing financial services in partnership with financial institutions that meet the regulatory requirements in force) (Crisanto, Ehrentraud and Fabian, 2021; Restoy, 2021). However, given the unique features of their business models and their status of essential service providers for financial institutions (for instance cloud computing services in areas such as risk management and data analysis), extensive research underlines that the risks associated with their activities have to be better integrated into the regulatory framework, in order to ensure a level playing field and avoid systemic risks (Carstens, Claessens, Restoy and Shin, 2021). That is why taxing digital transactions is high on the international agenda.

On the one hand, BigTechs can help increase the efficiency of the financial sector and accelerate financial inclusion. On the other hand, their activities generate risks for the financial sector (related to competition, consumer protection, data security, cyber security), given their specific features (size, large number of customers, access to large databases, but also the nature of their business models). That is why financial authorities are looking for a balance between the benefits of BigTechs and the avoidance of potential risks (Adrian, 2021; Crisanto and Ehrentraud, 2021; Carstens, Claessens, Restoy and Shin, 2021).

Among the options for regulating the BigTech activity should be mentioned: (1) recalibration of the mix of rules regarding the legal entity and activities (following the principle: the same activity-same risk-same regulation);[38] (2) a specific policy for these companies (taking into account the way they cooperate / interact with other actors), with the monitoring and reduction of the systemic component resulting from their complex activities (some authorities even consider performing stress tests for BigTechs providing cloud computing services to banks) and (3) enhancing international cooperation in the field of supervision (Crisanto and Ehrentraud, 2021; Padilla and Croxson, 2021).

3. Payment service providers (PSPs)

PSPs are a third party representing the indispensable connecting link in the complex system of international payments. In the specific case of business to consumer relationship, the PSPs' activity is concentrated in assisting merchants and channeling funds from the issuing bank (cardholder's bank) to the acquiring bank (merchant's bank). Most of them are FinTechs (American **PayPal**, USA-based **Square**, Irish-American **Stripe**, Dutch **Adyen,** Swedish **Klarna**). The majority had been start-ups (some of them unicorns, valued at more than USD 1 billion), and have become global players. Several are BigTechs with their own embedded payments platforms (**Amazon Pay, Alibaba Pay, WeChat Pay**).

The American company **PayPal** is the most successful FinTech company worldwide, as indicated by the Global 2000 ranking (Forbes, 2022). It is placed the 216th, with a market capitalization of over 100 billion. It is specialized in low-volume transfers.

There are various categories of PSPs according to their key activities: (1) facilitating the transfer of funds from customers to merchants or embedded payment services in the digital commerce platforms; (2) offering merchants basic services of fund transfers or complex services such as security standards compliance and fraud protection; (3) specialized in on-line payments, in-store payments or both; (4) focused on niche activities, such as supporting small companies to cover their foreign exchange needs at low cost (for instance the Hong Kong-based **Airwallex**).

Most of them add permanently new methods of payment, including buy-now-pay-later, as merchants offer also attractive alternatives to their customers, such as curbside pickup (collecting the order from a convenient location).

In this highly fragmented industry, the most rapid ways to expand and to benefit from the economies of scale are **fundraising and acquisitions**. The American multinational corporation FIS has been one of the most active in acquisitions, with a deal each year for two decades. It acquired the UK-based Worldpay in 2019 and the embedded payment company Payrix in 2022. Visa, already a giant, acquired in 2019 the British cross-border payments company Earthport. The USA-based PayPal bought the Swedish iZettle in 2018 (Financial Times, 2019). Such acquisitions and their impact on the payments market deserve a closer attention in further studies.

4. Cryptocurrencies and their associated risks

Decentralized Finance (DeFi) – is a global, open, cryptographic alternative to the current financial system. It uses open source technology (a decentralized public blockchain network) to eliminate intermediaries (banks or brokerage firms) in a financial transaction. Smart contracts automate the agreement between buyers-sellers, creditors-debtors. They connect directly, peer to peer, or through a software-based intermediary. It is not subject to regulation. The basic principle "code is law" can be understood by the fact that DeFi works based on a set of rules and algorithms. Anonymity is a characteristic of transactions. The first DeFi application was the virtual currency Bitcoin, followed by all other cryptocurrencies.

Cryptocurrencies were created to replace intermediary financial institutions and to "democratize" the world of the Internet, in the sense of circumventing the strict control of governments. They are defined as virtual exchangeable assets, a form of digital representation of value that can be traded or transferred digitally, used for payments and investment.

The market capitalization of all 20,000+ existent cryptocurrencies is $1.1 trillion as of July 2022 (as compared to $3 trillion in November 2021 – a loss of nearly $2 trillion in less than a year!). Only 51 of these have a market capitalization exceeding $1 billion each, of which nine exceed the $10 billion mark.

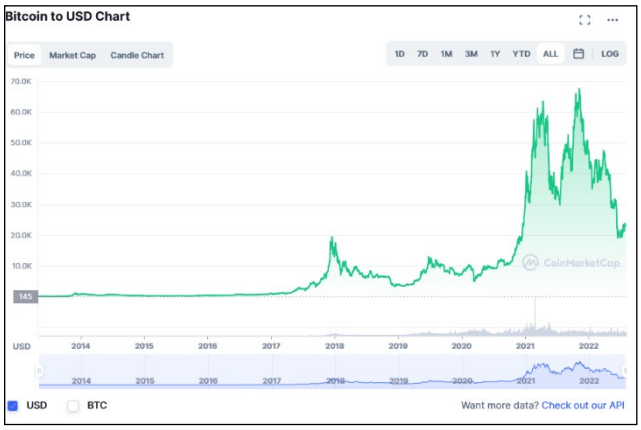
The nine have together an 80% market share. The most important is Bitcoin, with a market capitalization of more than 450 billion dollars (about 40% of the total cryptocurrency market). It is estimated that there are already about 19 million

[38] *This is of utmost importance since this principle does not hold when comparing the competitive advantages of BigTechs with other actors.*

units of Bitcoin in circulation in the virtual environment, out of the maximum total of 21 million units. Bitcoin can be obtained by "mining", on exchanges (Coinbase, Binance, etc.) or through applications such as eToro.

