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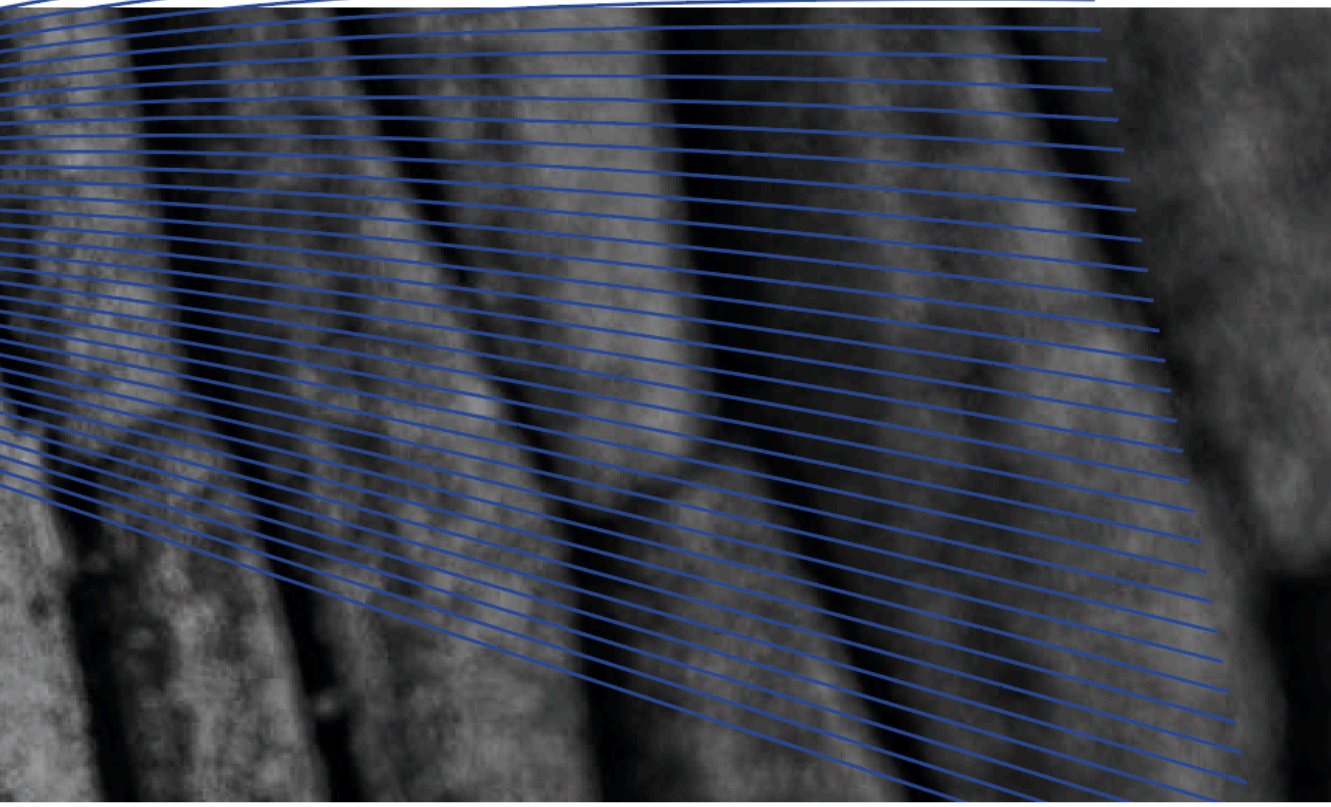

THE RESTART OF EUROPEAN ECONOMY AND ITS IMPACT ON CENTRAL AND EASTERN EUROPE

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The Restart of European Economy and Its Impact on Central and Eastern Europe

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Preface

China-CEE Institute announced a "Call for Proposal" research program in May 2020. Among the proposals received, one research proposal is "The Restart of European Economy and Its Impact on Central and Eastern Europe". What we are presenting here is the result of this research project, conducted by the consortium of (1) Kopint-Tárki Institute for Economic Research Ltd., (2) Institute of World Economy, Centre for Economic and Regional Studies (IWE-CERS), Hungarian Academy of Sciences, Hungary, and (3) Institute of East European, Russian and Central Asian Studies (IEERCAS), Chinese Academy of Social Sciences, China.

Since the coronavirus crisis broke out early in 2020, it has produced severe consequences on European economic activities while the speed of the recovery in Europe is still uncertain. Views on the economic recovery vary from one forecast institution to another. While many forecast institutions expect a V-shape recovery, Kopint-Tarki-led research team argues that the recovery will be slower than that and that in the best case it's more likely to be a U-shape curve with significant downward risks. As international economies are highly interdependent, the speed of the recovery depends upon various factors. Specifically speaking, for the CEE region, its recovery speed very much depends upon developments in other EU countries and the global economy in a wider sense.

In a response to such uncertainties, this project was implemented with an aim of having a better understanding of the current economic developments in the CEE region. It sheds light upon the impact of the pandemic and upon the recovery of European economy with a focus on the CEE region. The result is mainly composed of two parts. The first part covers the general overview of the situation and structure of the European economy, including economic growth, economic structures, major development drivers, fiscal processes, trends in government debts and the intensity of intra-European trade relations. In the second part, the focus is on some major and specific issues of recovery and restart in Europe, including global value chains in

the CEE region, European Recovery Plans and green economy, digitalization and trade relations between China and CEE.

The China-CEE Institute, registered as a non-profit limited company in Budapest, was established by Chinese Academy of Social Sciences (CASS) in April 2017. The Institute aims to build ties and strengthen partnerships with academic institutions and think tanks in Hungary, Central and Eastern European countries, as well as other parts of Europe. The China-CEE Institute encourages scholars and researchers to carry out joint researches and field studies, organizes seminars and lecture series, holds training programs for students and junior researchers and publishes publications, etc.

The views in the book are represented by the individual authors instead of the China-CEE Institute. I hope this book will help enrich the research literature on the European economic recovery and its impact on the CEE region.

Prof. Dr. CHEN Xin

Executive President and Managing Director, China-CEE Institute

Deputy Director General, Institute of European Studies, CASS

Summary

The COVID-19 pandemic health crisis has had severe consequences on European economic activity since March 2020. The preliminary data for 2020. Q2 show a **drop of GDP** in the Euro Area (EA) by 15.0 per cent, and in case of the EU27 by 14.1 per cent as compared with the same quarter of the previous year. Practically all sectors showed losses, and the recession reached both industry and services. Forecasters have different views about the recovery. Many institutions expect a V-shape recovery. According to Kopint-Tarki, the recovery will be slower than that, in the best case like a U-shape curve with significant downward risks. However, with a new wave of COVID-19 infections arising in most countries of the world, the probability of a double-hit scenario is increasing.

The speed of the recovery in the European Union is assumed to be dependent on the health of the global economy, while in the CEE region largely on developments in the EU14. Current forecasts show substantial differences for CEE countries in this year, from -4.5% in Poland to -8% in Croatia or Slovakia. Taken as a whole, the CEE region has suffered so far less from the crisis than EU14 countries. However, the impacts may come with some delay – as in case of the financial crisis 2007/2008.

Most CEE countries spent this year an amount about of 4 to 9 per cent of GDP on economic stimuli measures. As efforts for crisis management lead in all countries (not only in Europe) to a substantial rise of **public debt**, and the future success of debt management depends on the outcome of recovery plans. In case of a slow-growth scenario the financing of mounting public debt may cause severe problems in weak economies in the coming years. In case of advanced economies like Germany, the US or Japan – as learnt after the crisis of 2008/2009 – high debt ratios do not necessarily lead to high debt service burdens. However, debt levels would only be sustainable if the additional debt was used for productive purposes. Low interest rates alone do not guarantee sustainability for every country.

In terms of international **trade**, volume will drop by 12-16% in 2020. Goods and service trade will be affected negatively on the long term because of the restricted demand and because of supply disruptions. The supply-side shock which began in China, can hit again the Chinese industry, as imported inputs from the US and Europe are being constrained by containment policies. Due to the coronavirus crisis, policy makers may rethink trade promotion policies. Protectionism is ineffective, policy efforts should focus on modernizing the multilateral rules-based trading system to capture the increasing importance of e-commerce and trade in services.

One of the crucial issues for the future of the world economy and international trade is the potential change in the nature of **global value chains** (GVCs) due to the experiences of the pandemic. Some of the value chains were already under structural transformation when the pandemic hit them. Owing to digitalisation, production had become more service oriented, thus it began to come closer to the final customer. However, these alterations are rather individual cases than mass backshoring. There are crucial capacity constraints that limit the number of production stages that European manufacturers could take over. Industries chiefly in large and developed countries such as Canada, France, UK, USA could substitute if trade link between China and the EU broke. CEE countries may also benefit from the post-pandemic recovery and technological change in some industries, particularly in car manufacturing and electrical machinery. As low-cost producers, CEE countries might be able to increase their production. However, capacity constraints are crucial. As a consequence, significant change in the value chains between China and EU are not expected in the short run.

European economic recovery policy focuses on future investment in the green economy and digitalization. None of these are new issues, but they will be given more emphasis in the future, including under the **Next Generation** EU (NGEU) program.

Investments aimed at bolstering recovery will be channelled to strategic **digital capacities** and capabilities, including AI, cybersecurity, secured

communication, data and cloud infrastructure, 5G and 6G networks, supercomputers and blockchain. The crisis will boost digitalization in Central and Eastern Europe, as well. The most important changes will take place among government service providers because there were weaknesses in e-health, e-education and e-public administration structures, especially the low level of interoperability of them.

Most Eastern European countries assess the EU initiatives on **green economy** through the lens of economic opportunities and threats. Most countries where coal production is substantial want to go slow with energy transition. Also, many countries want to reduce their energy consumption only slowly until 2030. On the other hand, CEE countries have – more or less ambitious – plans to invest in various renewable energy sources and/or nuclear energy, with eyes on the available EU sources, as such investments are potential growth drivers and create business opportunities.

In the past few years, **China and Central and Eastern European countries** have maintained good economic and trade relations. Bilateral trade volume has increased year by year. China's investment in Central and Eastern European countries has increased steadily. Since the pandemic, trade exchanges have not shown much fluctuation. From a long-term perspective, the epidemic will have a profound impact on the global economy. If stable trade relations between China and Europe can be maintained, it will lay the foundation for economic and trade relations between China and Central and Eastern Europe.

In summary, from the point of CEE countries, the development of EU 14, China and the US is of outstanding importance. In the short run, their dependence on European markets will not change. Structural changes in Europe are necessary, however their impact will be felt only in the long run.

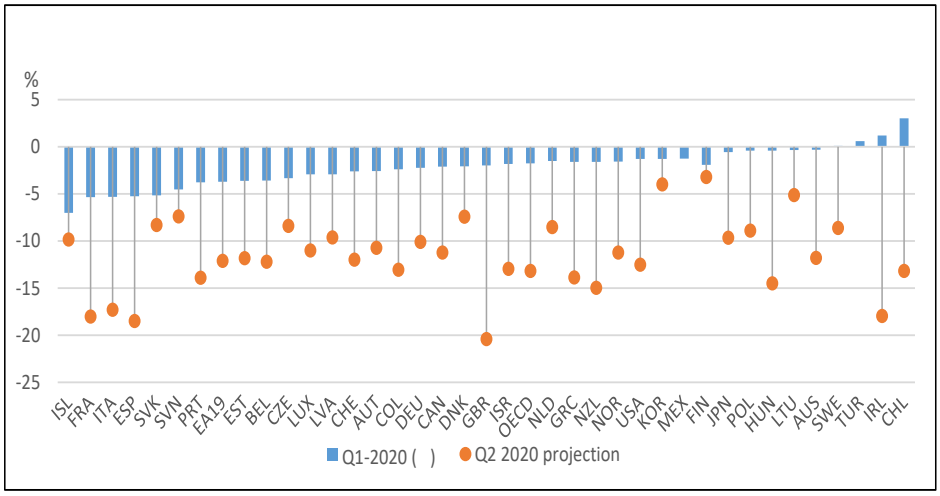
1. General overview of the situation and outlooks of the European economy

1.1. Economic growth rates and structure of the economies; major drivers of growth

The COVID-19 pandemic health crisis has had severe consequences on European economic activity since March this year. Whilst the 2008/2009 crisis started as a financial market crisis with having later effect on the real economy, the prevailing global crisis started suddenly as an external shock overcharging the capacity of the health sector and finally leading to a general lock down in the economy of most countries. In 2009 global growth shrunk by 0.4 percent, whilst at present we reckon with a drop of global output of more than 3 per cent.

After the 2008/2009 crisis the recovery of the European Union and especially of Euro Area countries was relatively slow. The lost confidence of investors was difficult to regain back. Apart from two years of very slow growth (2012 and 2013), until 2019 the average GDP growth in the EU ranged between 1.6 to 2.8 percent, whilst in the Euro Area 1.3 to 2.6 percent. Central and Eastern European countries showed a more dynamic growth in these years. The dependence on exports was characteristic in most countries of the European Union. Old Member States were partly dependent on intra-European export market possibilities but the trade with the US and especially with China had also a growing importance. As the US and China are the most important extra-EU trade partners of most of the EU countries, the economic slowdown in China that could already be observed for a couple of years before had severe consequences on export forecasts in EU member states especially in Germany. The pandemic led this year to dramatic slowdown in China which via multiplying effects of GVC-s reached in the first line the US and Japan but with some delay all EU Member States. (Figure 1.1.1)

Figure 1.1.1. Sharp drop of GDP in the first half of 2020 in most countries all over the world



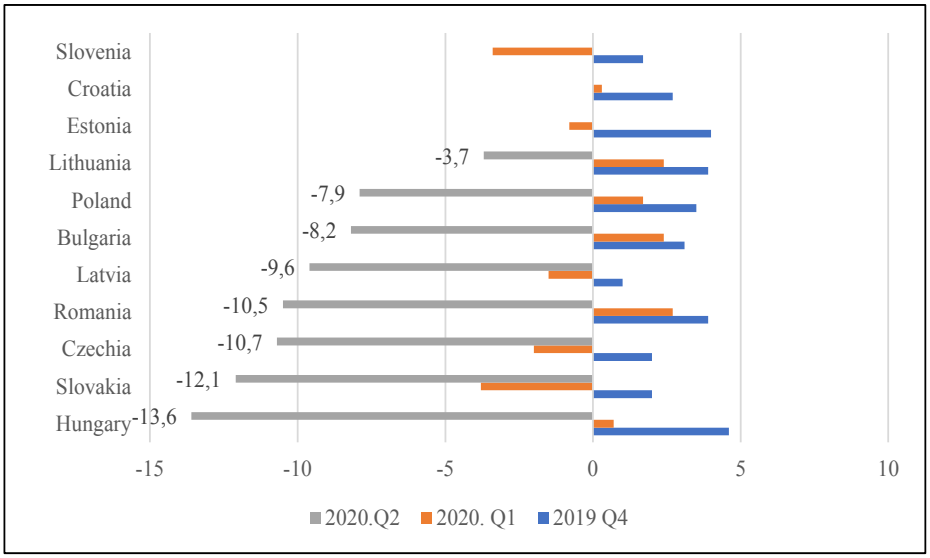
Quarterly percentage change in real GDP (Q/Q), Q1 2020 and Q2 2020 projections

Source: OECD Quarterly National Accounts, OECD (2020), "Gross domestic product (GDP), https://doi.org/10.1787/dc2f7aec-en (accessed on 30 June 2020) and OECD (2020[6]), https://doi.org/10.1787/826234be-en (accessed on 10 June 2020). Eurostat

GDP growth in the EU slowed down from 2.8 per cent in 2017 to 1.5 per cent in 2019 indicating the end of the last cyclical recovery. Accordingly, the 2019 autumn forecast of the European Commission projected 1.4 per cent growth rate for 2020 and 2021 each. In early 2020, the break-out of the COVID-19 pandemic changed these otherwise not too upbeat perspectives radically. The preliminary data for 2020. Q2 show a drop of GDP in the Euro Area (EA) by 15.0 per cent, and in case of the EU27 by 14.1 per cent as compared with the same quarter of the previous year. If compared to the first quarter data indicate (EA GDP down by -3.1 per cent in Q1 and -12.1 per cent in Q2 and EU GDP down by -2.5 per cent in Q1 and by 11.7 per cent in Q2) that the consequences of the pandemic could be especially felt in the second quarter. As to Figure 2 the largest drop in GDP in the second quarter could be experienced in case of Hungary, partly due to the fact that the first quarter data were here the best among CEE

countries.[1] Practically all sectors showed losses, and the recession reached both industry and services. Huge losses were suffered also in case of Slovakia, Czechia, and Romania.

Figure 1.1.2. GDP growth in CEE countries for the second quarter 2020 compared with the same period of the previous year (percentage change, volume)



Source: Eurostat, Flash estimates for the second quarter of 2020, 125/2020 - 14 August 2020

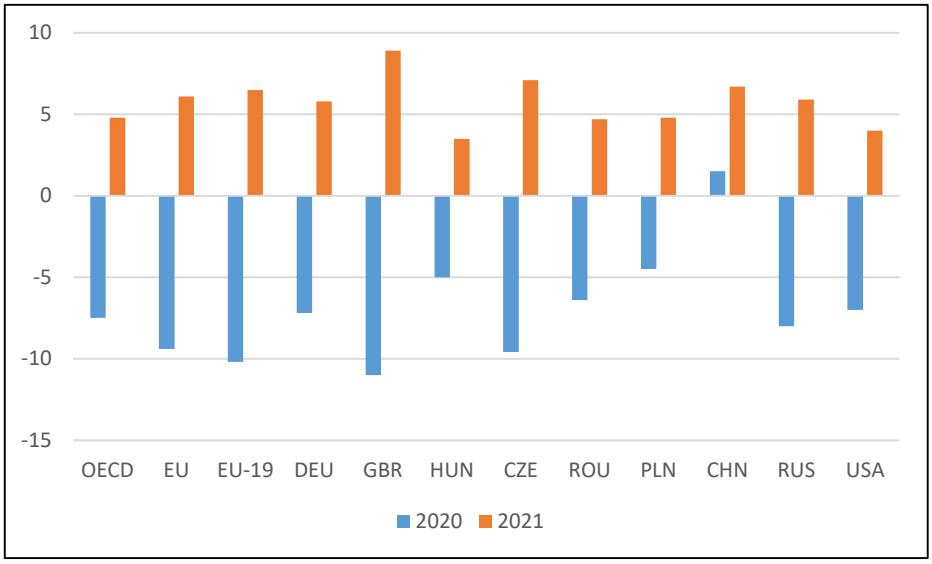
Due to the specific nature of the pandemic, macroeconomic forecasts have been burdened with huge uncertainties and risks. The main cause of uncertainties is related to the pandemic however the ongoing process of the Brexit is also an important factor influencing investment behaviour. Due to the pandemic the disruption of supply channels, the demand shock, the collapse and increasing volatility of commodity prices, especially of oil prices, the shifts of spending patterns affecting certain sectors (transportation, tourism, certain services) severely, shrinking of private consumption, which was one of the most important pillars of growth in the

[1] As compared to the previous quarter in case of Hungary the drop turned out even higher: -14.5 per cent.

years before, contained investment activities fuel more and more pessimistic expectations. Manufacturing industries showed a declining trend already since the Autumn of 2018, and because of the pandemic this slowdown reached dramatic extents, especially in case of car production. As CEE countries became important suppliers for Western European countries in this area, the demand crash hit them substantially as well.