Bitcoin recorded two successive heights in 2021, afterwards its value decreased considerably (Figure 2). A recent report by the Boston Consulting Group (BCG) predicts that in 2030 there could be 1 billion Bitcoin users worldwide, as compared to 300 million at present. The cryptocurrency market is just in its infancy, comparable to the Internet of the 1990s. Currently, only 0.3% of personal wealth is invested in cryptocurrencies, compared to 25% in stocks. [39]

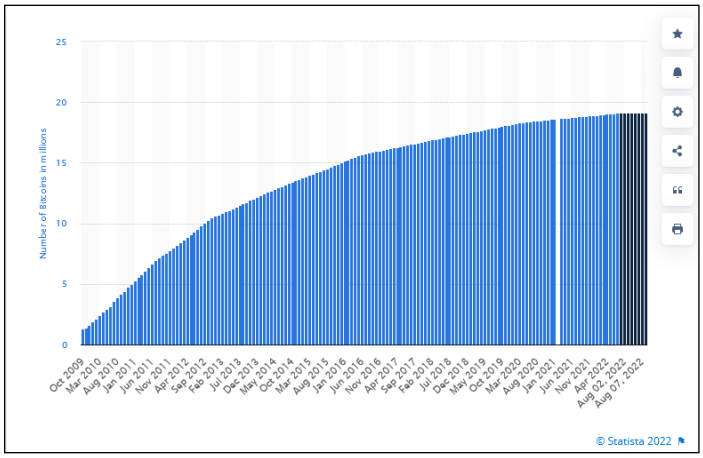
Figure 2. Bitcoin to USD during 2014-2022



Source: https://coinmarketcap.com/.

Satoshi Nakamoto, the creator of Bitcoin, is only a pseudonym. He defined the Bitcoin concept in a White paper of 2008, one year before its launch. It is worth noting that at present there are in circulation more than 19 million units, while the total number is maximum 21 million. The process of mining Bitcoin is becoming more and more difficult and it is energy intensive. Until 2014, when Bitcoin started to become popular, with little effort, had been already generated more than half of the maximum potential number (Figure 3). Who were those owners cannot be traced anywhere, due to the anonymity of the DeFi.

Figure 3. Number of Bitcoins since 2009 (in millions)



Source: Statista (2022).

After it became a "mining" hub, China has declared all transactions involving virtual currencies to be illegal and strictly prohibited in 2021. It took into account the energy intensity of the mining process but also the risks associated with the

[39] *Please consult: https://www.outlookindia.com/business/there-will-be-1-billion-cryptocurrency-users-worldwide-by-2030-says-bcg-report-news-211406.*

crypto transactions. European Central Bank President Christine Lagarde stated in May 2022 that cryptocurrencies are "based on nothing" and "should be regulated to steer people away from speculating on them with their life savings" (Koc, 2022). International organizations, such as the International Financial Action Task Force (FATF), draw attention to the fact that virtual assets and their trading have the potential to stimulate innovation and financial efficiency on the one hand, but on the other hand can encourage illicit activities such as money laundering and terrorist financing (FATF, 2021).

In spite of all risks, in El Salvador (where the national currency is the dollar), Bitcoin became legal tender in 2021. President Nayib Bukele assured his fellow citizens that Bitcoin would promote financial inclusion (70% of the population still does not have a bank account), help reduce taxes on remittances, and boost tourism and foreign direct investment. The Government approved a budget of approximately USD 200 million dollars (around 1% of GDP) to advertize and encourage the use of Bitcoin: it offered a crypto wallet with a $30 bonus for any citizen who downloads it, established a trust to support these operations, and installed a network of 200 Bitcoin automated teller machine. However, the new legal tender is not beneficial for the population at large, but for a narrow interest group.

Are cryptocurrencies the most eloquent example of a Ponzi scheme in human history, as Chinese experts characterize it? How useful are they in the world economy and who are the losers and winners from trading them? To what extent does the anonymity and confidentiality of transactions encourage illegal activities? Do these bring benefits only to a small group of privileged people, at the expense of the many with the desire to get rich, but which remains only an illusion? Can we expect a market tipping point similar to the dotcom bust 20 years ago? Nobody can give the exact answers, perhaps with the exception of technology experts such as those behind the Satoshi Nakamoto pseudonym.

5. Central banks digital currencies, a safe alternative to cryptocurrencies?

Innovations such as cryptocurrencies and the payment systems developed by BigTechs are considered to be accompanied by risks to financial stability and a lack of a level playing field. The alternative would be the central bank digital currency (CBDC). Most of the central banks worldwide are in the research phase and over ten are in the testing phase (pilot projects in China, Canada, France, Russia, Saudi Arabia, South Africa, South Korea, Sweden, United Arab Emirates but also Jamaica, Ghana, Uruguay and the eight island economies under the monetary authority of the Central Bank of the Eastern Caribbean). The Bahamas and Nigeria have already adopted digital currencies (CBDC Tracker, 2022). The European Central Bank (ECB) launched its own digital euro two year-project in October 2021, in order to investigate the appropriateness of adopting the digital euro for retail payments.

The motivations for adopting CBDCs are numerous. The fundamental reason is the need to maintain the role of public money in the digital economy, considering the decline in the use of cash and the amplitude of the digitalization process (Brunnermeier and Landau, 2022).

Panetta (2021) points out that non-EU payment providers already handle around 70% of European card payment transactions, and if the footprint of these providers continues to grow, it would raise serious questions for Europe's payments autonomy, with potential implications for users. At the same time, the use of crypto-assets (including stable coins) is increasing, and BigTechs have considerable advantages in terms of their market power and data management capacity, and therefore are of systemic importance (Panetta, 2021).