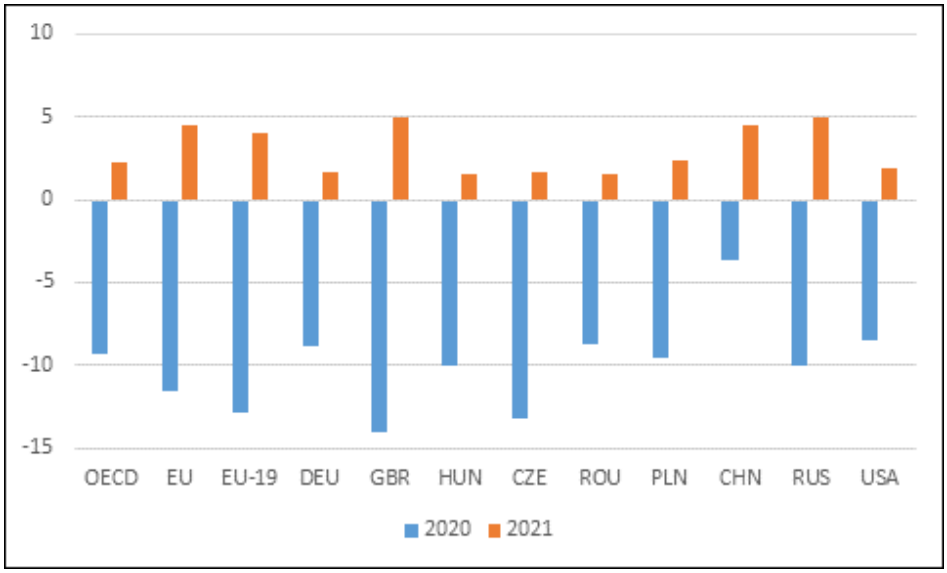
Forecasters have different views about the recovery. Many institutions expect a rather sharp bounce-back, or, in other words, a V-shape recovery. According to Kopint-Tarki, **the recovery will be slower than that, in the best case like a U-shape with significant downward risks**. However, with a new wave of COVID-19 infections arising in most countries of the world, the probability of a double-hit scenario is increasing. Even in case of a single-hit scenario a drop of GDP in the EA might reach 10 percent, and in case of the EU about -9 percent this year (Figure 3). As shown in Figure 4 in case of a double-hit scenario the drop of GDP this year would be substantially larger than in case of a single-hit scenario (about -10 per cent in the OECD and China would show also a negative growth rate), and the recovery (if any) next year will turn out also more modest than in case of a single-hit scenario. However, present statistics on new pandemic infections suggest that double-hit scenario is more probable. It is an important aspect that even in a worst-case scenario, countries are more prepared for the pandemic, they can handle the situation better and control the disease and locate it to limited regions. That means that – hopefully – a complete lockdown like in Spring this year can be avoided. Recent trends in China also suggest that the recovery will be stronger than assumed before. On the other hand, more and more countries are extending the duration and size of support measures for economic activities, and even in countries where the pandemic was quite under control like in Germany IG Metall Trade Union rose the idea of introducing a 4-day working week in the automotive industry for the next year as a whole in order to avoid further elimination of jobs. **All this suggest a rather slow recovery in the coming months**.

Figure 1.1.3. GDP forecast in case of a single-hit scenario



Source: https://data.oecd.org/gdp/real-gdp-forecast.htm, Kopint-Tárki database

Figure 1.1.4. GDP forecast in case of a double-hit scenario



Source: https://data.oecd.org/gdp/real-gdp-forecast.htm, Kopint-Tárki database

The speed of the recovery in the European Union is assumed to be dependent on the health of the global economy, that in the CEE region largely on developments in the EU14. Trends in car manufacturing and tourism and related services are of importance in most countries as well as in the CEE region. Retail trade and services suffered great losses due to restrictions related to the pandemic which cannot be compensated easily even if a recovery starts in the second half of the year. On the other hand, the inflow of external financial sources is also essential, particularly from the EU, but financing by the IMF and from international financial markets is not negligible either. Third, the ways and means EU member states and other countries manage the crisis triggered by the COVID-19 pandemic matter as well. There is a worry about how the employment situation will be affected: immense rises in unemployment are expected that is why preserving jobs and job creation schemes are on agenda in most of the countries. In sectors where decentralised working is possible the preservation of jobs has more chance. It can be reckoned with that working methods will change in the future: atypical, more flexible ways of working will spread in the future. Significant risks around this forecast remain both to the downside (a second wave would put further downward pressure on activity) and upside (a vaccine is developed).

The present forecasts show a great variety in case of CEE countries with negative growth rates ranging from -4,5 per cent in case of Poland to more than -8 per cent in case of Croatia or Slovakia for this year. As to the latter the shrinking industrial production and the fall in gross investments is especially responsible for the prevailing recession. The country is very much dependent on the output of car and machine industry and is closely linked to the shrinking German market. Industrial and business services play an important part in economic performance: the lockdown affected this sector in an extreme way thus the recession there has severe consequences for the Slovak economy. In case of Croatia the flop of tourism is the major problem: and with renewed expansion of the pandemic there is little hope for a recovery this or next year. Poland with a huge

domestic market will be less affected by the crisis. In Hungary the GDP dropped by 13.6 per cent in the second quarter, practically all sectors were shrinking. In general, in case of countries with huge domestic markets and a larger share of consumption (like Poland or Romania) external shocks like the pandemic can be better compensated via private consumption. However, in this respect much depends on consumer behaviour and expectations. If governments manage to take measures encouraging economic activity as well as domestic demand and suggesting security (for example job security) for the future, the pessimistic approach of economic players and consumers may be kept under control.

Taken as a whole, **the CEE region has suffered so far less from the crisis than EU14 countries**. However, the impacts may come with some delay – as in case of the financial crisis 2007/2008 – this means that real problems might arise in the years ahead. This year and in 2021 the inflow of EU funds will also support CEE economies due to the implementation of the N+2 rule of the use of EU funds. Thus actually 2022 will be the first year when the resources allocated for the programming period 2014-2020 will already be exhausted and the new resources scheduled for 2021-2027 will not yet be available mostly because of delays in planning and programming of new operative programmes and related calls. In case of a double-hit scenario growth rates for 2021 and 2022 might be rather low all over the world and the recovery would turn out very sluggish, especially in EU14 which would cause a back fall for CEE countries.

Another factor which has mitigated so far the impacts of turbulences of value chains was that the value added produced in CEE countries is much lower than in more advanced European countries, thus the losses suffered so far turned out also smaller. As already mentioned the worst situation occurred in the automotive sector which suffered a slowdown already before the COVID-19 crisis, so it is most likely that this slowdown will hold on in the coming years unless substantial structural changes take place in the sector (the production of competitive electronic cars) as is the case already in other parts of the value chains in Europe, China or in Japan

which would make the CEE region again a competitive supplier. First signs of this structural adjustments can already be seen, however very much depends on the fact how structural adjustments will proceed for example in Germany, the UK or Japan.

The experiences during COVID-19 crisis drew attention to an old debate concerning **benefits of GVCs contra national production**.[2] COVID-19 has highlighted the weaknesses of value chains, and the volatility of international productions networks. CEE countries integrated in international networks had to suffer from their disruption because of the demand and supply shock occurred in the first part of the year. The closure of factories in China early January this year drew attention to the reliance of many manufacturing value chains on inputs from China. The idea of "nationalisation" of production especially in case of strategic items occurred. It is a question whether more resilient value chains with better transparency and risk management could mitigate risks implied in internationalisation of production. It should be emphasized that the COVID-19 caused in the first line a demand side shock which would have affected domestic value chains as well. Demand has increased dramatically for medical supplies, while there has been a significant shift in the composition of demand for food. On the other hand, demand has decreased for all other manufacturing GVCs. The shock in CEE countries was very similar to that in other advanced countries. The capacity of the health sector was not sufficient in case of a serious outbreak of the epidemic, the demand for food and delivery services increased beyond available capacities, whilst the demand for manufacturing goods, services practically collapsed, leaving small firms and a number of suppliers without any income from one day to the another. For this kind of shocks none of the CEE countries were prepared. With the present integration of CEE countries in the world

[2] COVID-19 and Global Value Chains: Policy Options to Build More Resilient Production Networks, June 3 2020 https://read.oecd-ilibrary.org/view/?ref=134_134302-ocsbti4mh1&title=COVID-19-and-Global-Value-Chains-Chains-Policy-Options-to-Build-More-Resilient-Production-Networks

economy and their dependence on exports, we do not think that their linkage to GVCs would diminish in the future. It could be a chance for CEE countries if major producers striving for a diversification of suppliers to diminish risks of someone falling out, will integrate more suppliers, or try to shorten the GVC chain, in order to be less vulnerable which could generate more new chains. Due to the new situation new demand could also arose like in the health sector contributing to the development of new types of value chains. A rethinking of the stability of value chains will be necessary, as mentioned an improved transparency and a better for-warning system might make value chains more robust in case of similar shocks in the future.

Most CEE countries spent this year an amount about of 4 to 9 per cent of GDP on **economic stimuli**, or in case of Latvia the introduced package reached 12 per cent of GDP. Measures aimed at wage compensation for short time workers, support for various vulnerable groups, such as freelancers in the area of culture, one-off transfers to parents forced to be on unpaid leave during the state of emergency, tax release for firms, credits at favourable terms, support for firms affected by the crisis and suffering from substantial income losses, support for the health sector, investment stimuli, launching government guarantee schemes on bank lending etc. to protect jobs and fuel investments activity. After launching the first measures it turned out that more is needed. Thus, most CEE governments either extended the duration of measures even up to next year or introduced additional measures of support. The most important aspect was to stop the idle economic activity, ease the lockdown and restart the economy. Even this way losses suffered so far will not be compensated until 2022. If we have a look at the Policy Tracker of the IMF[3] collecting policy responses of all countries to the COVID-19 crisis, among the first measures we can see income compensation and increasing support for those in temporary unemployment and self-employed. This is a necessary measure with short

[3] https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#B

run effects; however, it is an important aspect as well that the real reason for sluggish consumption is not the money missing, but much more missing confidence. Thus, supporting measures and stimuli should focus on the saving, on the preservation of firms with potential via partially compensating capital losses and this would improve confidence of market players and contribute to the preservation of jobs. If this confidence is becoming stronger consumption will start to grow as well[4].

Tourism will be affected by the pandemic all over the world thus in CEE countries as well. As recent data show that relived mobility of people contributes to a great extent to the increase of new cases of infections, restrictions concerning travelling are already at agenda but will soon limit seriously the performance of this sector all over the world. As the second wave of pandemic in some countries is expected by October-November, the Christmas period will completely fall out for tourism related services (hotels, aviation, restaurants, sightseeing, cultural services, retail trade etc.) will be affected via spill-over effects. Conference tourism which is also an important part of this sector will also fall short due to the pandemic.

With the purpose of the restart of the **European Economy the European Recovery Plan** launched in July 2020 [5] aims at giving answers to challenges arisen due to COVID-19 and adopting emergency measures to preserve the health of the citizens and prevent a collapse of the economy. These measures are focused because they must target the regions and sectors that are most hit by the crisis and are limited in time as the MFF and the rules governing it remain the basic frame for the Union's budgetary planning and implementation. This recovery plan will imply a combination of loans (up to €360 billion in 2018 prices) and grants (€390 billion in 2018 prices) with the aim of encouraging massive public and private investments

[4] Stefan Kooths: Tiefpunkt überwunden, Krise noch nicht https://www.ifw-kiel.de/de/media-pages/news/2020/tiefpunkt-ueberwunden-krise-noch-nicht/

[5] Special meeting of the European Council (17, 18, 19, 20 and 21 July 2020) – Conclusions, Brussels, 21 July 2020, EUCO 10/20, https://www.consilium.europa.eu/media/45109/210720-euco-final-conclusions-en.pdf

all over Europe, supporting European firms to find a sustainable way of recovery and job creation. The idea is to launch the Next Generation European Union (NGEU) which means that supports envisaged should not only help to cope with losses due to the pandemic but should also encourage structural adjustments which will make Europe more competitive in the future. This implies more emphasis on green economy and digital issues. It is a big question whether these envisaged structural adjustments succeed, or funds will be used for the reproduction or maintenance of the prevailing structures. In case of the first there is hope for a relatively dynamic recovery in most countries, whilst in case of the latter prevailing structural problems causing a relatively slow growth in most countries of the EU will hinder a quick and healthy recovery. This latter scenario will have fatal consequences for less developed EU countries, thus for CEE countries.

As efforts for crisis management lead in all countries (not only in Europe) to **a substantial rise of public debt**, very much depends on the outcome of recovery plans. In case of a slow-growth scenario the financing of mounting public debt may cause in case of weak economies severe problems in the coming years. In case of advanced economies like Germany, the US or Japan – as learnt after the crisis 2008/2009 – high debt ratios do not necessarily lead to high interest rates and high debt service burdens. In case of huge uncertainties if there is a general risk aversion, investors might prefer lower but safe yields, safe assets, thus the demand for government bonds of solid countries may increase[6] even at 0 or negative yields. Debt overhangs do not lead necessarily to high interest rate level in case of solid and advanced economies rather to a slow growth and low interest rate scenario. Historically low interest rates may be maintained in the coming years: as already referred to central bank rates will be kept at low level in case of most countries, and despite uncertainties a turning point is most unlikely. In case of Germany with a fiscal policy with good

[6] Cristoph Trebesch: Kann Deutschland jetzt hohe Schulden machen? Drei Lehren aus der Geschichte, Kiel Focus 05/2020 https://www.ifw-kiel.de/index.php?id=14346&L=1

reputation increasing public debt is not a big risk. The situation is somewhat else in case of emerging countries, in Italy, Portugal, Greece, or Spain where the consolidation of public debt had already been on agenda prior to the present crisis. However, as the Maastricht rules are repealed temporarily and the focus is on restarting the economy and the ECB is purchasing government bonds of risky countries as well, the problem of debt financing has not become manifest yet. The debt problem of weak economies will become more pronounced in the years after the pandemic crisis dies down.

Financial markets reacted also sensitively to changed conditions. **Worsening risks sentiment led to a series of central bank rate cuts, liquidity support actions, and, in a number of cases, large asset purchase programs**, including from the US Federal Reserve, European Central Bank, Bank of England, Bank of Japan, Bank of Canada, and Reserve Bank of Australia, as well as from emerging market central banks in Brazil, China or India. CEE countries followed the same monetary path. However, how far these measures can help depends on the fact in what way the confidence and expectations of both consumers and entrepreneurs develop. If economic players see no end of the pandemic and endless series of economic constraints and a continuous fall in demand than the most impressive measures cannot help either.

Another method to supply liquidity in the market is the expansion of broad money. With different ways of monetary easing central banks did their most of furnishing the market with enough liquidity. However, with modest results. During the COVID-19 crisis government guarantees on bank lending allowed a surge in loans letting commercial banks' balance sheet jump to historic heights.[7] This way, however, the control of the supply of money partly passed from central banks to governments. Government guarantee schemes allow governments to push money to small business

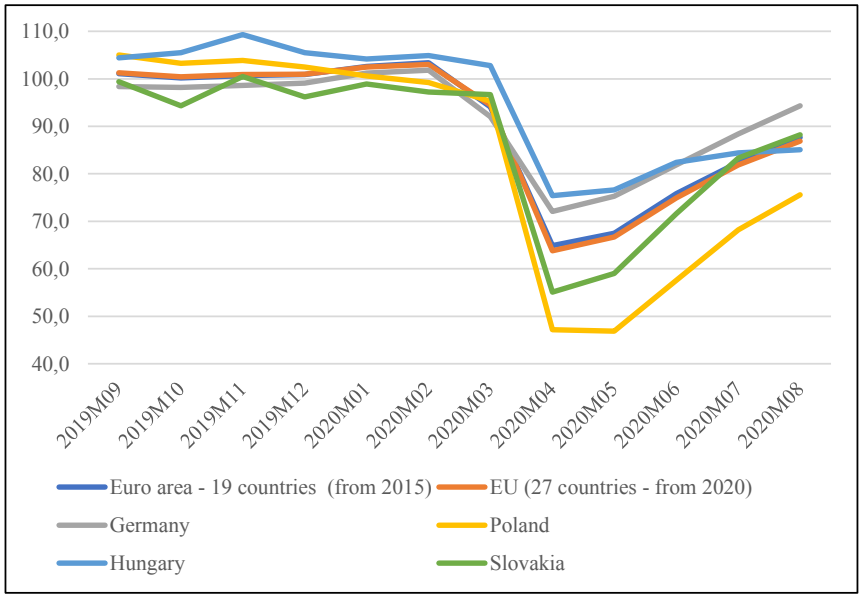
[7] Russel Napier: Beware the effects of savings of new era of financial repression, Financial Times, 24.07.2020

firms and households. At first sight this seems to be an easy way of financing as it does not cost money but a contingent liability. Despite money creation at high level inflation expectations remain low. At present gold is the best way to retain the purchasing power of savings, as capping borrowing costs will be a necessity of governments and will be achieved through forcing savings institutions to buy government bonds at yields well below inflation rates. Savers through government bonds holdings will have to bear the burden of capped yields and will be faced by eroding value of their savings through inflation. This again might cause a loss of confidence on behalf of investors and an increased preference towards gold investments. This might save the purchasing power of savings but will not contribute to growth, which might become a problem already in the short run.