At the same time, the risks associated with the adoption of CBDCs are multiple. In the literature is underscored the risk of banking disintermediation and destabilization of central bank money, threatening the financial stability (BIS, 2020). Users can widely convert bank deposits into CBDC during times of economic stress, generating financial instability. Other experts point out that the central bank's centralized ledger could become a central element of national/regional critical infrastructure, thus becoming a target for attacks by hostile states and non-state actors (House of Lords of the United Kingdom, 2022). In the absence of widespread acceptance and circulation of CBDC, the reputation of the issuing central bank would be at risk (Soderberg et al., 2022). CBDCs have to be supported by all economic players, including consumers, merchants, public institutions and the banking sector. That is why it might be successful in China, but it might fail in countries where markets are sovereign.

6. The European Payments Initiative (EPI)

Despite the development of the Single Euro Payments Area (SEPA) and the harmonization of retail payments legislation, the European Union (EU) payments market remains largely fragmented along national borders, which benefits a limited number of important actors, including the US-based card networks Visa and Mastercard.

The initiatives of EU banks and public institutions to reduce market fragmentation are numerous. One of them is the European Payments Initiative (EPI), supported by the European Commission and the European Central Bank. In July

2020, a group of 16 major EU banks (from Belgium, France, Germany, the Netherlands and Spain) launched the project, which should become operational in 2022. As of March 2022, there were 30 member of the EPI (Figure 4). At present there are 31 European banks/credit institutions (including Italy, Poland and Finland) and 2 PSPs (the French Worldline and the Danish Nets).[40]

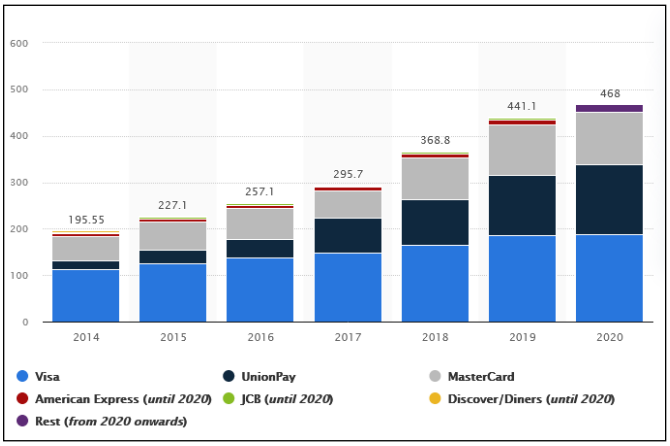
Figure 4. Founding partners of the European Payments Initiative

As of November 2020 ***As of March 2022***

Source: Worldline (2020) and https://www.epicompany.eu/.

EPI aims to create a **pan-European unified payment solution** based on a card (which will cover all types of transactions, including in-store, online, cash withdrawals) and a digital wallet. Peer-to-peer payments are also targeted. This ambitious plan is meant to put an end to the dominance of the US-based card networks, Visa and Mastercard. The following Figure emphasized that these multinational corporations together with the Chinese UnionPay control the international market. However, UnionPay is almost absent in the EU.

Figure 5. Major card companies and networks according to the number of transactions worldwide (in USD billions) between 2014 and 2020



Source: Statista (2022).

Other two European initiatives meant to facilitate cross-border payments are worth mentioning in this context: the Partnership between six banks fom Denmark, Finland and Sweden – Danske Bank, Handelsbanken, Nordea, OP Financial Group, SEB and Swedbank – called the P27 Payment Platform, which connects 27 million people from the Nordic countries and the European Mobile Payment Systems Association (EMPSA).

The sine qua non conditions for the success of the ambitious EPI project are: (1) the large acceptance by customers and merchants; (2) sufficient financial resources, of at least EUR 1 billion, in order to implement it; (3) capacity to compete with global players. The debate on the EPI is ongoing, it would be a welcome solution for the EU, but there are still barriers to overcome.

[40] *Please consult: https://www.epicompany.eu/ and https://www.nets.eu/nets-nexi.*

7. Conclusions

The landscape of national, regional and international payments is going through a process of extensive transformations, in the direction of shaping a cashless society.

The digital transformation is triggering a real revolution in the financial sector, accompanied by both opportunities and risks.

Banks, which are the traditional players in the field of international payments, have to complete with new-generation actors, especially:

- BigTech companies (digital commerce market places such as Amazon, Alibaba; administrators of super applications such as Tencent with WeChat; pure technology companies such as Apple with its Apple Pay) but also
- FinTech companies (specialized in specific technologies, such as DLT distributed ledger technology, technologies enabling checkout free stores, etc.).

Innovations such as cryptocurrencies and the closed-loop payment platforms developed by large technology companies are considered to be accompanied by risks to financial stability and the level playing field. At the same time, there is a need to stimulate financial inclusion and reduce the costs associated with cross-border payments. That is why the central banks digital currencies are considered a potential solution to existing problems. The **regulatory authorities** will play a much important role in the international payments in the near future. The world of international payments is in full swing, with legislation, actors, infrastructure permanently evolving.

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Grigor Sariiski and Rossitsa Rangelova[41]

CHALLENGES FOR BULGARIA AND ROMANIA AT THE ENTRANCE OF EUROZONE

The aim of this paper is to critically analyse the challenges for Bulgaria and Romania to join the European monetary union (EMU) and the possible effects of such act. The past years of EU-membership brought positive effects to the both countries economics and now they are closer to the European standards and GDP-structure. However, a thorough review could show that they are still not developed enough as to be in capacity to utilize an eventual adoption of the common currency. Our previous analysis outlined the dissimilar economic development of the two countries as Bulgaria's reform path is still far from developing of a fair market and a fairer distribution of the value added among the economic agents. It's interesting paradox that Romania, being closer to a state of readiness to join the "rich club" is actually more precautious when establishing the deadline of the final date to adopt the common currency. The paper attempts to outline the different readiness of two countries as well as to outline the consequences of joining the euro area from the point of view of the individual paths of economic development of both countries.
Keywords: common currency, macroeconomic development, European monetary union, Bulgaria, Romania
JEL Classification: B22, O52, P52

Introduction

The euro as a single currency was created in 1999. When the Eurozone was created, 11 countries from the European Union (EU) entered, and currently their number reached 19.[42] The many obvious advantages, such as the stimulation of trade and the lowering of transaction costs, occupy basically the attention of economists, but in most cases the disadvantages of using a common currency are neglected or not outlined clearly enough. The attitude of the political elite in most of the countries, (potential or current) candidates for joining the common currency is similar, which is why the expert dialogue is usually absent.

The absence of in-depth economic analysis applies especially to Bulgaria, where the currency board regime is used as a pretext to create a feeling of de facto membership, and hence the attitude that the very act of acceptance is a mere formality that will change the lives of Bulgarians to the better. Supporters of this thesis usually miss the fact that to join a currency union is far from a simple elimination of the local currency. In practice, from the execution of this act, many subsequent obligations arise for the new member state, such as participation in the rescue mechanisms of the Eurozone (current and future), assuming a proportional part of the costs of conducting monetary policy, etc., which are rarely mentioned in the discussions on the topic. Indeed, Bulgaria has taken on a part of these costs, such as the contribution to the single resolution fund (due to the inclusion in the Banking Union under the so-called close cooperation mechanism). However, from the moment it enters the Eurozone, the country will bear all the remaining costs, and these can only increase over time. In a similar way, the situation is with Romania, which has so far refrained from participating in the Banking Union and has no commitment to transfer funds to the funds ensuring the stability of the banking system in the Eurozone.

The review of the deadlines for the entry into the euro area of countries outside it is done once a year and is included in the Convergence Report of the EC. Initially, the authorities in Romania proposed 2014 as the goal of adopting the euro. Then the deadline was changed to 2019, then to 2024, and at the end of 2021 it was moved by another five years (to 2029).[43] Bulgaria entered in ERM II together with Croatia in July 2020 and strongly hoped to enter the Eurozone on

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[42] These countries are as follows: Austria, Belgium, Germany, Greece, Estonia, Finland, France, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, Spain.
[43] Romania had a chance to apply for the ERM II euro preparation mechanism in 2015-2017, when it technically met the Maastricht criteria of price stability, public finance and debt sustainability, stable exchange rate and long-term interest rates. Currently, the country does not meet these criteria (From Uneven Growth to Inclusive Development. Romania's Path to Shared Prosperity, 2018).

01.01.2024.[44] However, the latest convergence reports of the EC and the ECB showed that the country does not meet some of the conditions, especially the part concerning inflation and the required changes in the judicial system. Croatia has been given the green light to join the Eurozone from 2023.

The complex assessment of the expected effects and their balance over time implies expanding the scope and studying all areas that would be affected by the possible accession of the two countries to the currency union, including trade, investments, the stability of banks and etc. In this way only can a sufficiently definite answer be obtained to the question of what the two countries will gain from their possible accession or, more precisely, whether if they decide to postpone this decision at this stage, they will miss out on any potential benefits (Houbenova-Delisivkova, T., 2019, 39-54; Gechev, R., U. Beev and Y. Hristozov (2020),19-44).

This article is a product of bilateral collaboration between the academies of Sciences in Bulgaria and Romania and more specifically between the Economic Research Institute at the Bulgarian Academy of Sciences (ERI BAS) and the Institute of World Economy at the Romanian Academy (IWE RA). The article is a continuation of other reports by the two authors (Rangelova, R. and G. Sariiski, 2019, 23-37; Rangelova, R. and G. Sariiski, 2017, 19-30). The present article reflects a report that was presented at the conference "The New Economic and Financial Reality - Challenges for Bulgaria and Romania", organized under the Bilateral Bulgaria and Romania Project "The World Economy on the edge of a Deep Recession, Solutions for a long - lasting recovery" (December 7, 2021).

1. Monetary policy and foreign trade

A very often discussed issue is that with the act of accession a country definitively loses the right to an independent monetary policy. For a quarter of a century,[45] Bulgaria has practically not conducted a monetary policy, as the currency board does not allow the BNB to set interest rates, intervene in the money markets or play the role of lender of last resort. However, Bulgaria has the sovereign right to authorize the central bank to use these instruments again through the relevant amendments to the BNB Law. The decision to take such an act is currently entirely within the powers of the Parliament, and after the act of accession to the Eurozone this right will be lost permanently and without right of recovery. In most analyzes of the subject, the argument is that since it has not been used for so many years, the right in question is completely needless. However, such a proposal is as untenable as, for example, proposing to give up the right of ownership if the owner does not exercise it for a period of time. The case with Romania is different, insofar as it continues to maintain a regime of free-floating exchange rate of its national currency, and during the period of its acceptance as a member state of the EU, the Romanian leu has been devalued by about a third. This clearly supports the competitiveness of Romanian exports. The effect can easily be traced through the share of goods exports to the 19 member countries of the Eurozone. Figure 1 below shows that Romanian producers manage to gain better access to European markets and that the devaluation of the leu (along with other factors discussed in the previous report, see Rangelova R. and G. Sariiski, 2019, 23-37) leads to an increase in the share of exports to the 19 countries by 180 basis points - up to 56.6% for the period since 2007, while at the same time in Bulgaria this share decreases by 70 basis points - to 47, 4%.[46]