At present risks of a worse outcome predominate. To forestall worst scenarios effective and coordinated policy interventions are necessary. The first signs of a second wave of COVID-19 infection can be experienced in more and more countries. Consequently, restrictive measures are launched overall but at present all governments emphasize that no lockdown should take place but a careful monitoring and the isolation of suspected areas. Under these circumstances envisaged structural adjustments within the economy will take time. In the short run countries will be prepared for some kind of fire shooting to keep the pandemic under control, what means that the restart of the economies might turn out sluggish: the relive of tourism and the servicing sector cannot be expected before next year (actually after a vaccine is invented and accepted for use), the recovery of manufacturing will remain limited, new investments in the green economy and in digitalisation will much depend on government stimuli and on the confidence and expectations of private investors. Private consumption – again depending on expectations – might be lively in certain sectors (like food, household articles), but less optimism may be expected concerning clothing, different personal services (restaurants, catering, culture), car purchases, housing etc. On-line services will keep flourishing what again

could bring new chances for retail trade and certain branches of production. With the introduction of economic stimuli economic sentiment started to improve in Europe. However, as shown in Figure 5 the level of the indicators is well beyond of the level at the end of 2019. In case of most countries the indicator values show a very similar trend. From the point of CEE countries, the development of EU 14, China and the US is of outstanding importance. In the short run their dependence on European markets will not change, so if there is no recovery there than the outlook for CEE countries will remain gloomy. Structural changes in Europe are necessary, however their impact will be felt only in the long run.

Figure 1.1.5. The recent trends of Economic sentiment indicator in the EU



Source of Data: DG ECFIN, 28.08.2020,

https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=teibs010

2. FISCAL PROCESSES, TRENDS IN GOVERNMENT DEBTS

The covid-19 pandemic interrupted the decreasing trend of public debt in the EU. The objective of this chapter is to analyse the impact of the covid-19 pandemic on public debt in the EU and particularly in Central and Eastern Europe (CEE). The central research question and the guiding principle are how the restart of the European economy would take shape and how it would affect CEE countries in the context of public finances.

In this chapter, **first**, the initial state and the most probable short-term trends in government indebtedness are identified. **Second,** the policy responses of member states are discussed from the point of view of their contribution to more sustainable economic growth. **Third,** the contribution of the EU to the mitigation of the covid-19 pandemic's impact on public finances is assessed. **Finally,** the summary of the findings and the conclusions are presented. Statistical figures originate in the database of Eurostat and the European Commission if otherwise not indicated.

The impact of the covid-19 pandemic on public debt

Past economic growth performance and the level of gross government debt relative to GDP (also referred to as the government debt ratio or public debt ratio) determine to a large extent the impact of the covid-19 pandemic on, and the fiscal room of manoeuvring of the individual EU member states to combat its consequences. From 2014 to 2019, the public debt ratio decreased in each EU country, as a result of which the EU average fell from 86.6 per cent to 79.4 per cent. Nevertheless, CEE performed better in this respect than the rest of the EU.

CEE member states and the rest of the EU are ranked in Table 1 according to **government debt ratios** recorded in 2019. Within both groups, two subgroups are distinguished: countries with ratios below 50 per cent and those above 50 per cent are presented separately. Countries with low figures are assumed to be more resilient to economic slowdowns and recessions and should have much larger room of fiscal manoeuvring than more indebted ones. According to the fiscal convergence criteria enshrined

in the Maastricht Treaty, the general government deficit relative to GDP must be less than 3 per cent, and the gross government debt must not exceed 60 per cent of GPD in the medium-term. Ratios above these ceilings are supposed to have negative repercussions on economic growth. In terms of public debt, the critical area around 60 per cent involves particularly huge risks in unusual situations. Nevertheless, due to the covid-19 pandemic, EU institutions suspended the application of these provisions as well as state aid rules until 2022 at the earliest. Many economists think that government debt ratios above 90 per cent are unsustainable.

Table 1 shows the projected **government debt ratios** of EU member states (European Commission 2020). They reflect not only anticipated fiscal measures and general budgetary trends, but underlying GDP forecasts as well. All the approved and enacted monetary and fiscal policy as well as other government measures were incorporated in the projection that had been available until the end of the forecasting exercise. Subsequent government measures may affect future trends and modify the projections. The government debt ratio forecast involves significant severe negative risks.

As the combined result of falling GDP and decreasing revenues and rising expenditures to mitigate the economic consequences of the pandemic, the **general government deficit relative to GDP** is likely to grow significantly in all EU member states. Besides other factors, this plays an important role in the rise of the **public debt ratio for the EU average** from 79.4 per cent to 95.1 per cent and 92 per cent, respectively.

Countries with less than 50 per cent government debt ratios in 2019 include Estonia, Bulgaria, the Czech Republic, Romania, Lithuania, Latvia, Poland and Slovakia **in the CEE** and Luxembourg, Denmark, Malta, the Netherlands and Sweden **in the rest of the EU**. These EU member states have in principle ample room for fiscal easing. They can theoretically afford to increase their government debt without significant negative repercussions on GDP growth, at least in the short-term. The public debt ratios of this group are projected to rise in 2020 due to the pandemic, and

to stabilize or drop in 2022, but, with the exception of the Netherlands, they would not exceed the 60 per cent danger zone. In spite of the more favourable conditions of fiscal expansion, these countries, too, should undertake measures to consolidate and reform their public finances, but the pressure to do so would be weaker, with the necessity of initiating more qualitative rather than quantitative steps. However, the public debt ratio of some countries such as **Slovakia, Poland and Romania** is likely to approach the critical 60 per cent ceiling, therefore they should be dealt with separately in the analysis. Nevertheless, in 2021 their public finances, too, are expected to improve.

Countries with more than 50 per cent public debt ratios in 2019 comprise Hungary, Slovenia and Croatia in the CEE (together with Slovakia, Poland and Romania from the previous group), and 11 economies in the rest of the EU. The initial **indebtedness exceeding 100 per cent of GDP and its increase in 2020** is of the greatest great concern for Greece, Italy and Portugal. The initial public debt ratios **between 90 per cent and 100 per cent and their growth** in 2020 would not bode well for Belgium, France, Spain and Cyprus. In addition to considerations of long-term sustainability, there is the risk that high-debt countries would have less fiscal space to boost steady recovery. An important further risk to fiscal policy and sustainability is that in 2021 Italy has to refinance more than 15 per cent of its government debt, and this figure is more than 10 per cent for France, Spain, Belgium, Finland and Portugal. With **around 60 per cent** ratios, the starting position of Germany, Ireland and Finland are better, although the value of this indicator is expected to mount above the reference level of the EU. In 2019, Austria ranked next to them with a 70 per cent ratio.

International rating agencies tend to award CEE countries less favourable grades than to the rest of the EU. They have to maintain lower public debt ratios in order to achieve the same ratings as the rest of the EU. Therefore, in spite of their relatively favourable initial position, the

possibilities to increase their public debt ratios would be somewhat more limited.

Monetary and fiscal policies

As far as the major macroeconomic factors influencing public debt ratios and the pace of recovery are concerned, the combination of **low interest rates and high inflation rates** contribute to the stabilization or the reduction of the government debt ratio. If **interest rates** are lower than the growth rate of GDP, the public debt ratio can be stabilized or reduced even with some fiscal stimuli. In the euro area, the European Central Bank (ECB) has kept its reference rates very low (marginal lending facility 0.25 per cent, main refinancing operations 0.00 per cent and deposit facility minus 0.50 per cent) since September 2019. Interest rates are likely to remain subdued in the forecasting horizon, although this is not guaranteed. Due to identical reactions to the crises, the stance of monetary policy is similar in the eight non-euro area member states with very depressed (close to zero) or in some cases negative reference rates (e.g., in Denmark). There are no signs of increase until the end of 2021 either. Interest rates governments pay on their debt, too, would be much below the rate of GDP growth (bar the recession year 2020).

With low energy prices and declining economic activity, inflationary pressure has weekend, as a result, **inflation** has been modest. In the years surveyed, inflation rates are expected to be much higher in the EU than the central bank reference rates and market rates, helping the improvement of public finances. Possibilities for financial repression, i.e. the application of regulatory measures to keep interest rates low are rather limited and so are measures such as capital and exchange rate controls. In Hungary, the Czech Republic and Poland, and partly in Slovakia the harmonized index of consumer prices is projected to exceed the EU average significantly. However, the overall importance of the interest and inflation rate factor in the restart of the economy appears to be rather limited. Negative interest

rates provide member states with favourable conditions to bolster investments.

In addition to low interest rates and some other measures, **monetary policy** support includes the ECB's Pandemic Emergency Purchase Program with a total potential size of EUR1,350 billion to ease the general monetary policy stance. The central banks of member states not belonging to the euro area, too, introduced substantial monetary easing measures in a rather coordinated manner. In addition to providing the economy with liquidity, monetary easing is meant to keep interest rates low.

Due to the constraints of monetary policy, support for bolstering economic activity may come basically from **fiscal policy** that can be targeted more precisely and focused than monetary policy. Although not coordinated, **"above the line" fiscal measures** of individual countries have been manifested until recently in additional spending (e.g., health services, unemployment benefits, etc.) and/or tax cuts and other relief that lead immediately to higher general government deficits and government debts relative to GDP. **"Below-the-line" measures** include equity injections or loans to firms, government guarantees to banks, firms and households. These items do not have immediate impact on public finances. Nevertheless, loan defaults or equity losses would reduce the assets of the government, and the call on guarantee would add to the public debt (International Monetary Fund, 2020:35). EU member countries have applied these options differently.

The role of the EU

Fiscal measures initiated by member states will be amended by the **financial sources of the European Union**. On 21 July 2020, the European Council approved the **multiannual financial framework** (MFF) for the period running from 2021 to 2027 in the total amount of EUR1.074 trillion equalling to slightly more than 1 per cent of the EU's combined annual GDP, and the **Next Generation EU Fund (NGEU)** valued at EUR750 billion (both figures in 2018 prices) spread over several years. This

corresponds to about 4.7 per cent of the combined 2021 GDP of EU member states. The objective of the NGEU is **to amend the fiscal capacity** of member states, including the MFF, and thereby to help member states recover from the covid-19 recession. A further objective is **to prevent additional divergence** among member countries due to the asymmetric impact of the covid-19 crisis and differences in the recovery capacities of the member countries which do not have the same means to deal with the crisis. The NGEU will be funded by borrowing over six years through bonds issued by the European Commission whose maturities would expire in 2058 and whose repayment would start in 2026. Out of the total amount of EUR750 billion, EUR438 billion will be distributed as grants, EUR62 billion as guarantees and EUR250 billion as loans.

Regarding the NGEU, **grants** will not contribute to the rise of the government debt, on the contrary. **Guarantees** are considered a specific kind of insurance, they could be activated if the necessity arises. In this case, the government debt would increase. As far as **loans** are concerned, it is up to the individual countries whether or not they make use of this option.

The distribution of grants and guarantees among member states is based on two broad criteria. The first criterium is **the size of the economic shock** member states suffered by covid-19 (insurance element), the second one is **the level of economic development** in terms of GNI per capita in 2021 (element of redistribution from richer to poorer countries). (Darvas, 2020) The socio-economic impact of the crisis and differences in the initial fiscal positions of the member state would not be considered. Spain and Italy that were most severely affected by the pandemic, would be the largest beneficiary member states of **grants** in euro values (EUR80 billion and EUR85 billion, respectively), whereas Bulgaria, Croatia and Greece in terms of the share of funds in GNI (13-16 per cent). Grants are likely to equal to 7-10 per cent of annual GNI in most Central European member states with the exception of the Czech Republic, Slovenia and Hungary (4-7 per cent). The largest beneficiaries of **guarantees** would be Italy and

France, followed by Spain and Germany in absolute terms, and Greece in relative terms. **Loans** would not involve any deliberate redistribution element. The upper ceiling of borrowing would be 4.7 per cent of GNI. Member states are assumed to realise savings from the loans of the EU equalling to the difference between the expected lower yields of EU bonds and the higher ones of government securities issued under actual financial market conditions by member states. This kind of saving could be of considerable size for Italy, Cyprus, Malta and Slovenia (Darvas 2020). EU member states have – at least in principle – the option of applying for preferential IMF loans, albeit euro area member states are not recommended to do so.

The envisaged grants and loans are meant to finance investments and reforms as submitted by member states in their **recovery and resilience plans** in the framework of the European Semester. The Commission will evaluate the investment plans of member state governments on the basis of its annual country-specific recommendations.

The conditions and the priorities of the relevant EU programs assign the direction of structural measures since 30 per cent of MFF and NGEU spending should be devoted to green and digital investment, more precisely the acceleration of the ecological and digital transition to "strengthening EU economic and industrial resilience and sovereignty of the EU, while generating new impetus for the single market". (European Council 2020). A further priority includes health.

There are **uncertainties and negative risks** related to the EU measures described above. The final decision on the NGEU including voting in the **European Parliament** and the details of implementation is not expected to take place before the end of 2020, the first disbursements are likely in 2022 and 2023 with the subsequent first short-term economic effects.

The breakdown of the **MFF** according to member states is not known yet. It is the difference of the inflow of EU funds and the contribution to the common budget (the net figure) that affect general government positions.

The absorption degree of EU funds is rather low in the first years of the budgetary period, therefore their contribution to the fiscal room of member states would be rather modest in 2021 and 2022. The overall fiscal position of net beneficiaries will improve whereas that of net contributors deteriorate depending on the size of their net positions.

Regarding the **NGEU**, delays in disbursements may occur due to the slow administration procedures of the evaluation. The size of the envisaged transfers may exceed the capital absorption capacity of some EU member states. MFF and NGEU funding would be rather small in annual terms. This could be offset to some extent by the synergic effects it generates. The NGEU package responds to the emergency situation of covid-19, but it is not enough to ensure the recovery of EU member stats' economies.

Darvas (2020) also points out that it is impossible to calculate the net contribution of the NGEU fund to the individual member states. One of the unchartered territories is the assessment of the contribution by the member states to the repayment of the loans borrowed by the European Commission.

Summary and conclusions

The pandemic is a symmetric supply and demand shock whose impact is asymmetrical from one member state to another depending on a great number of factors. The impact of the pandemic on public finances were more severe in countries with high government debt ratios limiting the room of manoeuvring of their economic policies. In terms of actual and projected government indebtedness, CEE is and would be in a better position than most of the rest of the EU. Monetary policies create the appropriate macroeconomic framework conditions in the EU, but the major task lies with national fiscal policies. They would be amended and supported by the next MFF and the NGEU, the latter with an insurance and a redistribution component. Nonetheless, the annual size of the MFF and the NGEU promoting recovery from the crisis would be rather limited. Because of the set timing, EU funds would not be effective in 2020, and they are surrounded by political, institutional and other uncertainties. It

would be up to the member states to make use of the options offered by the EU. The lion's share of the adjustment would be with national fiscal policies. Debt levels would only be sustainable if debt was used for productive purposes. Low interest rates do not guarantee in themselves sustainability. The quality of the debt, too, is equally important.

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Table 1.2. Gross government debt of EU member states in per cent of GDP

	2019*	2020**	2021**
Member states excluding CEE with debt less than 50 per cent of GDP in 2019			
Luxembourg	22,1	26,4	25,7
Denmark	33,2	44,7	44,6
Malta	43,1	50,7	50,8
Netherlands	48,6	62,1	57,6
Sweden	35,1	42,6	42,5
Member states excluding CEE with debt more than 50 per cent of GDP			
Ireland	58,8	66,4	66,7
Germany	59,8	75,6	71,8
Finland	59,4	69,4	69,6
Austria	70,4	78,8	75,8
Cyprus	95,5	115,7	105,0
Spain	95,5	115,6	113,7
France	98,1	116,5	111,9
Belgium	98,6	113,8	110,0
Portugal	117,7	131,6	124,4
Italy	134,8	158,9	153,6
Greece	176,6	196,4	182,6
CEE countries with debt less than 50 per cent of GDP in 2019			
Estonia	8,4	20,7	22,6
Bulgaria	20,4	25,5	25,4

Czech Republic	30,8	38,7	39,9
Romania	35,2	46,2	54,7
Lithuania	36,3	48,5	48,4
Latvia	36,9	43,1	43,7
Poland	46,0	58,8	58,3
Slovakia	48,0	59,5	59,9
CEE countries with debt more than 50 per cent of GDP in 2019			
Hungary	66,3	75,0	73,5
Slovenia	66,1	83,7	79,9
Croatia	73,2	88,6	83,4
EU total	79,4	95,1	92,0

Notes: * Fact ** Forecast

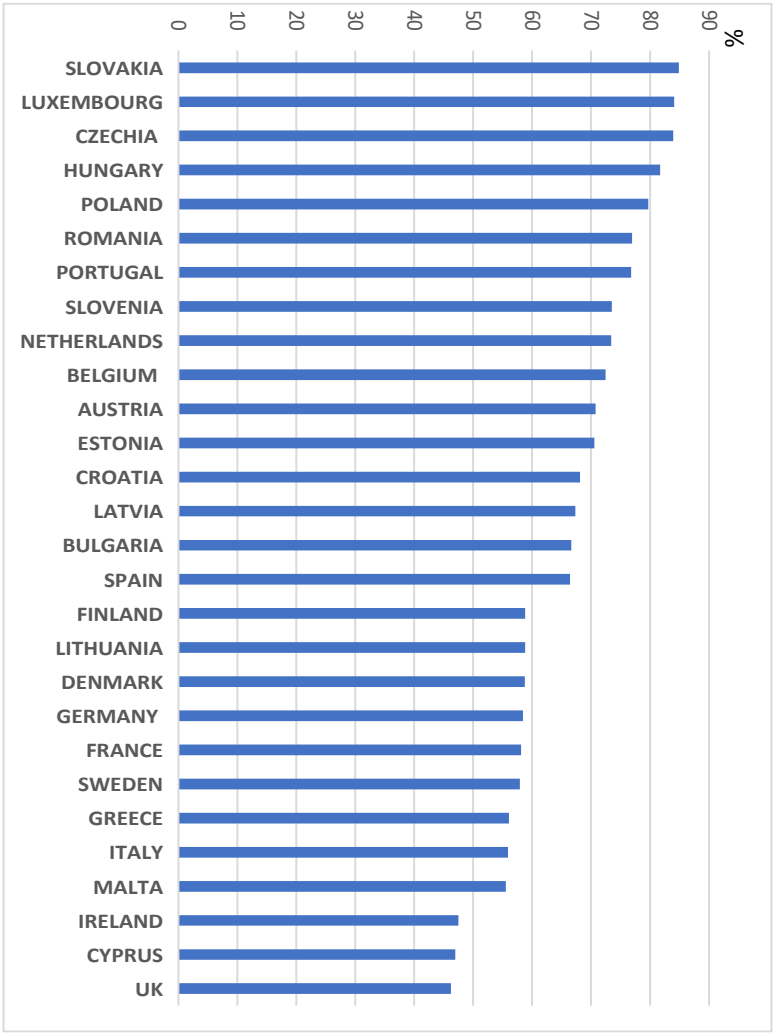
Source: European Commission (2020)

2.1. Intensity of intra-European trade relations

About two-thirds of EU28 trade takes place between EU member states (Intra-EU trade). As far as the Central European (CE) countries are concerned, the EU's share in foreign trade is much higher (70-85%) in CE than in the old Member States (see Figure 1.3.1.). It means that the CE's foreign trade is far more EU-oriented than the Western European countries[8].