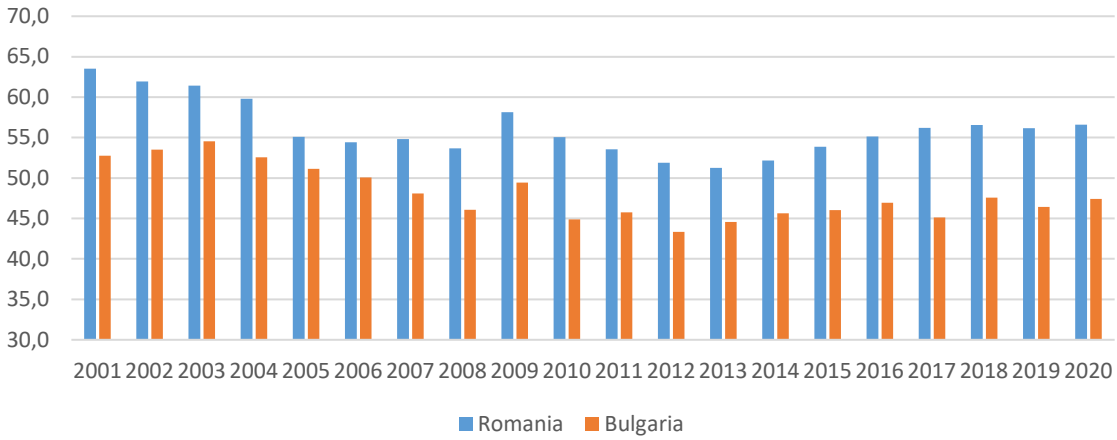
Thus, the difference between the two countries according to the indicator of the share of exports for the countries of the euro area increased from 6.7 percentage points in the year of accession (2007) to 9.2% points in 2020, and in 2017 this difference was even larger (11.1 bp. p.). The question of the export structure is separate. Being with limited opportunities to support the competitiveness of its high-tech products (and thus increase their placement on the European markets), Bulgaria cannot stimulate investments in productions with high added value. This has many negative effects in terms of capital mobility, capacity and structure of the labor market, etc., which in practice lead to the erosion of growth potential in the long term (Rangelova R. and G. Sariiski, 2019, 23- 37). The comparison of indicators for the dynamics and structure of foreign trade in Figure 1 outlines one of the key problems in joining countries like Bulgaria with an insufficiently developed economic structure in a community whose core is at a significantly more advanced stage of economic development.

[44] EU member states that have not yet adopted the euro as their currency must be members of ERM II for at least two years before joining the Eurozone.

[45] Bulgaria entered the currency board regime on 1 July 1997 with the Law on the Bulgarian National Bank, adopted on 5 June 1997.

[46] A basis point (often abbreviated as bp) is a unit of measurement that denotes a change in the interest rate of a financial instrument and is equal to 1/100th of 1% or 0.01%. It is a usual practice in the financial industry to use basis points to denote the difference between two interest rates.

Figure 1. Share exports to the EU-19 countries, % of EU total exports

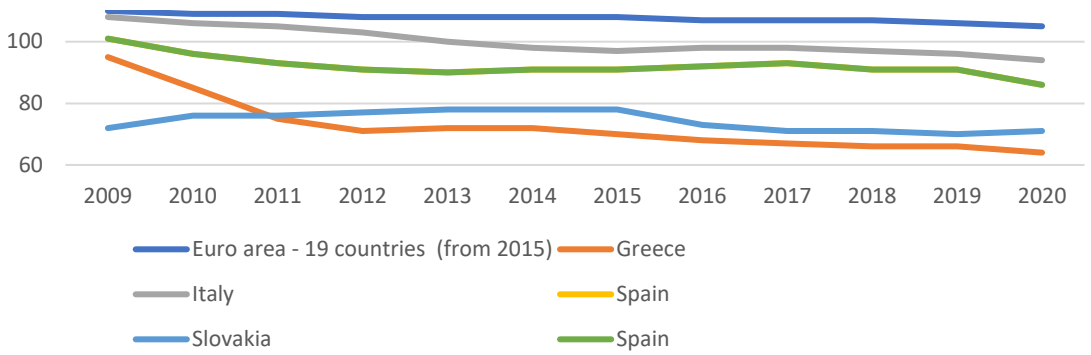


Source: Intracen, own calculations

2. Borrowed growth

The state and changes in the commodity and production structure show that, in the absence of instruments to support the competitiveness of exported products, countries with an underdeveloped economy are practically anchored to the status they had at the time of their accession (periphery or semi-periphery). The limited opportunities to stimulate real production combined with the intensive incentives received by the banking and financial sector (as an automatic effect already at the time of accession) lead, as a rule, to attempts to catch up with income in the core economy through "borrowed growth", or in other words, by taking out loans and investing in initiatives with ever-lower returns. This leads to an increase in indebtedness, which reduces the resilience of the peripheral economies. At a later stage, when entering the negative phase of the economic cycle, the deteriorated sustainability leads to an increase in debt service costs and hence to a stagnation of the peripherals. An emblematic example in this regard is Greece, which, after consuming the speculative effect of the euro adoption, entered a deep crisis and began to steadily move away from the European standard, measured by GDP per capita by purchasing power standard (PPS) - from 93% to the EU27 average in 2009 to just 65% by 2021 (Figure 2). The deterioration of this indicator is present for all countries on the periphery (not without reason given the PIIGS label), with the decline in Portugal, Italy and Spain, for example, being between 1/10 and 1/8 over the same period. It is particularly curious that since joining the Eurozone, one of the most promising Central European economies, Slovakia, has worsened its performance by about 8 percentage points (up to 68%). At the same time, the Czech Republic, which has so far refrains from the "club membership", for the same period managed to improve its result by 8 percentage points - up to 92%.

Figure 2. GDP per capita (in PPS_EU27_2020=100)



Source: Eurostat, nama10

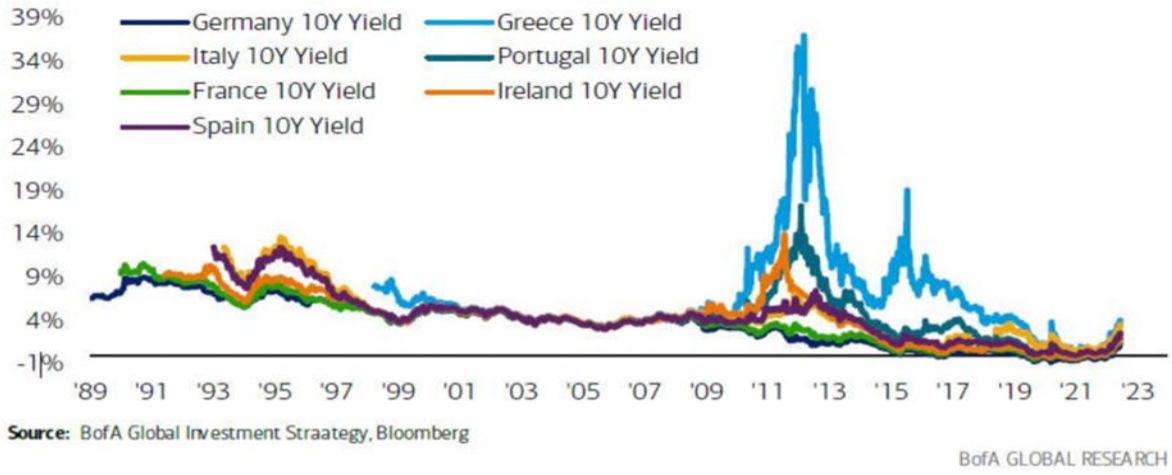
The experience of other peripheral countries shows that over time they gradually lose their export and technological potential. At the end of 2021, Italy's industrial production index is only 82% of that recorded in 2000.One could expect that, after Romania adopts the single European currency (and will accordingly lose the possibility to support the export of its local production through the instruments of the active monetary policy) this will reflect in a slowdown in the pace of exports to European markets, and hence in its production capacity. In other words, this act will lead to a delay in the convergence processes, which cannot be compensated for, *since the Eurozone in its current form does not have the capacity (neither the political will) to direct incentives to the peripheral countries in order to support their catch-up development.*

3. Money and credit in the Eurozone

An expected effect of joining the single currency area is the reduction of the reserve requirement ratio to 1%. Currently, in Bulgaria this percentage is 10%, and in Romania – 8% and 5%, respectively, for liabilities in local and foreign currency. The reduction of the coefficient will naturally cause a considerable increase in the so-called money multiplier, which will stimulate the money supply in both countries. In all likelihood, this will lead to a permanent outpacing of the rate of the money supply relative to that of goods and services produced, which will build up a significant inflationary potential that can only be released in one way, namely through a preventive rise in prices. In other words, the main effect of the upcoming reduction in reserve requirements is that the purchasing power of savings and fixed wages after a few years of being in the Eurozone may decline, or that at least the catch-up of European level of incomes would be delayed. Most often, discussions about the negatives of joining the Eurozone come down to the question of whether an inflationary shock will occur on the date itself. This largely prevents getting to the heart of the problem, namely that the more significant increase in prices can be expected later - at the stage of dilution of the inflationary potential. Then it won't be considered as an effect of joining the Eurozone, but that won't make it any weaker.

One of the often-discussed arguments in favor of joining the Eurozone is that the new member countries get easier access to credit for both citizens and businesses, as well as for their governments. Past practice shows that, in general, this leads to an increase in indebtedness and is usually defined as positive. Easier access to credit is inevitable as countries receive a more favorable credit rating and so the number of those willing to lend to the treasury or local business agents increase. The problem is that once this process got started, it cannot be stopped. It is enough to look at what happened to Greece, whose public debt (according to the criteria accepted in Maastricht) before entering the EU was only half of the GDP, but in 2001, when the country entered the Eurozone, it reached over 100%, and just a few years later - until the beginning of the debt crisis, the ratio in question increased twice. The intensive increase in indebtedness is an observed natural consequence of the so-called easy money. Private lenders extend such loans with the clear understanding that they will not be repaid in the normal way. Nevertheless, they rely on the possibility of being compensated at the expense of the specially structured (in the next stage) bailout funds, which will cover their claim at the expense of austerity programs and the expropriation of assets. This issue is often neglected and it is emphasized that the European Central Bank (ECB) and the European ratings helped to "save" (for example Greece), leaving out of the focus of such analyses firstly, that Greece cannot yet be defined as saved (since its debt-to-GDP ratio is now higher than before the bailout) and secondly, that if this country had not adopted the euro, it would not be possible to get so indebted. Just because the high interest rates and a lower rating would automatically nip the process in the bud. The following figure 3 clearly shows the essence of the problem. It can be seen that for the period that preceded the beginning of the financial crisis of 2009, the yield on the 10-year bonds of the countries of the periphery of the euro area was comparable to that of the debts of the countries of the core. This is apparently due to the artificially inflated ratings of the major agencies, which enables lenders to ignore the so-called country risk and thereby increase their sources of income, committing significantly less capital than if the risk were adequately assessed.

Figure 3. 10-year yields by country



The artificial underestimation of risk became noticeable only at the beginning of the financial crisis, when the spread on the debts of countries on the periphery briefly reached tens of percentage points. This led to a sudden outflow of capital and to a crash in debt markets (Dinev, V., 112-130). A collapse that was "contained" at the cost of further debt floundering, and that would not have occurred if the risk premium for the periphery had not been artificially depressed for so long.

4. Banking sector

An expected effect of the accession is the release of part of the buffers that currently guarantee the stability of the Bulgarian and Romanian banks. Being countries that are not members of the currency union, Bulgaria and Romania set stricter requirements for the stability of the banks operating on their territory. Thus, for example, at the end of the first quarter of 2022, the ratio of the Common Equity Tier 1 capital and the risk-weighted assets in the commercial banks in Bulgaria is over 21%, while in the Eurozone it is less than 16%. The difference in the comparison of liquidity coverage ratios is similar (see Table 1).

Table 1. Financial sector indicators as of December, 2021.

	LIQUIDITY COVERAGE RATIO (LCR)	COMMON EQUITY TIER 1 CAPITAL (CET1)
BULGARIA	274	21.66
ROMANIA	212	20.76
EUROZONE	173	15.48

Source: ECB, Supervisory Banking Statistics, Fourth quarter 2021.