[8] It is important, that the "export to the EU" does not mean that the final destination of the product is an EU country. There is a considerable re-export (for example from Germany) to Asian and other non-EU members within the global production chains. Normal trade statistics do not reflect this (Éltető, 2018).

Figure 1.3.1. Share in EU exports, 2019



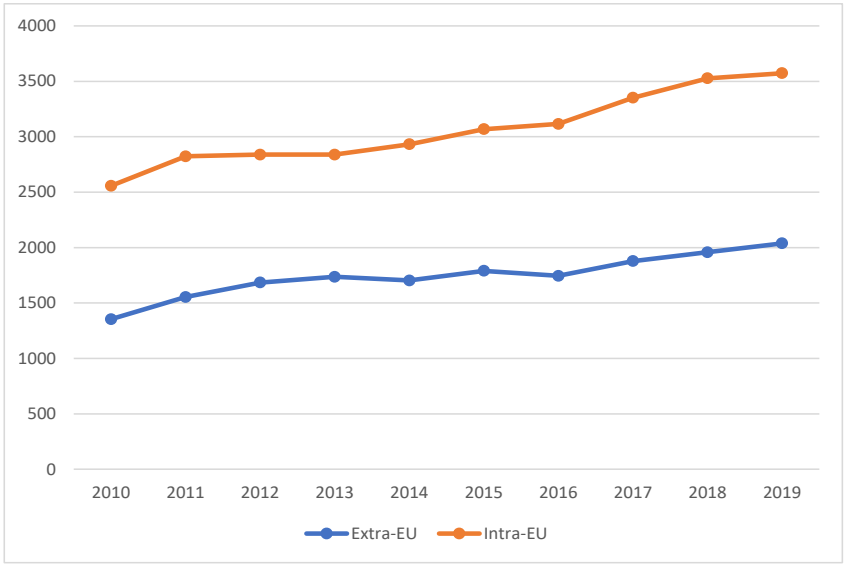
Source: Eurostat Comext

In this chapter we will make an overview about recent trends and structure of intra-European trade focusing on CE countries and try to forecast tendencies. The pandemic will very likely hit global trade deeper and for longer than we have seen in other crises of the recent past.

Trade dynamism

In the past decade, the world exports showed stagnating signs. Scholars and analysts detected several reasons for this trend: partly cyclical (slowing growth, decreasing demand) and partly structural ones (slowing trade liberalisation, reduced income-elasticity of trade, saturation of global production, political uncertainties). The reorganisation (shortening) of global value chains (GVCs) has also been observed. However, the trade slowdown has not seemed to be relevant for the CE countries, their exports and imports grew above the world average even after 2015. Regarding the whole EU, intra-EU trade of goods has shown more dynamism than exports to non-EU regions (Figure 1.3.2.).

Figure 1.3.2. Development of EU-exports, bn euros



Source: Eurostat Comext

The trade collapse of 2009 also took place in the service trade, but to a less extent than in the goods' trade (Ariu 2014). The composition of service trade has changed in the last decade: the share of travel and transport decreased, private business services increased. Tradability of services has increased considerably and several services have been digitalised. Manufacturing depends more and more from services (this is called "servicification of manufacturing"). The integration of the CE countries to

the global value chains enhanced their exports of goods more than their export of services, therefore the share of services has decreased in their foreign trade (Éltető, 2020). Service trade (mostly travel and transport) has been hit seriously by the coronavirus pandemic.

Country groups, geography

The strong role of Germany in the exports of the CE countries is evident, it occupies the first place (22-31%). In the past decades Germany became the main trade hub for the Central-European region. The integration of the CE countries in the German automotive production chains enhanced not only the trade between CE and Germany, but also the intraregional trade, mainly for car components, motors, electronic parts, cars (Molnár et al. 2015). Data show that for all CE countries the second export partner is another CE country (Éltető, 2020).

As Table 1 shows, Germany is the largest trader in the EU, followed by the Netherlands (here there is a large transit role because of the Rotterdam port). Other core member states have also important roles. However, as the last column shows, the CEE members and the Baltic states increased their intra-EU exports the most dynamically.

Table 1.3.1. Development of export to the EU, EUR mn and ratio

	2 010	2 015	2 018	2 019	2019/ 2010
GERMANY	572 949	692 808	778 747	777 423	1,36
NETHERLANDS	334 943	389 645	457 056	465 138	1,39
FRANCE	240 934	268 686	290 669	295 737	1,23
BELGIUM	224 596	256 514	289 412	287 732	1,28
ITALY	195 523	225 975	263 081	266 007	1,36
SPAIN	131 996	165 644	194 957	197 895	1,50
UK	165 679	184 256	193 926	193 754	1,17
POLAND	95 580	142 450	179 857	188 038	1,97
CZECHIA	84 604	118 560	144 491	149 058	1,76

AUSTRIA	83 149	96 519	111 673	113 194	1,36
HUNGARY	56 469	72 240	86 259	90 199	1,60
SWEDEN	68 382	73 826	83 645	83 039	1,21
IRELAND	51 159	58 970	69 994	72 048	1,41
SLOVAKIA	42 261	57 812	67 645	67 951	1,61
DENMARK	47 793	52 791	56 914	58 167	1,22
ROMANIA	27 111	40 255	51 977	52 830	1,95
PORTUGAL	28 117	36 071	44 055	45 996	1,64
FINLAND	28 537	31 792	37 884	38 599	1,35
SLOVENIA	17 089	21 869	28 535	29 473	1,72
BULGARIA	9 551	14 853	19 276	19 828	2,08
GREECE	11 637	14 025	17 672	18 981	1,63
LITHUANIA	9 554	14 049	16 628	17 409	1,82
LUXEMBOURG	11 777	12 989	11 644	12 383	1,05
CROATIA	5 439	7 687	10 001	10 576	1,94
ESTONIA	5 998	8 700	9 811	10 152	1,69
LATVIA	4 839	7 708	9 143	9 400	1,94
MALTA	1 114	1 079	1 500	1 493	1,34
CYPRUS	701	1 309	1 250	1 450	2,07

Source: Eurostat Comext

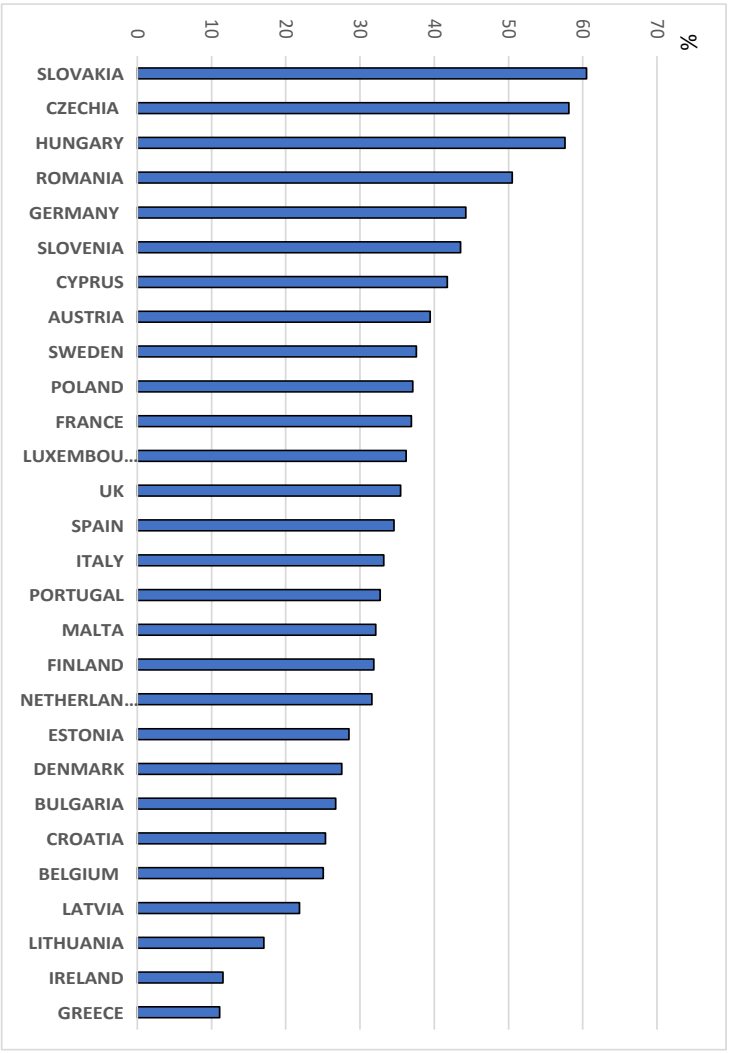
Via the German and global value chains, EU member countries are linked in trade to Asian economies. Since the eighties GVCs have multiplied and production has become highly fragmented and interlinked, exposed even to faraway countries. This complicates the propagation of shocks. The coronavirus crisis – as a shock – with the shutdowns and re-opening of manufacturing hubs around the world called the attention to the "supply

chain contagion". As GVCs are to a great extent regionalised (to Europe, Asia and America), the supply chain contagion will be mostly regional (Baldwin – Freeman, 2020). Regional proximity is also important in the lean production systems largely applied by GVCs. Suppliers and customers in GVCs coordinate production without producing stock. This "Just in Time" management relies heavily on the exchange of information in real time. International trade in Just in Time supply chains is skewed towards proximate suppliers and customers, enhancing spatial concentration (Pisch, 2020). The pandemic effects intensify the creation of regional groups even within the EU.

Product structure

CE countries' export structure is rather concentrated, so the first five product groups (among 290 ones) adds up to around 30% of all, but in certain cases even 42-60% (Éltető, 2020). In both EU and non-EU directions motor cars are the most important export articles for Czechia, Hungary and Slovakia. All five intra-EU export product groups of these three countries belong to the SITC 7 category (machinery and transport equipment), which has very high share altogether in the exports to the EU (see Figure 1.3.3.). Among the most important extra-EU export products we can find other items too, like rubber tyres (SK) or medicaments (HU). The Slovakian export is highly concentrated to motor cars (giving almost half of the non-EU exports). The Polish leading export product groups contain furniture, cosmetic preparations and plastic articles too. Poland has the least concentrated export structure, the sums of the first five categories are only 16-20% (data for 2019 from Eurostat Comext).

Figure 1.3.3. Share of machinery and transport equipment in intra-EU export, 2019



Source: Eurostat Comext

Central European countries showed relatively high export share of high-tech products during the past decade, but they mostly remained specialized

in low-tech and low-skill fragments of the global value chains (labour-intensive processes within high-tech-intensive industries). Exports of high-tech goods were often bound to certain multinational affiliates (Éltető, 2018).

Concerning service trade, the share of „other business services" has grown to 20-25 percent in the case of the CE countries. On the other hand, the share of travel services is outstanding (40-50%) in some Southern EU member countries. During the present coronavirus crisis one part of the service trade (travel, catering) largely decreases, but certain other parts (internet-based communication, ICT, business services) can even increase. In this regard, the Southern EU members are in worse position (the crisis in services hits them more) than the Central European ones (Éltető, 2020).

Short and long-term effects of the pandemic

The speciality of the present coronavirus crisis is that the world economy is simultaneously hit by a supply and a demand shock. On the supply side, it has lowered production capacities of goods and services (first in China than in Europa, US and also in developing countries). Therefore, production in regional and global supply chains have been disrupted. Stringent border controls and production delays affected trade, particularly in the automotive and electronics industries (Baldwin and Tomiura 2020). The collapse of air traffic has resulted in a steep rise in air freight costs, limiting just-in-time delivery of foreign-sourced intermediate goods.

On the demand side, consumer spending decreased radically on services (tourism, travel, restaurants) due to lockdowns, and social distancing. What is more, global financial markets also produced turbulent signs, thus the world is facing a triple (health, economic and financial) crisis[9]. Commodity prices have decreased and are estimated to remain low during 2020 according to the World Bank[10].

9 https://zcomm.org/znetarticle/how-to-manage-the-economic-fallout-of-the-coronavirus/

10 https://www.worldbank.org/en/news/press-release/2020/04/23/most-commodity-prices-to-drop-in-2020-as-coronavirus-depresses-demand-and-disrupts-supply

On the microeconomic level, companies are severely affected but not to a similar extent. Functioning problems depend on the sector, on the firm size and on domestic (national) environment. In general, according to a UNIDO survey in Asia, the major challenges for firms are the contraction in demand and the payment of wages[11].

Effects of the crisis on trade were already manifested in the first half of 2020. The UNCTAD report on global trade published in June shows that merchandise trade fell by 5% in the first quarter of the year and point to a 27% drop for the second quarter and a 20% annual decline for 2020[12]. Economic disruptions affected some sectors significantly more (like textiles and apparel) than others (agri-food sector). Data for April indicate further declines in most sectors, with a very sharp contraction in the trade of energy (-40%) and automotive (-50%) products.

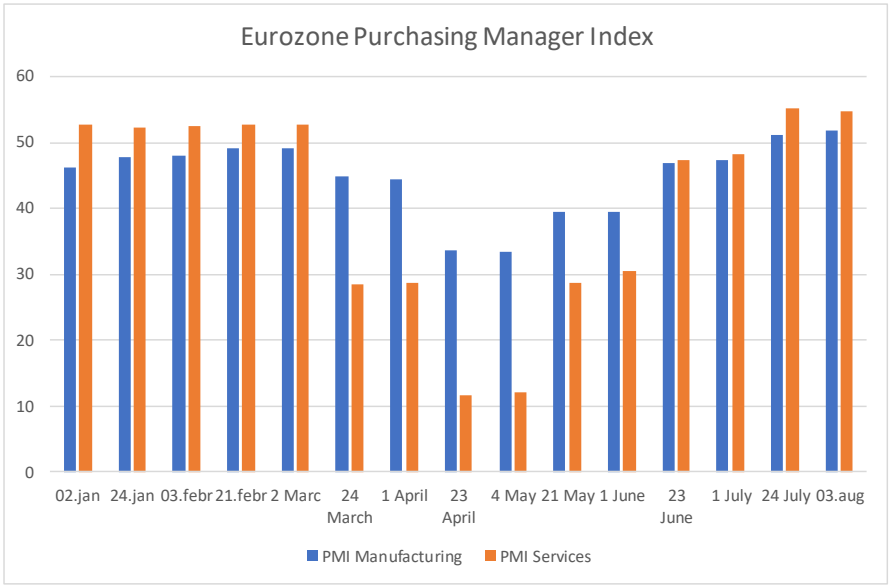
In May 2020 the data of Eurostat for international trade in goods show that the results for both the euro area and the EU are considerably (by 26-29%) lower than those recorded in May 2019.[13] Regarding exports, the largest fall in May 2020 was registered for France, Greece, Romania and Portugal, in the case of imports for Greece, Lithuania and Cyprus.

[11] https://www.unido.org/stories/coronavirus-economic-impact-10-july-2020#story-start

[12] UNCTAD (2020): Global Trade Update, June
https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2392

[13] Eurostat Newsrelease 113/20, 16. July, 2020: Euro area international trade in goods surplus 9.4 bn EUR

Figure 1.3.4. Eurozone Purchasing Manager Index



Source: https://www.investing.com/economic-calendar/manufacturing-pmi-201

The Purchasing Managers' Index (PMI) measures the activity level of purchasing managers in the manufacturing or service sector. A value above 50 indicates expansion; below 50 indicates contraction in the sector. Figure 1.3.4. shows that in the Eurozone April-May were the worst months and from June there is a sure recovery. Covid-effects were by far more devastating in services than in manufacturing. Further prospects depend on the possible second wave and lockdowns in autumn.

As mentioned, the coronavirus crisis is different from the previous financial crisis, being a supply and demand shock at the same time. After the first wave of the epidemic newer waves are expected and this would make the negative economic effects also longer and stronger. One major feature of the present crisis is uncertainty, the future is largely unpredictable. Actual trade rebound depends on the pandemic's evolution and the policy measures by governments.

According to the IMF's forecast (of June 2020), the world economy will contract by 4,9% and the Eurozone by 10,2% this year. Within the EU, France, Italy and Spain have the worst prospects (above 12% contraction). For services trade, the expected contraction in 2020 is more severe than could be expected based on the fall in aggregate demand, because of special factors, such as travel restrictions.

Forecasts of the World Bank are somewhat gloomier expecting a 13.4 percent global trade contraction in 2020 (see Table 2). A gradual and feeble recovery is assumed for the second half of the year, and especially in services takes time to restore confidence, replace bankrupted firms, and to establish virus-safe working and entertainment environments (World Bank Group (2020).

The McKinsey Global Institute estimates that global trade demand could drop by as much as 13 to 22 percent in the second and third quarters of 2020[14]. The effects on global trade will be substantially larger and considerably longer than on global GDP. In the estimated scenarios, trade volumes will take 15 to 48 months to recover to fourth-quarter 2019 levels, and the value lost will be to 8 to 49 percent of total 2019 trade volume. The extent of the disruption will vary by commodity, trade route, and mode of transport (McKinsey,2020).

Table 1.3.2. Forecasts for world trade and GDP

	World Trade volume 2020	World Trade volume 2021	World output, 2020
IMF	-11.9	8.0	-4,9
World Bank	-13.4	5.3	-5.2
OECD (double hit scenario)	-11.4	2.5	-7.6
WTO	-12.9	21.3	-2.5
McKinsey	-16.0	15.0	-3-8

Source: IMF (2020a), WTO (2020), McKinsey (2020), OECD Economic Outlook, June, World Bank (2020)

[14] By contrast, the largest quarterly decline in trade volumes during the global financial crisis of 2008 was around 5 percent.

Stricter hygiene and bio-safety requirements for goods will prevail in world trade to minimize any possibility of disease spread. Demand for shopping, travelling, entertainment, for non-essential goods will remain restricted, as unemployment has grown, people will save money (Baldwin-Tomiura, 2020). Thus, goods and service trade will be affected negatively on the long term.

In case of the previous, financial crisis of 2008 that drastically reduced domestic demand, strengthening internationalisation, export activities helped the survival of EU firms. Although domestic demand decreases again in the present coronavirus crisis, now prospects for export expansion are gloomy (Éltető, 2020).

As Baldwin – Freeman (2020) write, the world manufacturing sector is getting a triple hit: 1. Direct supply disruptions are hindering production 2. Supply-chain contagion will amplify the direct supply shocks 3. Demand disruptions due to drops in aggregate demand, delayed purchase and investment. All these will have negative effects on trade. The contagion and supply shock moved from China to the US and Europe, but later the supply chain contagion is working in reverse. The supply-side shock which emanated in China, is now "reinfecting" Chinese industry, as inputs that it imports from the US and Europe are being constrained by containment policies.

During and after the coronavirus crisis, organisation of global production changes. Companies try to decrease overdependence on China, shifting their sourcing and production locations. This process has already begun with the shortening and reorganisation trends in the GVCs (Éltető, 2019). As Javorcik (2020) states, GVCs will not be the same in the post-corona era, and with the climate change new contagions may take place in the future. The US and perhaps other governments will probably further promote backshoring (Gruszczynski, 2020). If China (Asia) weakens as the world's manufacturing and supply chain hub, other nations can even gain in world trade. European (German) multinational companies can increase nearshoring, relocation of production facilities (from Asia) to Europe,

which can benefit for example the Central European countries. These economies have already built capacities and practices that makes them prepared to accept new investments and cooperate with multinationals. If "Factory Europe" (Baldwin and Lopez-Gonzalez, 2013) will be stronger as a consequence of the GVC reorganisations, also the Central-European Manufacturing Core (Stehrer-Stöllinger, 2014) might be stronger and that will probably enhance intra-regional trade among the CE countries on the long run (Éltető, 2020).

Trade policy

With the Trump administration, trade protectionism re-emerged, multilateralism has weakened. The coronavirus pandemic questioned globalisation and trade liberalisation and generated export bans of certain medical products. As of May, countries had imposed 120 new export restrictions in 2020 on a net basis, a significant rise over previous years with more than one-fifth imposed on pharmaceutical and medical products. The sectors most affected by these measures comprise about 10 percent of global trade (IMF, 2020b).

In their book Baldwin-Evenett (2020) argue that protectionism is ineffective. A liberal world trading system provides a wide range of suppliers to choose from. Buyers can switch between them and so reduce the risks of dependence. But for this international trade routes must be kept open. If countries turn inward that would exacerbate the collapse in world trade. Export restrictions induce scarcity on world markets, raising prices and causing disproportionate harm to developing nations. In short, international trade is not a problem in this crisis; it is the solution.

Policymakers must deal with the supply chains and patterns of international specialisation at they are, not as they might wish them to be. Export bans also disrupt business plans, frustrate the distribution of products. Some policymakers have also called for repatriation of international supply chains to reduce vulnerabilities. However, domestic inputs are also subject to lockdowns during pandemics and reshoring could endanger the

efficiency gains of international supply chain management and result in less foreign direct investment in emerging market and developing economies. Instead of protectionism, trade agreements should be promoted. Policy efforts should focus on modernizing the multilateral rules-based trading system to capture the increasing importance of e-commerce and trade in services. (IMF202b).

European trade will be affected by special effects like the Brexit. Not only in the UK, but also elsewhere national governments can apply export promotion measures. In the years after the financial crisis, Central and Southern European governments for example intended to boast trade with non-EU regions (like Asia, Latin-America) aiming geographical diversification of exports[15]. Now, because of the coronavirus crisis, investors and trading firms of these countries may lose enthusiasm towards Asia, so policy makers may rethink trade promotion policies.

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[15] In Hungary this policy had the name of "Eastern Opening". Among the non-EU emerging markets, China was one of the most of important target markets for all countries. Despite government intentions, significant geographical diversification of exports has not taken place.

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3. SOME MAJOR SPECIFIC ISSUES OF RECOVERY AND RESTART IN EUROPE

3.1. Global value chains

3.1.1. Possible alteration of global value chains in the CEE region

Recent trends in the GVCs

Headline-catching disruptions in global value chains (GVCs) such as the increasingly frequent natural disasters, trade disputes, and recently, the COVID-19 pandemic have highlighted GVC participants' increased exposure to exogenous shocks (Baldwin and Tomiura, 2020), or else, the structural vulnerabilities of GVCs.

In reality, however, some powerful and long-lasting economic and technological trends are at play behind these disruptions. Irrespective of the severity of the current supply-side contagion, these trends are more important for the future of global production than the above shocks. First and foremost, technological progress, the trends associated with digital transformation in particular, are behind a lasting transformation in the composition of value creation and capture in GVCs. Another important long-run development in the global economy is associated with the rising power and efficient development strategies of certain emerging economies, contributing to a further intensification of global competition.

Advanced manufacturing technologies, labour-saving technologies in particular, enable backshoring, the relocation of production to high-cost economies (Dachs et al., 2019; Eurofound, 2019; Kinkel, 2020) or 'rightshoring', e.g. the location of production close to customers (Rehnberg and Ponte, 2018). At least, these technologies (together with smart, artificial intelligence-powered robotic process automation technologies) reduce the offshoring imperative stemming from large cross-country differences in unit labour costs.

Potential shifts of production in the European backward chain

The possible evaluation of value chains length in global perspective is twofold: the total length measured in kilometres that goods must travel to reach their final consumer and the number of borders to crossings during the production. Generally, the longer the chain the more vulnerable it is especially in case goods that are considered to be vital for the economy (healthcare goods, parts and accessories for goods with long propagations).

Imports in the European Union are concentrated in manufactured goods, energy carrying materials and raw materials. In case of the last two, the global market is virtually monopolistic. In regard to manufactured goods, China and other East-Asian countries have competitive advantages in some product categories. When other regions are involved outside of Europe the physical length can be particularly high. Given any distraction in the value chain far from the customer might cause long delays, even the halt of production. Therefore, the shortening of physical distance between the final consumer and the producers is a rational step of the corporate sector to moderate the aforementioned risks. In the next section the set of products shall be identified that potentially be the subjects of GVC curtailments.

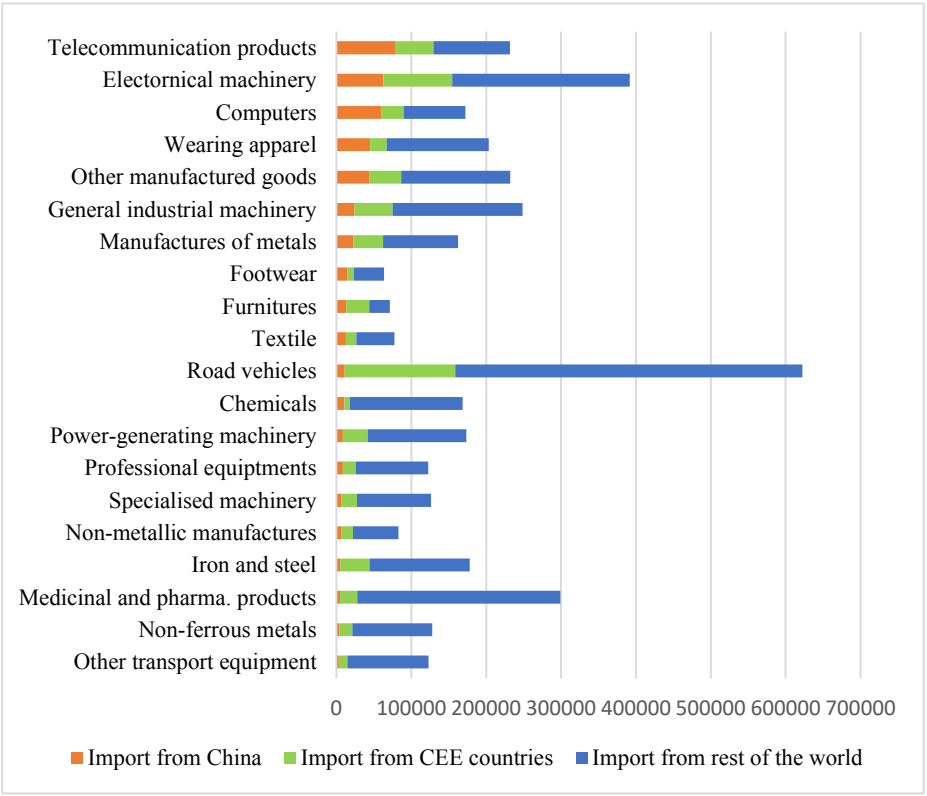
The top20 potential import products[16] of EU are determined in a threefold approach[17]:

- Total volume of EU import. Rank. Weight: 0.5
- Total volume of import from China. Rank. Weight: 0.25
- Share of China in the total import. Rank. Weight: 0.25

[16] According to 2-digit SITC nomenclature.

[17] For year 2018 to leave out the bias caused by COVID-19 in late 2019.

Figure 2.1.1. The top 20 selected imported products in the European Union



Source: UN COMTRADE)

The figure shows that in total import the CEE countries[18] have larger share in the top20 products than China. However, China definitely has comparative advantage in computers, telecommunication products and wearing apparels, even if the numbers above are in gross terms[19]. In other product categories the EU relies much more on CEE and other countries of the world. Although, in the vehicle industry the share of Chinese import is

[18] EU member states + Belarus, Ukraine, Moldova, Serbia, Bosnia, Montenegro, Albania, North-Macedonia, Turkey.

[19] Owing to the aim of the study gross term is preferred over the value added, because it provides a better reflection of trade links. When comes to value chain vulnerability gross trade volumes are governing.

relatively low (2%), it has almost 20% bite in electrical machinery, on which the automotive sector is highly dependent. According to Eurostat input-output tables the 10% of the total machinery import is used by the motor vehicle manufacturers.

After having the top20 import products of the EU they are allocated to industries according to the use table in input-output tables (IOTs) of the EU (source: Eurostat) to determine which industries are the most involved. Out of the 64 sectors only those are singled out that constitute 75% of the cumulative sum of the intermediate use[20]. The top3 import products with the highest Chinese share are generally utilised by the related manufacturing sectors in the EU. Telecommunication products (part of electrical equipment category) are used by the electronical product producers (24%), machinery products are mainly utilised by the machinery industry (35%) and computers by the computer manufacturers (35%). A more detailed network can be constructed if the major links between the users and suppliers are revealed.

To construct the value supply network the multiregional input-output tables of Eora MRIO is utilised, because the analysis puts special attention to non-EU members on the European continent. Owing to the EU producers might intent to shorten their supply chain only the downstream block shall be analysed (that is, the suppliers of the EU). The upstream chain (the buyers of EU products) is out of the scope of topic[21].

Multiregional IO databases always constitute a complete graph. In order to get a network that is easy to hand, one must thin the links. In that particular case every trade flow that has less weight than 800 million USD was cut from the network. By that the number of vertices was reduced to 138

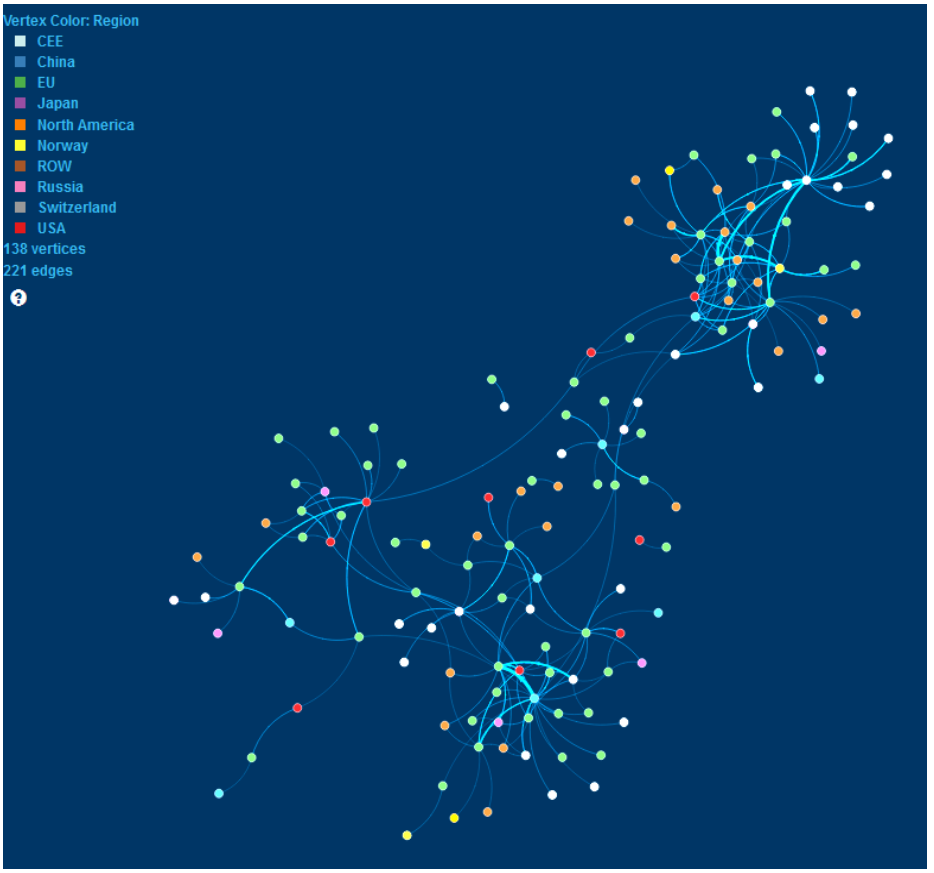
[20] Final use is not considered here.

[21] Although, the upstream risks are also considerable for the EU, they are mostly exogenous, while downstream risks are more endogenous for the producers in the European Union.

connected by 221 edges. Supplies to the home industries were also removed, as they cannot be the subject of backshoring.

Figure 1.2.2. presents the supply network of the European Union. Owing to the high number of nodes, labels are not displayed, but later a few crucial subnetworks will be plotted in the Annex.

Figure 2.1.2. Supplier network of the European Union in 2015



Data source: Eora MRIO, edge width refers to the volume of the trade flow

On figure 2.1.2. above one may observe some hubs in the downstream chain of the EU. For example, the Russian mining and quarrying industry supplies most energy sectors in the CEE region (see Annex I). The Chinese

electrical and machinery industry also supplies intermediate goods to the major European counterparts. The strongest edge link belongs to the German electrical sector (see Annex II). There are only 19 nodes from CEE countries in the network, however only 4 of them is an upstream supplier to the value chain of the EU:

- Czech electrical and machinery industry;
- Czech Petroleum, Chemical and Non-Metallic Mineral Products industry;
- Czech Electricity, Gas and Water industry;
- Hungarian Electrical and Machinery industry.

Other industries from the CEE region turn up as users of intermediate products, but they do not supply to the EU's network in a considerable volume. That also means, that other producers from the CEE region do not have the minimum capacity to substitute any of the current suppliers on the short run. The value chain (both up and downstream) of the CEE region is quite constrained, the export market is usually limited to the neighbouring countries. The existence of an extensive supplier network in non-EU member states in the CEE region is dubious, thus the likelihood that EU's GVC would retract to Balkan countries is considerably low.

On the other hand, Visegrad countries may have the capacity, the technology, the knowledge and the labour force to host more production stages in the value chain. In order to explore that the shortest path algorithm is utilised. The steps are the following:

- Selection of the supply and use industries;
- cut the edge between the investigates nodes;
- find all shortest paths (by using inversed weights and Dijkstra's algorithm[22]).