The reduction of the regulatory thresholds and the release of the buffers in question is one of the main reasons for the representatives of the financial institutions to be so active. It is no coincidence that such representatives are the most active supporters of the idea, since for them it means the release of liquid and capital resources. It also means investments in new business, or in other words, that the representatives of the branch will start earning more. The problem is that, by definition, the limitation of any buffer leads to a reduced resilience of the respective institution, and in an unfavorable

turn of events, it can easily go bankrupt. Such cases are not rare in peripheral countries. After Bulgaria and Romania become part of it, this scenario would very likely be possible for their banks as well.

Concerns about reduced resilience of banks are usually ignored with the counter-argument of placing them under stricter supervision after the moment of accession. Greater strictness can hardly be measured with any quantitative assessment, but in general it can be said that in Bulgaria there will simply be no change. As a member of the Banking Union, our country has accepted the exercise of direct control over the five systemically important Bulgarian banks by the ECB in all aspects of their activity - remote supervision, on-site inspections, assessment of the reliability and suitability of the members of the management bodies, etc. For this reason, it can be argued that in our case the act of accession will not be tangible. In relation to the banking sector, there is another expectation regarding the possibilities of providing additional support for local banks. To some extent, it can be considered justified, because entering the Eurozone will give Bulgaria the opportunity to leave the currency board and get a so-called lender of last resort in the person of the ECB. At the same time, however, this circumstance cannot be perceived as insurance against bankruptcy, since on the one hand, the central bank would not be able to cope with a possible shock that covers more financial institutions, and on the other hand, the availability of liquid support cannot help solve problems in a decapitalized bank. The experience of peripheral countries so far has clearly shown the validity of the above statement. It is enough to mention names such as "Monte Dei Paschi di Siena", "Banco Espirito Santo", "Banco Popolar di Vicenza", "Banca Veneto" and others from the periphery of the EU, which were saved from bankruptcy at the expense of local taxpayers. The intervention of the ECB is limited only to warnings and exchange of letters. Against this background, it is difficult to count on the fact that the European regulator will be able to protect the Bulgarian and Romanian banks from falling into the situation stipulated in Art. 18, paragraph 1, letter "a" and Art. 18, paragraph 4, letter "a" of the Regulation (EU) No 806/201 and which in translation means "on the verge of bankruptcy".

A suitable example is the Cypriot banks, which in 2013 held a large volume of Greek government securities in their asset structure, providing a fairly good income, but also carrying a risk that was officially underestimated in the ratings of the major agencies. The issuer, Greece, is a member of the Eurozone and, at least on paper, should have no problems servicing its loans. The problems for Cyprus began when, as a result of the Greek debt restructuring measures, the portfolios of Cypriot banks were sharply devalued and a risk of bankruptcy of the entire banking system has arisen. Then the European Commission (EC) and the ECB "suggested" to the banks in the affected country to bail themselves out, and they complied with this prescription, "saving" themselves at the cost of a partial expropriation of their depositors' funds, although such a decision is incompatible with the principle of inviolability of private property. It was the only thing possible at the time.

The inclusion of countries with a lower standard and a less favorable structure of production in the Eurozone as a rule stimulates the replication of this scenario, because it leads to relocation of the capital flows toward the new member countries due to the loss of the risk premium. At an initial stage, this appears to be a beneficial effect, but in the longer term it leads to the inflation of speculative bubbles and hence to the erosion of the stability of the financial system as a whole. The final stage (as can be seen in the case of Cyprus) is a collapse of the financial system that cannot be prevented or mitigated with central bank funds, as this would lead to its collapse. At the same time, an immediate effect resulting from the stimulation of capital flows and the reduction of the risk premium should be indicated, expressed in the lowering of interest rates, or if it enters a period of rising interest rates - the eventual slowing down of their growth. This expectation motivates economic agents (and especially those with higher leverage) to support the idea of joining, as it will limit their costs of maintaining debt capital. The problem is that, in the longer term, low interest rates tend to distort the economic incentive system and support many low-value-added business initiatives. These are enterprises and projects that would otherwise be discontinued, and would free up a resource (capital, equipment, manpower) to be used more efficiently by other entrepreneurs. A problem is articulated in the Bank of International Settlements (BIS) reports, which call the economic agents of this category "zombie companies" because they can only exist thanks to the constant flood of new debts and the small costs of servicing them. As a rule, such companies cannot provide decent remuneration to their employees, and this will lead to further stagnation of real incomes. Thus, their emergence and spread is inevitable in an environment of artificially low maintenance of loan capital and lack of sufficiently viable productions with high added value. After entering the Eurozone, Romania and especially Bulgaria will become exactly such an environment. An effect that can be taken for granted is the imposition of an obligation on the central banks of the new member countries to participate in quantitative easing programs. This means that the central banks of Romania and Bulgaria will be obliged to finance loans to the European governments (mainly from the core of the EU), the purpose of which is to maintain the interest of investors in the debts of the member countries, but also to limit the costs of the issuers for their service. It is true that the inclusion of each new member country increases the potential for further quantitative easing programs. The problem is that the structure of these programs does not always (and most often does not) correspond to the participation shares, and this leads to the assumption of a disproportionately large part of the costs of managing the price of public debts by the countries whose papers are of lesser weight in the share of papers withdrawn from the market. Last but not

least, it should be noted that the greater potential of the banks leads to an accelerated accumulation of inflationary potential, the release of which is usually explosive in nature (which is currently observing). Regardless of the existence of this risk, however, such programs cannot be suspended, as experience has shown. For example, in 2020, the Federal Constitutional Court in Karlsruhe tried to restrain the participation of the Deutsche Bundesbank in such programs by declaring its actions to be contrary to certain constitutional texts. This circumstance was not respected by Brussels and Frankfurt (EC and ECB), which is why a few months later the German central bank resumed the purchases. Against this background, one can easily imagine what the outcome would be in the event of further contradictions (which are not excluded) between the ECB's policies and one's domestic legislation, especially when it comes to that of Romania and Bulgaria.