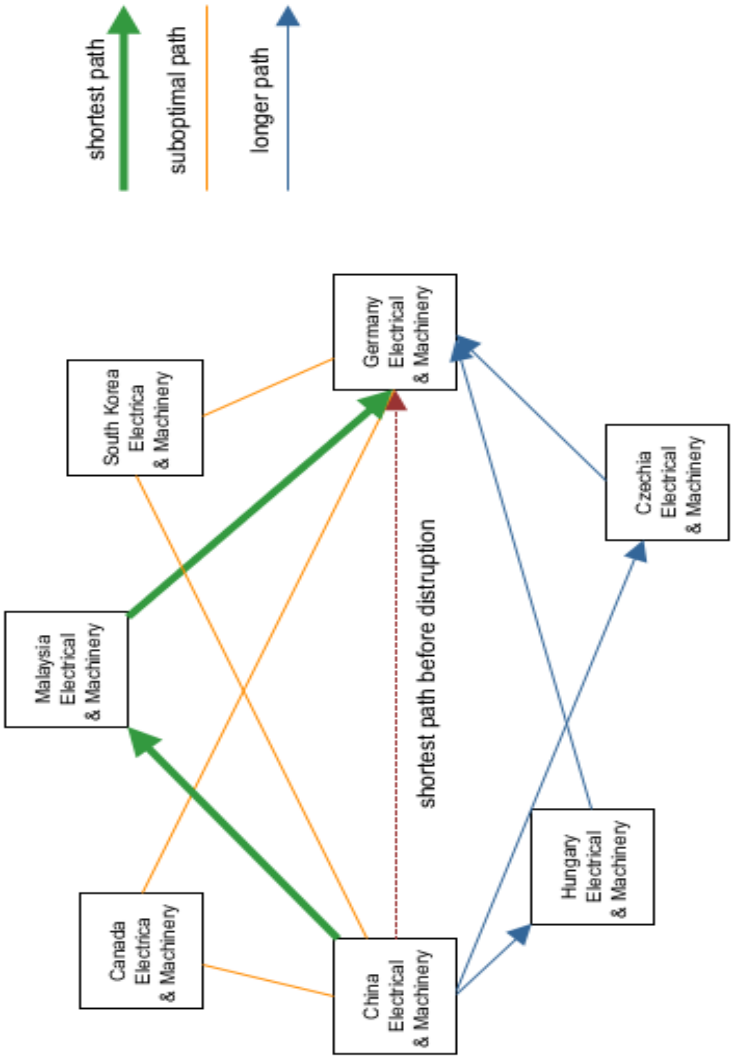
[22] See Barbehenn (1998).

This simple analysis reveals the possible detour of the trade flow on the short run, assuming that the capacity of the producers is constant and the exchange of goods prefers the higher capacity edges. In other words, only those industries can substitute the current supply on the short run that have enough capacity. For example, if the Chinese supply of electrical products is disrupted it is unlikely that Hungary could substitute the whole production because it does not have enough production capacity, thus the supply is more likely to detoured toward larger capacities like the USA, Germany or France. The algorithm is an iterative searching method and in large graphs it can find several shortest paths. See the following illustrative example:

Owing to a random event the link between the Chinese machinery industry and the German automotive sector ceases. If it is in use the shortest path between the two is obviously the direct edge. As it is hypothetically no longer available, the German producers try to procure the supply from another country and industry[23] and it is assumed that the Chinese producers can ship goods to that supplier. Consequently, the new shortest path will be for example Chinese electrical industry -> Malaysian electrical industry -> German electrical industry (see figure 2.1.3.).

[23] If the Chinese producers are unable to deliver to anywhere, then the supply chain is obviously broken. However it is assumed that it is the largest partner of the Chinese manufacturers who can take over the production on the sort run.

Figure 2.1.3. Example of the shortest path in the value chain between the Chinese and German electronic and machinery industries when no direct link is available



In the following two scenarios are investigated. The first assumes that the interrupted supply in China with the German partners (the largest link in the current network) can be substituted by any other countries in the world. In the second scenario, only European industries are considered.

Scenario 1

Supply	**Use (largest partner in the EU)**	**Alternative shortest paths (supplier's industry only[24])**
China - Electrical and Machinery	Germany - Electrical and Machinery	Canada, France, Japan, Malaysia, Mexico, South-Korea, Singapore, UK, USA
China - Electrical and Machinery	Germany – Transport equipment	Austria, Brazil, Canada, Czech Republic, France, Hungary, Ireland, Japan, Italy, Mexico, Philippines, South Korea, Russia, Singapore, Sweden, Thailand, UK, USA
China - Metal Products	Germany - Metal Products	Canada, India, Japan, Malaysia, Mexico, South-Korea, USA
China - Metal Products	Germany – Transport equipment	Austria, Belgium, France, Italy, Japan, Malaysia, South Korea, USA
China - Textiles and Wearing Apparel	Germany - Textiles and Wearing Apparel	Italy, Mexico, Japan, Thailand, USA
China – Transport equipment	Germany – Transport equipment	Canada, Mexico, USA

[24] It is assumed that only the same industry is able to substitute the production.

Scenario 2

Supply	Use (largest partner in the EU)	Alternative shortest paths (supplier's industry only)
China - Electrical and Machinery	Germany - Electrical and Machinery	Hungary, UK
China - Electrical and Machinery	Germany – Transport Equipment	Austria, Belgium, Czech Republic, France, Ireland, Italy, Netherlands, Spain, Sweden, UK
China - Metal Products	Germany - Metal Products	Austria, Czech Republic, France, Italy, Switzerland
China - Metal Products	Germany – Transport Equipment	Austria, Belgium, France, Italy, Spain
China - Textiles and Wearing Apparel	Germany - Textiles and Wearing Apparel	Belgium, France, Italy, Poland, Romania, Spain
China – Transport equipment	Germany – Transport Equipment	Czech Republic, Hungary, Italy

The results show that on the short run industries chiefly from developed countries (Canada, Japan, USA) could substitute the Chinese production if the trade link between China and Germany broke, because only these manufacturers are able to produce goods in a similar volume and they already have strong ties with the German producers. Besides these countries, some emerging economies like Mexico, Malaysia or the Philippines also occur – these nations have competitive advantages in wages and, likewise China, are not members of the customs union. At the same time, the physical distance between the EU and these markets is also high.

If the shortest path is limited to the continental Europe (scenario 2) only EU and EFTA member states are in the network. Most likely Balkan countries and other Eastern-European economies do not count when producers are about the shorten the backstream value chain, due to capacity,

productivity, and logistical[25] constraints. From the Visegrad countries Poland, Czech Republic and Hungary could be considered as potential substitutes of Asian suppliers from the investigated industries.

However, no substantial alteration is expected on the short and medium run in the global value chain of the EU. The reason behind this that the interpretation of "substantial alteration" is ambiguous. One can depict this in several ways:

- European producers are keen to substitute Eastern Asian suppliers to Europeans to be closer to the customers. However, manufacturers in Asia definitely have advantage in wages and many other markets are also served by them.
- The length is propagation shall be drastically limited, that is the stages of production shall be merged, thus lower number of border crossings is required. This process, however, would not lower the risk in the value chains and may lead to the formation of oligopolistic supply markets.
- New investment decisions may prefer EU markets against third countries. At the same time this rather means the introduction of new production stages (possible upgrading) rather than the split of production between close and far suppliers. That step would not significantly change the length of propagation in the value chain, but would put more stress on European producers, in particular in the CEE region.

No doubt that countries in the Central and Eastern European region have competitive advantages if compared to more developed EU member states or Asian countries. However, they may not have the required production capacities individually or as a group like China, Malaysia or any other countries in that region and fast productivity gain is not likely on the short run. Local COVID-19 outbreaks in Europe showed that the supply is not

[25] These countries are not members of the Schengen area.

safer in the EU than in any other countries in the world. Value chain operators may rethink their inventory strategy and invest more into inventories. New investments in production capacities might prefer countries within or close to the EU against overseas economies, however this assumes productivity increase and new elements in production. Advanced digital technologies might be these new components in both manufacturing and services.

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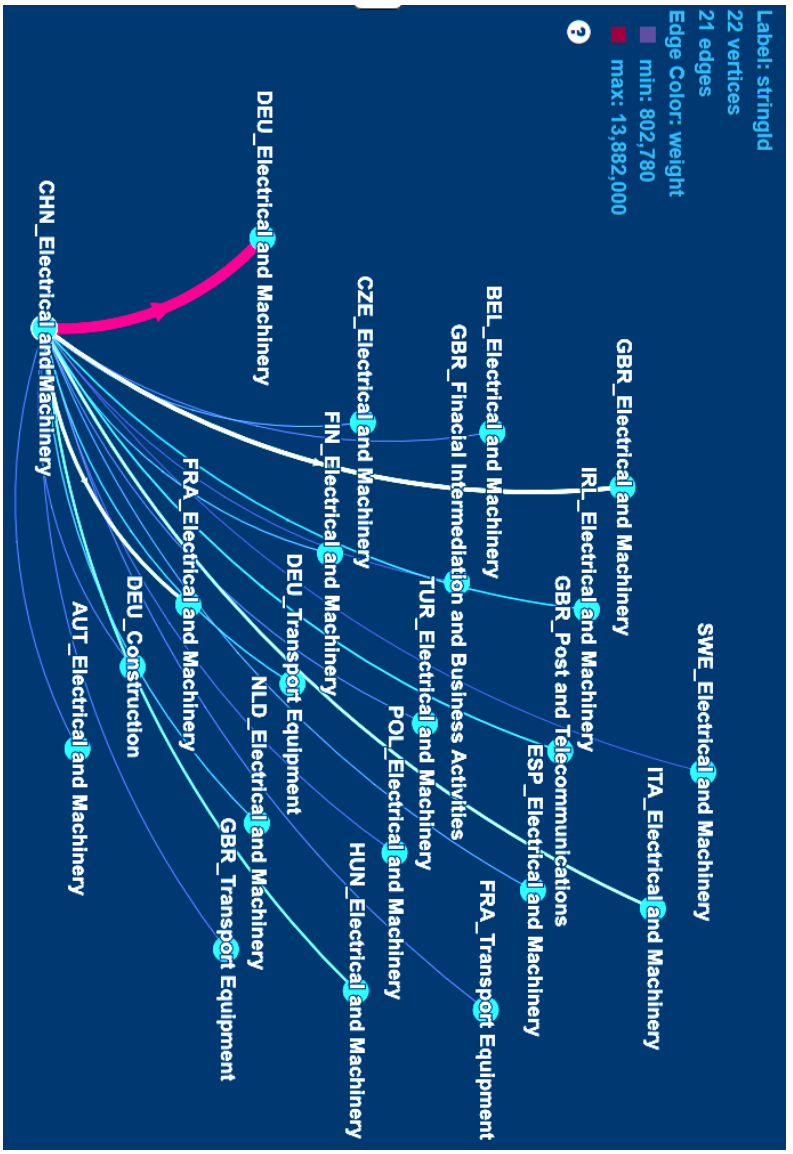
Annexes

Annex I

Use network of the Russian mining and quarrying industry

Data source: Eora, edge width refers to the volume of the trade flow

Annex II.



Data source: Eora, the width of the edges represents the weight, the darker the edge the higher the weight.

3.1.2. Automotive industry in the CEE - effects of the coronavirus crisis

The automotive industry's future after the epidemic

The prospects of the automotive industry can be best described in three words: uncertainty and deteriorating outlook. In addition to this, the COVID-19 found the automotive industry in a period of declining performance. The global market has been declining since 2018. The automotive industry needs to answer questions such as the *future of driving*, *changing mobility* and the *growing climate protection expectations* (the EU emission targets among others). In the previous years, companies unveiled their medium-term plans for the restructuring, which means the loss of a large number of jobs. Switching to electromobility could cost thousands of jobs, as electric vehicles are less complex to build: they take 30% less time to assemble.[26] The virus accelerates the transformation by bringing forward the original target dates.

Analyses highlight the **previous trends related to technological change**, and they **describe the longer-term effects of changes caused by the virus**.

In terms of **technological change,** analyses highlight not only electromobility, but also new ways of mobility or car use that provide OEMs with new features and opportunities. Deloitte (2020) highlights four main trends: *connectivity*, *alternative drivetrains*, *shared mobility* and *autonomous driving*. Automakers are entering new areas to ensure their long-term profitability. The question is to what extent the OEMs take part in the new functions. Deloitte describes four options to ensure dominancy of the OEMs. Of the strategies listed, – *OEM shapes new mobility environment; OEM builds an omnichannel retail network; OEM sells mainly via third-party online agents; OEM supplies third-party corporate*

[26] https://www.volkswagenag.com/en/news/2019/03/diess-safeguarding-our-future-can-only-succeed-together.html

and mobile fleets – where OEMs have greater dominance, there is also higher profits.

The epidemic will also change customer habits, people switch to a transport mode that reduces the risk of infection (McKinsey 2020), preferring individual transport over public transport (KPMG 2020). Based on recent surveys, in China people are still worried about the virus, so they, similarly to during the SARS epidemic [27] in 2003, prefer private transportation to using public transportation or taxi. In addition, the McKinsey study highlights regional differences (in Europe, North America and China) in mobility in the post-pandemic period. The study approaches the potential scenarios (for 2035) for the industry in terms of **market demand** and **mobility behaviour** as well as (emission) **regulation developments**. The forecast basically examines the development of current trends. Regulations promote electromobility in China and Europe, while unstrict directives in the U.S. are causing a slowdown in the spread of electric cars. KPMG (2020) emphasizes the role of state subsidies over regulation in relation to the spread of electromobility. Unless states provide financial incentives to the market, the technology will be limited to urban use. In terms of market development, the McKinley report estimates that car sales will continue to decline in Europe, and figures will be slightly below pre-crisis levels. Growth in China will be slower, while sales in the U.S. will rise to pre-crisis levels. The main finding of the KPMG periodic survey is that COVID will change consumer habits, which will better reflect cultural specificities. The importance of the **large global market is taken over by local markets** (KPMG 2020).

Regarding **the post COVID-19 manufacturing world**, current recovery must be a well-thought-out process, as car manufacturers must deal with the crisis and develop resilience in order to prepare for such challenges. One of the most important is to strengthen the digitization of supply chains

[27] https://www.bain.com/insights/the-coronavirus-demand-challenge-awaiting-chinas-auto-industry/

i.e. strengthen the resilience of the supply chain, which will make the manufacturing process even more flexible (Ernst & Young 2020, PWC 2020). Digitization and robotization as a wider application of industry 4.0, makes it unnecessary in more and more areas to employ the most vulnerable workforce in production management during an epidemic. This epidemic will speed up the spread of that process in the automotive industry.

Due to supply chain disruptions, many have questioned whether it would not be appropriate to **reduce the length of supply chains in the future**. Some manufacturers are already prepared to flexibly reshape their supply chains in case another epidemic[28], however, due to multi-year contracts between regionally embedded value chains and suppliers, this issue is currently not on the agenda (ING 2020a). However, this may be an issue in the future, so it might need to be integrated into supplier selection considerations. Thus, among other things, the epidemic supports an increase in the proportion of local suppliers (Portfolio 2020).

The post-epidemic period is characterized by an intensification of partnerships, mergers and acquisitions, where liquidity is the biggest advantage (KPMG 2020). Some signs of consolidation within the industry is already visible. One of them is the development of the **spatial pattern of production**. Longer-term trends cannot yet be seen, but there are already examples of reorganization of production. Volkswagen is relocating most of the commercial vehicle production of the Hanover plant to its factory in Poland.[29]

[28] https://www.reuters.com/article/health-coronavirus-japan-autos/now-made-in-mexico-japan-auto-suppliers-shift-china-production-after-coronavirus-idUSL5N2AR0HF

[29] https://www.automobilwoche.de/article/20200621/BCONLINE/200629999/exklusiv--markenchef-thomas-sedran-im-interview-vw-nutzfahrzeuge-baut-in-hannover--stellen-ab

Effects of the COVID-19 and the long-term future of the automotive value chain in the CEE region

The duration of the shutdown was 29 working days in the Czech Republic, 22 in Hungary, 36 in Poland, 24 in Slovakia and 31 in Romania.[30] According to conservative estimates, at least 132 thousand workers in the car industry will be affected by the crisis in the CEE countries (in our case: the Czech Republic, Slovakia, Hungary, Poland and Romania). The number of layoffs depends on the outcome of pay cut negotiations, size of government bailout packages, as well as, the financial position and market outlook of the (global) parent company. However, due to industry restructuring, a reduction in the number of workers is essential in the short term.[31]

The CEE countries accounted for 24% of the European vehicle assembly in 2019.[32] Their economic growth and export performance are highly dependent on the sector. Almost 100% of their production is directed to foreign markets; development of the European demand determines the growth opportunities of the local automotive industry. Due to the pandemic situation and weak demand, some Central European manufacturers expect a 20-25% decline by 2020 compared to previous forecasts.[33]

At the same time, low-cost producer CEE countries can benefit positively from the post-pandemic recovery and the technological change of the automotive industry (McKinsey 2020).

[30] https://www.acea.be/news/article/interactive-map-production-impact-of-covid-19-on-the-european-auto-industry

[31] https://www.dw.com/en/vw-slovakia-faces-uncertain-future-as-electric-cars-loom/a-48146132

[32] http://www.oica.net/category/production-statistics/2019-statistics/

[33] https://www.reuters.com/article/us-easteurope-economy-automotive-analysi/auto-industry-set-to-put-brakes-on-central-europes-covid-19-recovery-idUSKCN24V0QT?il=0

In June industrial production data was the highest among EU countries in the CEE region, but we do not know how lasting this recovery will be.[34]

According to Hungarian Metalworkers' Federation, the largest trade union in **Hungary**, as a result of the pandemic, up to 15 thousand jobs could be endangered in the automotive industry. The biggest problem is not with OEMs, but the financial situation of suppliers which is much worse. Tier 1 suppliers, Continental and Hankook are laying off hundreds of employees.[35] Nemak is firing nearly 20% of its employees.[36] One of Bosch's auto parts factories in Hungary will lose 800 employees due to declining orders.[37] At the same time, staff reductions are not just being done by companies because of the epidemic. In 2019, Audi Hungaria's long-term plan was announced, according to which the company will rationalize by 2023 as part of the transformation process towards electromobility and digitalization.[38]

In the **Czech Republic,** from January to July, 29.7% less vehicles were produced compared to the same period of the previous year. The Czech's Automotive Industry Association predicts a 20% drop in automotive production, which means that 300,000 fewer vehicles will be produced in 2020.[39] Despite this, the management of Skoda, the biggest Czech

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[34] https://ec.europa.eu/eurostat/statistics-explained/index.php/Impact_of_Covid-19_crisis_on_industrial_production

[35] https://www.napi.hu/magyar_vallalatok/ber-fizetes-koronavirus-veszelyhelyzet-elbocsatas-leepites.704739.html

[36] https://www.napi.hu/magyar_vallalatok/autoipar-autogyar-jarmugyartas-elbocsatas-leepites.706677.html

[37] https://index.hu/gazdasag/2020/04/24/elbocsatas_letszamleepites_bosch_hatban_tobb_mint_700_embert_kuld_el_a_bosch/

[38] https://index.hu/gazdasag/2019/10/31/az_audi_szerint_nincs_elbocsatas_megis_keveseb_ember_fog_a_cegnel_dolgozni/

[39] https://autosap.cz/en/aktualita/automobilovy-prumysl-zustava-pilirem-ceske-ekonomiky-pandemie-vsak-firmam-odcerpala-likviditu-dostatecna-vladni-podpora-dnes-znamena-investici-do-perspektivni-budoucnosti-cr/

carmaker, is optimistic and will not plan layoffs.[40] Whereas among the commercial vehicle manufacturers, SOR or Tatra were even able to increase production in some months despite the pandemic, and in June the results of the Iveco bus even exceeded last year's figures.[41] In the Czech Republic, as in other countries, redundancies occurred mainly at suppliers. AGC Automotive, a car glass manufacturer, carries out a 10% redundancy.[42]

Unlike manufacturers, analysts are pretty pessimistic about the future. 75% of cars are bought by companies. In the crisis, they will be the first to reduce the purchase of new cars. The same can happen to ordinary consumers who are putting off buying a new car in times of economic uncertainty. The increase in sales is further hampered by the tightening of emission standards and the increase in the price of cars that meet these standards.

In the first two quarters of 2020, **Polish** passenger car production fell by 48.5%, commercial vehicle production by 35.9% and bus production by 23% year-on-year (PZPM and KPMG 2020). Based on an analyst firm AutomotiveSuppliers.pl, up to 60,000 people could lose their jobs in the automotive industry due to the virus.[43] As an indirect effect, up to 210,000 people, could lose their jobs. That is because the Polish car industry is tied to German markets and German production by a thousand strands. Group redundancies were announced at ZF Automotive Systems Poland producing seat belts and airbags.[44] At the same time, large OEMs are not postponing their investments for the time being, they streamline their operations. Moreover, the decisions made to transform global production

[40] https://www.irozhlas.cz/zivotni-styl/auto/skoda-auto-propousteni-automobilovy-prumysl_2006171911_tkr

[41] https://autosap.cz/en/aktualita/cerven-prinesl-mirne-oziveni-vyroby-vozidel-v-cr/

[42] https://www.irozhlas.cz/ekonomika/automobil-prumysl-skoda-auto-koronavirus-koronavir-ekonomika-recese-kurzarbeit_2005111517_gak

[43] https://polandin.com/48549681/polish-automotive-sector-to-see-mass-layoffs-report

[44] https://polandin.com/48549681/polish-automotive-sector-to-see-mass-layoffs-report

as a result of the coronavirus epidemic have even benefited the Polish automotive industry. Volkswagen is relocating its commercial vehicle production in Hanover to Poland, thus guaranteeing the employment there. Belgian Umicore starting construction on a greenfield investment where cathode materials will be supplied to EV battery manufacturers.[45] PSA's newest plant in Gliwice, will produce light commercial vehicles from 2021.[46]

Slovakia's economy is the most dependent on the automotive industry, the country is the world leader in the production of vehicles per capita. Due to the shutdowns, by mid-May, the four Slovakian car manufacturers had produced almost 115,000 fewer vehicles.[47] Despite the loss of production, car factories tried to avoid redundancies, but there were a number of lay-offs at the suppliers. In June, a total of 350 people were laid off from two factories of the German company Hella.[48] In southwestern Slovakia, one automotive supplier has announced the termination of 68 jobs.[49]

Further consolidation of the sector is essential due to the market situation, which is also supported by Volkswagen's decision last year, which decided to reduce the company's headcount in Slovakia in the medium term (ING 2020b). Despite the downturn, some investments will not be suspended. Kia recently announced the installation of a new assembly line at its

[45] https://automotivesuppliers.pl/en/poland/belgium-poland-eib-and-umicore-conclude-125-million-loan-for-battery-materials-production-in-poland

[46] https://polandin.com/44001352/automotive-industry-is-important-part-of-polish-economy-pm

[47] https://www.eulerhermes.com/sk_SK/svet-po-covid-19/ozivenie-dopytu-po-novych-autach-v-europe-bude-pomale-ale-prve-indicie-sa-uz-objavuju.html

[48]https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjKmuGDiKzrAhWQrIsKHd7MAmEQFjAFegQIAhAB&url=https%3A%2F%2Fspectator.sme.sk%2Fc%2F22421396%2Fgerman-producer-of-lights-plans-layoffs-in-povazie.html&usg=AOvVaw0KR72GnZH1UAHEPvy5Qxz3

[49] https://slovak.press/ekonomika/koronavirus-pripravi-o-pracu-desiatky-dalsich-ludi-hromadne-prepustanie-hlasia-z-trnavy/

Slovakian plant and will expand its engine factory.[50] Slovakia is in a favourable position compared to other countries in terms of technological change. Two electric models are produced in the country, the Volkswagen e-UP and the Peugeot e-208. At the end of August, it was announced that a new Porsche plant will be built in Slovakia, where production will launch in 2027.[51]

The French Renault is embarking on a major reorganization as a result of the pandemic, which will also affect its future developments of the **Romanian** affiliate Dacia. Thus, a 100 million euros investment (ING 2020b) for increasing production capacity of the Dacia was cancelled.[52] Ford laid off 200 employees without renewing their fixed-term contracts.[53] However, redundancies in the automotive industry are not exclusively related to the coronavirus. The five largest auto parts manufacturers in Romania (Autoliv, Lear Corporation, Yazaki, Faurecia and Adient Automotive) employed a total of 4,869 fewer employees last year than in 2018.[54]

Whereas as a low-cost producer, Dacia was able to increase its production after the 2007-2008 crisis. Based on this, if this is the strategy of the parent company, the Romanian brand can still benefit after the current crisis.

Summary

The CEE's automotive industry has been significantly hit by the COVID-19, due to weak demand, manufacturers expect a 20-25% decline in 2020.

[50] https://www.just-auto.com/news/kia-to-begin-expanding-slovakian-engine-plant_id196079.aspx

[51] https://spectator.sme.sk/c/22469099/a-new-porsche-plant-will-be-built-in-slovakia.html

[52] https://romania.europalibera.org/a/industria-auto-coronavirus-vanzări-la-jumatate-romania-renault-pune-pauza-dezvoltarii/30641944.html

[53] https://www.capital.ro/concedieri-la-ford-romania-la-cati-angajati-renunta-fabrica-din-craiova.html

[54] https://www.businessmagazin.ro/actualitate/care-este-viitorul-pietei-joburilor-pentru-corporatisti-19312401

The extent of the financial loss and the number of layoffs depends on the outcome of pay cut negotiations, size of government bailout packages, as well as the financial position and market outlook of the (global) parent company. However, due to industry restructuring, as part of the transformation process towards electromobility and digitalization, a reduction in the number of workers is essential in the short term.

Every crisis is an opportunity. CEE countries can benefit from the post-pandemic recovery and the technological change of the automotive industry. As low-cost producers, CEE countries might be able to increase their production. The automotive companies are not postponing their investments. Some of the investments will be in electromobility, which will increase the region's ability to maintain production and competitiveness.

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3.2. Green economy

European Plans and programs regarding green transition

The fiscal agreement over Next Generation EU (EUR 750 billion) and the 2021-2027 Multiannual Financial Framework (EUR 1,074 billion), achieved on July 21, 2020, stipulates that **30% of the combined sum of funds designated will be spent on climate action.** This means a total amount of EUR 547 billion (at 2018 prices) spent on climate objectives.

There are no further specifics outlined in the agreement, apart from the fact that the fund specifically aimed at helping coal-dependent countries to wean off coal – the **Just Transition Fund** – was reduced to EUR 17.5 billion from the earlier proposal of EUR 40 billion.

The main direction of the spending of the said nearly 550 billion euro will be in line with the European Green Deal proposal and its spin-off documents (European Climate Law proposal, European Green Deal Investment Plan, etc.). Therefore, we provide a short overview of the main directions of action envisaged in the Green Deal before turning to the Eastern European member states.

A crucial part of the EU project toward carbon neutrality is the ***transformation of its energy system*** since it accounts for 75% of overall greenhouse emissions. The energy system overhaul includes the *increasing the share of electricity* in energy consumption, since the electricity is easier to decarbonize than other sectors.

Also, the Commission envisages the use of so-called *clean fuels* (biofuels and renewable hydrogen) where electrification is difficult to achieve.[55] Especially the scaling up of hydrogen production and utilization at a massive scale is envisaged.

Another key element is the *integration of the whole energy system* – that is, the integration of energy consumption in transport, industry, buildings etc.

[55] EU Commission (2020c)

This involves changes in legislation, investment in infrastructure, introduction of new technologies and digitalization.

Apart from the energy system, the transformation of ***industry*** – especially carbon-intensive sectors like steel and cement production – and ***agriculture*** is necessary.

More generally, ***material circularity*** is a major concern. Among others, measures against planned obsolescence, the phasing out of single-use products and single-use packaging, amendment of waste shipments regulation and more generally, new waste management rules, are among the proposed directions of action.

In general, the green transition is expected to necessitate an enormous wave of investments in many areas. The European Green Deal plan envisages **investments worth a total of almost EUR 1 trillion between 2020 and 2030**.[56]

Massive investments are vital from an economic and employment angle indeed, since the phasing out of the use of fossil fuels is expected to lead to a potential loss of 11 million jobs in the automotive and energy industries. 57 Also, transforming agriculture means a divestment from chemical-intensive agricultural practices and also from the production of harmful chemicals, which means higher costs and the loss of profit opportunities.

The Green Deal envisages the so-called climate mainstreaming – the inclusion of climate considerations into all kinds of financial and economic decisions. For this, the tools and methods of assessment need to be developed – now economic actors have only limited tools to assess whether an investment is sustainable of not, which gives room for "greenwashing".

[56] European Green Deal Investment Plan, see EU Commission (2020a)

[57] Gifford (2020)

From a purely ecological point of view, the green transition roadmap is not far-reaching enough. This is why the green transition plan relies on ***technologies that do not exist, at least not at scale***, e.g. negative emission technologies. As a result, the Green Deal is very focused on ***technological innovations*** but this carries a risk: if the required new technologies do not deliver, the net zero target for 2050 will be missed.

Attitudes and plans in the Eastern European member states regarding the green transition and the restart of the economy

There will be not much information about how the Eastern European member states will use the available (NGEU and MFF) funds for economic recovery and green transition until the National Recovery and Resilience Plans are submitted. The national reactions to the Green Deal Plan and the final versions of the National Energy and Climate Plans (NECPs) can give some indication.

For many Eastern European governments, green transition is not a particularly pressing priority. They assess the related EU initiatives through the lens of economic opportunities and threats. As a result, they tend to fight measures that threatens their present economic activities. Most countries where coal production exists – Poland, Czechia, Bulgaria, Romania, Slovenia and Croatia – want to go slow with energy transition and keep burning coal beyond 2030.[58]

At the same time, they will try to benefit from the transition by riding the wave of large-scale "green" investments.

A real problem is that every measure that results in higher production costs affects those countries more unfavorably where the value-added content tends to be lower and the cost component tends to be higher than the EU average. This is true for every Eastern European member state.

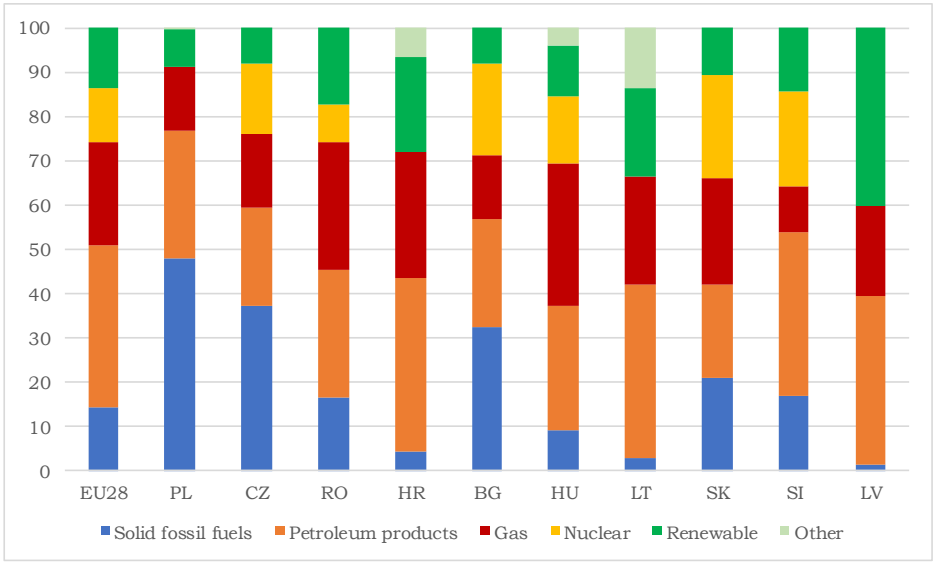
[58] Spasić (2020a)

Another source of discontent is the fact that not just the economic burdens but also the economic benefits of the green transition will differ in the various member states. Since Germany has a state-of-the-art technological base, the German "green industry" sectors are expected to become large exporters and undisputed winners of the transition process. The countries with less developed and less versatile economies will experience the costs acutely while having less capacity to benefit. This – not unfounded – fear aroused intense resentment, especially in the face of the hard hit these countries suffered from the COVID crisis.[59]

It did not help, either, that much of the investment funding cited in the Green Deal comes from reallocations from community sources of which these countries are net recipients. This implied that the recipient countries need to fight for funds – by devising green or greenwashed investment projects – that they had already taken for granted. The proposal of the Commission to ***raise new and large community-level funds under the aegis of Next Generation EU in May*** managed to partially defuse the conflict.

[59] Schmarz (2020)

Figure 2.2.1. Structure of gross inland energy consumption of the Eastern European member states and the EU28 in 2017, by type of energy source (%)



Source: Eurostat (2019)

Estonia is not featured on the figure, due to data problems.

To get a picture about how these member states look at the task of green transition, it is worth giving an overview of a couple of key indicators for which the member states set their own commitments for 2030 in their respective National Energy and Climate Plans (NECPs).

Regarding the reduction of greenhouse gas (GHG) emissions from 2005 to 2030, the EU set a compulsory minimum for each member states in the so-called "Effort Sharing Regulation"[60] The prescribed decreases concern the non-ETS emissions, that is, the sectors that are not involved in the EU

[60]Regulation (EU) 2018/842, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32018R0842

Emissions Trading System. It is telling that 9 out of the 11 Eastern European member states adopted the minimum requirement as their commitment for 2030.

Table 2.2.1: National GHG reductions in the non-ETS sectors from their 2005 levels by 2030: EU prescriptions and national pledges (%)

	Prescribed reduction	Pledge in the NECPs
Bulgaria	0	0
Czechia	-14	-14
Estonia	-13	-13
Croatia	-7	-7
Latvia	-6	-6
Lithuania	-9	-9
Hungary	-7	-7
Poland	-7	-7
Romania	-2	-2
Slovenia	-15	**-20**
Slovakia	-12	**-20**

Source: Regulation (EU) 2018/842; National NECPs

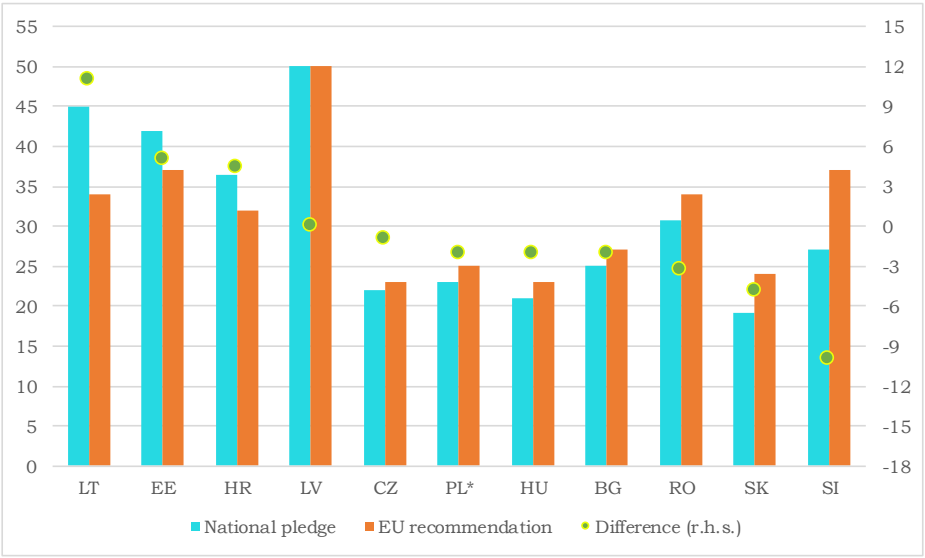
Another indicator of the countries' orientation is to what degree they plan to increase the share of energy from renewable sources in energy consumption by 2030. For this, the EU made a recommendation for each member state, based on GDP-per-capita levels, renewable shares in 2020 – both the official pledge and the actual likely outcome – and the levels of interconnectedness.[61]

7 out of the 11 member states submitted commitments *below* the EU recommendations. Various considerations may be behind the unambitious commitments. Besides finding the creation of renewable energy capacities costly or considering nuclear energy a better option, they may also try to defer the phasing out of the fossil energy sources.