It can be assumed that the participation of representatives of the smaller central banks (as is the case with both countries) will in all probability be reduced to their formal presence. There are strong reasons to be skeptical of claims that the inclusion of a country in the Eurozone will enable it to effectively participate in the direction of European monetary policy. Probably the strongest proof of the lack of hearing in the collective body of the ECB is the premature resignation of the German representative in the Executive Council of the ECB, Sabine Lautenschlager. In 2019, she raised her concerns about a possible loss of price stability and spoke out against another decision to introduce new stimulus, but the only effect of her dissent was her premature resignation - about two years before the end of the term. The same policy continued and its results can be seen long before the start of the conflict in Ukraine (cited as almost the only factor in the high prices).

5. Fees off

Often, as a positive effect for both countries - Bulgaria and Romania – the experts point out the fact that they could count on certain benefits due to the elimination of fees for conversion from local currency to euro and vice versa is indicated. This effect is usually cited as one of the sure positives of accession, without, however, making an objective assessment of the expected amount of benefit (which is likely to be negligible). This is shown by the experience so far of the imposition of restrictions on transfer fees as a result of the extension of the scope of Regulation (EC) No. 924/2009. Since the entry into force of this extended scope in 2020, commercial banks have successfully compensated for the reduced fees by imposing new ones or by increasing the existing ones - for opening an account, for availability, for withdrawals, etc. No reason to expect, that once the exchange fees were removed, they would do otherwise, as no commercial bank would be inclined to limit its profits. The problem is that the new fees will be redistributed among all customers, i.e. while the cost of conversion now falls mainly on companies with international business (with deliveries or placements abroad), the compensation for lost conversion revenues will be distributed among all business agents.

6. Capital mobility and economic development

Experience so far shows that the inclusion of economies with a less favorable production and export structure in a common economic and monetary union in which they share a single currency and above all a common creditor of last resort in the long term does not bring positives neither for them, nor for the union in which they enter. What happened to Portugal, Greece, and Cyprus showed that this act, as a rule, leads to an artificial contraction of the risk premium in the new member countries, which causes a spontaneous process of capital leaving the core of the euro area and their flow to the periphery. For this fact can be attributed to the following three main reasons:

(a) Periphery countries become more attractive to capital from economies in the core, as they offer higher returns for (formally) comparable levels of risk assumed. The price growth and especially the one of the most attractive assets, which at the creation of the Monetary Union was considerably faster in the southern periphery than in the European core, provided an additional source of profitability, based on investments in the segments with more intensive price rates (among which were particularly attractive to external investors were property investments).

(b) The change of business strategy in the countries of the European South stimulates the accelerated growth of bank assets. In search of higher returns, financial intermediaries restricted credit to industrial production, lending to households (including mortgages) with increasing willingness. This change caused a "bubble" in the property and construction market (of particularly dramatic proportions in Spain), leading to an artificial overvaluation of loan collateral. In parallel, the bubble contributed to an increase in aggregate demand, which led to a rapid increase in imports that had to cover the domestic production deficit caused by the lack of financing for the real sector.

(c) Instead of investing in the modernization and expansion of their enterprises, in the conditions of accelerated globalization, many entrepreneurs from industrial production focused their investments on the utilities and finance sectors, which led to the moral obsolescence of technologies in their core business. Some production was discontinued and some moved to lower-standard destinations in order to limit production costs. This trend weakened southern industrial capital and led to the concentration of control over peripheral industry in the hands of major creditors from EU financial centers.

The listed effects led to the emergence of a powerful process of deindustrialisation in the countries of the periphery, which practically cannot be reversed, due to the exhausted potential for active actions - an aging and poorly educated population, high indebtedness, etc. European recovery policies from the 2011-2012 debt crisis only reinforced these trends due to the fact that most measures were mainly aimed at reducing budget deficits, but were not particularly effective in terms of growth due to their unexpectedly high impact on reducing potential GDP and, accordingly, tax revenues.

The effect of these policies was primarily "internal devaluation", intended as a substitute for currency devaluation (by reducing solvent domestic demand through selective measures such as reductions in public spending on social protection, wage cuts and increased labor market flexibility). These measures were supposed to have a restraining effect on the growth of these countries' external debt and excessive levels of imports. However, they led to compensating the reduced solvency at the expense of new loans for businesses and the population, and ultimately – to getting stuck in big debts.

7. Instead of a conclusion

Perhaps the biggest negative of joining is the lack of predictability and reliability. The Eurozone has already violated most of its "inviolable" principles, such as compliance with the Maastricht criteria, or the so-called "no-bail-out rule". A fundamental change in the way this community functions is coming, and one of the directions in which work is particularly active is the possibility of debt consolidation (the so-called "Hamilton moment"). For Bulgaria, for example, this means that from about 1/4 to GDP at the end of 2021, it can suddenly take on the repayment of four times the debt (as the average debt of the Eurozone is already approaching 100%) that they have drawn and spent on the old member states. In general, more changes are to come regarding the institutional future of the EMU and its functional rules, including a revision of the Maastricht criteria themselves, an increase in the capacity of the rescue mechanisms (which will lead to additional costs for the member countries), an extension of the powers of the ECB, etc., which will lead to unpredictable increases in the costs associated with membership the euro area.

One of the main challenges in change is to overcome imbalances between "core" and "periphery" countries. The discussion is still ongoing and consensus needs to be reached among EU member states on the future design of further deepening European integration and EMU in particular avoiding risks of a "double speed" Europe. Bulgaria and Romania will not be able to oppose any of these initiatives, no matter how harmful they are to themselves, especially since the right of veto will most possibly soon be removed from the general EU regulation, and probably it will be not the last thing, which will be dropped. The trends of the external imbalances registered by Bulgaria and Romania show an urgent need to search for better political responses in both countries in order to reduce their negative consequences. In other words, Bulgaria and Romania need to make further progress in macroeconomic convergence towards EMU.

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