[61] EU Commission (2020b), 58

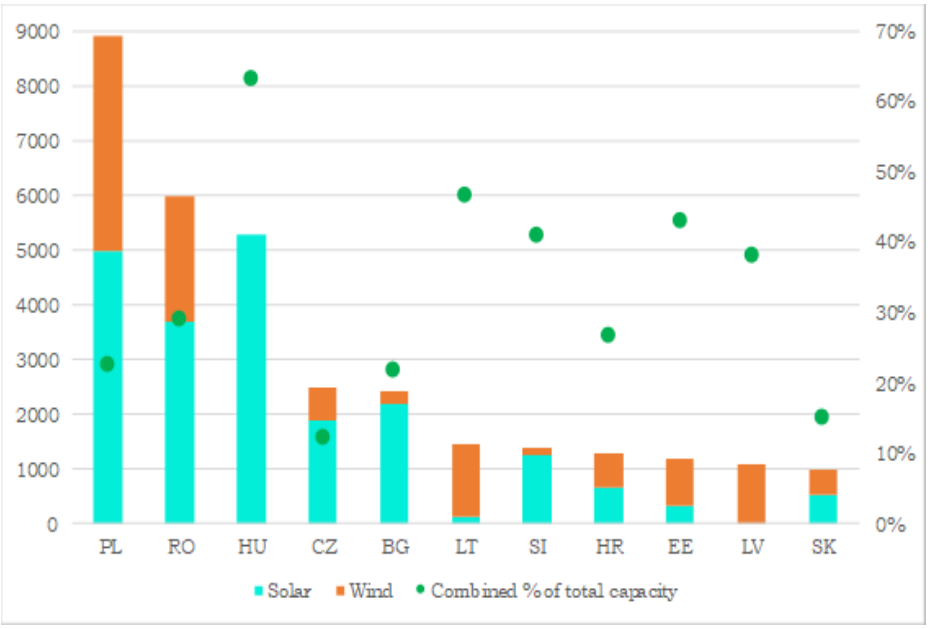
Figure 2.2.2. National pledges and EU recommendations for the share of renewables in gross final energy consumption in 2030 (%) and their difference (percentage points)

Source: CAN (2020), 45; EU Commission (2019a), 6**.**



Within renewable sources of *electricity*, solar and wind may be of special interest, biomass is more problematic from the decarbonization point of view. While the absolute magnitude of the planned solar and wind capacities partially depends on the size of the member states, the magnitude relative to the electricity system may show how big part of the existing system the countries want to actually replace with solar and wind energy.

Figure 2.2.3. Solar and wind net capacity installation in 2021-2030 (Megawatt and % of total electricity capacity in 2017)



Source: CAN (2020); national NECPs

The fourth indicator is the relationship of the national pledges to the EU-level commitment in terms of *overall energy consumption*. (Here we consider only primary consumption.) The EU pledge is a cumulative decrease of energy consumption by 18.4 percent from 2017 to 2030. The level of energy consumption is a combined result of energy efficiency and the magnitude of energy-intensive activities. This indicator is more ecology than economy oriented: the EU pledge implies that even with gains in energy efficiency, the magnitude of energy use must be kept in check because enlarged overall energy use results in environmental impact.

Table 2.2.2. Change in primary energy consumption in CEE from 2017 to 2030, according to the pledges included in the National Energy and Climate Plans (%)

Latvia*	-12,4%
Lithuania	-11,9%
Poland	-7,9%
Bulgaria	-4,5%
Slovenia	-3,6%
Slovakia*	-2,5%
Estonia	-2,0%
Croatia	-0,8%
Romania	-0,3%
Czechia	3,3%
Hungary	25,1%
EU	**-18,4%**

*: Latvia and Slovakia gave an interval as a commitment. For the sake of the table we used the lower bound (largest possible decrease within the interval).

Source: based on CAN (2020), 46; EU Commission (2019a), 13.

The pledge of every Eastern European countries fell way short of the EU commitment. This makes sense: economies that are in the process of catching up should grow at a higher pace, hence it is acceptable if their overall energy consumption does not decrease as much, even with matching efficiency gains. But the extremely low cumulative decrease in some countries, not to mention the growth envisaged in Hungary, suggests that expanding economic activity takes clear precedence over ecological impacts.

Below we give a short glimpse about the plans and attitudes of individual countries, as reflected in the National Energy and Climate Plans and in some more recent utterances.

With an underdeveloped economy and a sizeable coal sector, **Bulgaria** has limited capacity and resources to transform itself. Hence Bulgaria is not compelled to reduce its non-ETS overall GHG emission during the 2021-2030 period.

The Bulgarian climate plan is *not renewable-centric*. Reduced coal burning will be offset by *natural gas* before 2030 and by *nuclear power* afterwards.

Still, some EUR 2 billion investments in renewables is envisaged for 2021-2030, with measures to support private investments in renewables.

Croatia's emission reduction pledge is identical with the prescribed minimum. The pledge about raising the share of renewable energy goes beyond the EU recommendation but it is almost identical with the share that would be achieved without any further measures. The natural resources could support a higher share.[62]

Besides deferring the phase-out of coal beyond 2030, the government still sees *oil and gas* as a way to achieve economic development[63].

Czechia, a heavily coal-dependent economy, is far from enthusiastic about the green transition. Around the middle of March, the prime minister urged the EU to abandon the Green Deal.[64]

In May, the government professed its support for the goal of climate neutrality by 2050 but expressed concern about the 2030 target and maintained that economic recovery comes first.[65] It puts great emphasis on the impact assessment report, currently under preparation, about the

[62] CAN (2020)

[63] CEO (2020)

[64] Euractiv (2020)

[65] Statement of the Czech Republic (2020)

possible effects of a more ambitious 2030 target, as a starting point for further negotiations.

The Czech pledge regarding the share of renewables by 2030 falls short of the EU recommendation. Much of this rise will come, according to the plan, from biomass, as opposed to solar and wind. Even under ideal conditions, biomass is carbon neutral only in the long run.

In **Estonia** the dominant energy mix component is *shale oil*. Yet, neither the phasing-out of shale oil nor the abolition of the indirect oil shale subsidy is on the horizon. The plan is to reduce the carbon emission of shale oil by developing carbon capture solutions.

There is a rise envisaged in the share of renewables in the energy mix (primarily wind power through onshore and offshore wind farms), a considerable rise in the volume of electric transport, and the plan seems to put emphasis on improving energy efficiency in various areas. But the planned biomass expansion is based on a deforestation drive that may make the so-called LULUCF sector a net greenhouse gas emitter soon.

Estonia was among the states that called for the increasing of the 2030 emission reduction target to at least 55% in last June.[66]

The **Hungarian** government estimates the yearly cost of the complete greening of the Hungarian economy at 2-2.5 percent of yearly GDP.[67] The government wants much of this cost to be financed from external sources[68], and this seems to come true for the 2021-2027 period.[69]

Even so, the planned growth of the share of renewables in the energy mix by 2030 falls short of EU recommendations. But a very ambitious trajectory of *solar capacity building* is envisaged, while there is no wind power

[66] Nicolás (2020)

[67] Ministry for Innovation and Technology (2020)

[68] Ministry for Innovation and Technology (2020)

[69] Weinhardt (2020)

investment. According to some opinion, this contrast is related to differences in business opportunities for selected domestic business circles.[70]

This, along with opinions that the official estimate about the transition cost is overblown[71], suggests that Hungary is particularly focused on reaping the benefits from the EU-wide effort while trying to avoid costly obligations – like an ambitious decarbonization target for 2030.

According to the Eurostat, **Latvia** has a high share of renewables – 40% – but this is mostly wood biomass. The NECP envisages an ambitious growth of *wind power* capacity, through allocation of state-owned areas for wind parks and also offshore projects in the Baltic Sea. There are plans to develop guidelines for community involvement and sharing benefits to defuse the negative popular sentiments regarding wind farms.

As for road transport, the plan includes raising the number of ***gas vehicles*** (instead of electric vehicles).

In June, Latvia was among the states that called for the increasing of the 2030 emission reduction target.

Lithuania has a relatively large share of renewables in its energy mix but most of it is wood biomass, with a small share of wind power.

Lithuania's commitment regarding the share of renewables substantially *surpasses* the EU recommendation, due to its commitment to install wind power capacities on a massive scale.

Poland, due to the special role of coal, got exemption from the obligation to achieve carbon neutrality by 2050. But the economic case for defending domestic coal production seems to be waning since Polish coal is expensive.[72]

[70] Nagy 2016

[71] Farks (2020)

[72] Ciobanu (2020)

In electricity production, the NECP envisaged a significant expansion of solar capacities and a sizeable growth in *offshore wind power*.[73] While the International Energy Agency predicts a growth of onshore wind capacities, too, offshore wind remains the main avenue – and the main attraction from the point of view of investors. The Polish government is expected to introduce state subsidies for the development of offshore wind farms.[74] Due to the size of the Polish economy, the **absolute combined magnitude of solar and wind investments is larger than in the other Eastern European member states**, even if they are modest relative to the existing electricity capacities. The latter explains why the target regarding the share of renewables by 2030 is below the EU recommendation.

Romania, in addition to using coal beyond 2030, wants to use *natural gas* as a transition fuel.[75]

Also, while Romania plans to introduce a support system (named "Contract for Difference) for green energy projects, the program will include nuclear projects and even fossil fuel projects equipped with carbon storage/usage equipment.

As a result, Romania's target for the share of renewables within the overall energy mix in 2030 (34%) is significantly below the EU recommendation.

Still, there will be a range of measures to rise the use of renewables. The NECP predicts a 31% reduction of GHG emissions of residential, public and commercial buildings by 2030, compared to the baseline scenario, due to the rise in renewables in the buildings' energy consumption and the acceleration of the renovation activity, supported by grants and loans.

In **Slovenia**, the deadline of the complete phase-out of coal is 2050. The lifetime of coal-fired sites is prolonged by diversification of those sites

[73] Executive Summary (2019), 6.

[74] Mathis – Martewicz (2020)

[75] Balkan Green Energy News (2020b)

(carbon capture, adding natural gas as fuel, adding hydrogen production as an activity[76]).

Still, the government plans to develop renewable capacities. The resulting ***expansion of solar capacities*** is large compared to the size of the country' electricity system.

Slovenia is one of the two Eastern European member states that raised their emission reduction target for 2030 from its prescribed level to 20%.

In the longer term, the government has plans with hydropower, even if at present the expansion of hydropower capacities is running into difficulties, due to environmental risks.[77]

Slovakia agreed to phase out coal by 2030. Also, Slovakia made a pledge for its non-ETS emission reduction (20%) that surpasses the target set by the EU regulation (12%).

The plan stresses the importance to replace coal, without putting as much stress on replacing the other types of fossil fuels. The NECP comes up with a rather small expansion projection regarding solar and wind capacities and also an unambitious share of renewables. Instead, Slovakia plans to expand its nuclear sector and to replace the coal-fired power plants in part by natural gas.

In transport, the use of ***biofuels*** is planned to rise faster than electric transport.

To sum up, while there are differences between the approaches of the individual countries, the attempt to find new areas of take-off while keeping other areas protected from too fast change, at least for a while, can be found in most countries. From an *economic* point of view, it makes sense to avoid the need to worry about the cost of deconstructing economic activities while pouring resources in promising areas. From the *ecological* point of

[76] Balkan Green Energy News (2020a)

[77] Todorovic (2020)

view, the two should happen simultaneously. In *theory*, the appearance of the sizeable new funds of NGEU package should solve the dilemma and ease the defensive reflexes of the CEE countries. In *practice*, the coming debates regarding the real costs of green transition, and the future evolution of the COVID crisis, with its potential to dry up the resources just raised, will decide whether this hope is realistic.

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3.3. Digitalization

Digitalization has been one of the major trends of economies in recent decades, worldwide and in Europe, as well. This process has accelerated during the crisis due to COVID-19.

European Digital Strategies

It might be an interesting coincidence that the new European digital strategy entitled 'Shaping Europe's digital future'[78] was presented by the European Commission on 19 February 2020, right on the eve of the outbreak of COVID-19 crisis in Europe.

The basic endeavour of this strategy is that it will make digital transformation work for people, business and the planet in line with EU values, i.e. technology improves every citizen's daily life; businesses start, grow, innovate and compete on fair terms; and digital technologies help the EU to reach climate neutrality. For the next five years, the Commission envisaged to focus on the following objectives:

- ***Technology that works for people***
    - Invest in digital competences for all Europeans;
    - Protect people from cyber threats (hacking, ransomware, identity theft);
    - Ensure Artificial Intelligence (AI) is developed in ways that respect people's rights and earn their trust;
    - Accelerate the roll-out of ultra-fast broadband for homes, schools and hospitals throughout the EU;
    - Expand Europe's super-computing capacity to develop innovative solutions for medicine, transport and the environment.
- ***A fair and competitive digital economy***

[78] https://ec.europa.eu/info/sites/info/files/communication-shaping-europes-digital-future-feb2020_en_3.pdf

- Enable a vibrant community of innovative and fast-growing start-ups and SMEs to access finance and to expand;
- Propose a Digital Services Act to strengthen the responsibility of online platforms and clarify rules for online services;
- Make sure that EU rules are fit for purpose in the digital economy;
- Ensure that all companies compete in Europe on fair terms;
- Increase access to high-quality data while ensuring that personal and sensitive data are safeguarded.

- ***An open, democratic and sustainable society***
  - Use technology to help Europe become climate-neutral by 2050;
  - Reduce the digital sector's carbon emissions;
  - Empower citizens with better control and protection of their data;
  - Create a European health data space to foster targeted research, diagnosis and treatment;
  - Fight disinformation online and foster diverse and reliable media content.

On 19 February 2020 three other important documents were released: "White Paper on Artificial Intelligence: A European Approach to Excellence and Trust" [79], "A European Strategy for data" [80] and the "Commission Report on safety and liability implications of AI, the Internet of Things and Robotics"[81].

[79] https://ec.europa.eu/info/sites/info/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf

[80] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1582551099377&uri=CELEX:52020DC0066

[81] https://ec.europa.eu/info/publications/commission-report-safety-and-liability-implications-ai-internet-things-and-robotics-0_en

A mutual characteristic of these papers is the emphasis of the *common European approach* both to AI and IoT or robotics in order *to reach sufficient scale and avoid the fragmentation of the single market.* The most frequent argumentations say introduction of national initiatives risks to endanger legal certainty, weaken citizens' trust and prevent the emergence of a dynamic European industry.

The EU's approach to AI based on trust and excellence will give citizens the confidence to embrace these technologies while encouraging businesses to develop them.

The experts have elaborated and communicated in the above papers and strategies how the EU intends to achieve excellence and trust regarding the new technologies. The main points are the following:

- ***How to achieve EXCELLENCE… :***
    - Set-up a new public-private partnership in AI and robotics;
    - Strengthen and connect AI research excellence centres in Europe;
    - Have at least one digital innovation hub per Member State specialised in AI;
    - Provide more equity financing for development and use of AI, with the help of the European Investment Fund;
    - Use AI to make public procurement processes more efficient;
    - Support the procurement of AI systems by public bodies.
- ***… and TRUST:***
    - New legislation on AI should be adapted to the risks, it should be effective but not limit innovation;
    - Require high-risk AI systems (like medical equipment, automated driving, etc.) to be transparent, traceable and under human control;
    - Authorities must be able to check AI systems, just as they check cosmetics, cars or toys;

- Ensure unbiased data sets;
- Launch an EU-wide debate on the use of remote biometric identification (e.g. facial recognition).

Importance of Digitalization

In its a communication titled *"Europe's moment: Repair and Prepare for the Next Generation*"[82] released 27 May 2020, the European Commission emphasised that the pandemic and its consequences had highlighted the importance of digitisation across all areas of EU economy and society. New technologies have kept businesses and public services running, and made sure that trade could continue flowing. They have helped people to stay connected, to work remotely and to support children's learning.

In the long run, this is likely to trigger permanent and structural changes in societal and economic life: more teleworking, e-learning, e-commerce, e-government not only on national but also on European level. A deeper and more *digital single market* is a must. This highlights the potential of developing *a universally accepted e-ID* to allow for simple, trusted and secure access to cross-border digital public services.

In order to stimulate competitive innovation and to provide users with greater choice Europe will need *to invest in more and better connectivity*. The rapid deployment of 5G will have spill-over effects across the whole digital society and increase Europe's strategic autonomy. This will support wider efforts to build infrastructure that can handle emerging and future processes and applications. It will also provide the necessary bandwidth for health, education, transport, logistics and media which are essential for Europe's resilience, competitiveness and economic recovery.

The Communication points out that Europe will also need *a stronger industrial and technological presence* in strategic parts of the digital supply chain. In this spirit, recovery investment will be channelled towards

82 https://ec.europa.eu/info/sites/info/files/communication-europe-moment-repair-prepare-next-generation.pdf

strategic digital capacities and capabilities, including AI, cybersecurity, secured communication, data and cloud infrastructure, 5G and 6G networks, supercomputers, quantum and blockchain.

Europe must build a *real data economy* as a motor for innovation and job creation. Data offers opportunities for businesses to develop products and services. To make the most of this, Europe will need *common European data spaces* in key sectors and areas.

A *fairer and easier business environment* is needed by the European firms. The extended lockdown boosted internet shopping and online business models. However, the online environment is currently dominated by a number of large platforms. Their position – and their greater access to key data resources – has an impact on the ability of smaller European companies to start up, scale up or make the most of the Single Market.

In order to make the most of the digital recovery Europe will soon have to *improve the legal framework for digital services*, with clear rules for online platforms. It will offer greater security for consumers online, prevent the abuse of market power by platforms and ensure a fair market place with equal opportunities for smaller businesses.

Europe must also focus on *reducing administrative burden* and making it easier for companies, especially SMEs, to use digital tools, such as e-signature. They need support to get easier access to data and reduce red tape through digital solutions, for example for contracts. The use of *one-stop support shops* and simplifying online administrative procedures should be encouraged.

Digitisation of public procurement, including by developing *national e-procurement systems and platforms***,** will be prioritised. This will be supported by the full implementation of the company law package to facilitate the digitisation and mobility of companies and a single digital gateway.

To boost EU-level cooperation, knowledge and capacity a new *Cybersecurity Strategy* will have to be elaborated urgently. It will also help Europe strengthen its industrial capabilities and partnerships and encourage the emergence of SMEs in the field.

Taking into account their importance in managing the crises as well as in the recovery from it, to promote financing of the above mentioned processes of digitalization on EU level has been involved into the recovery plan "Next Generation EU". The following instruments of the Plan will support European digitalization[83]:

- ***European Recovery and Resilience Facility*** - To be used for investments and reforms, including in green and digital transitions. Budget: €560 billion of which €310 billion for grants and €250 billion in loans.
- ***Enhanced InvestEU (Including a Strategic Investment Facility)*** – To be used for investments in sustainable infrastructure, R&I and digitisation, SMEs and midcaps, social investment and skills across the EU. In addition, the new Strategic Investment Facility will aim to develop strong and resilient independent value chains such as critical infrastructure, green and digital technologies and healthcare and enhance the autonomy of the Union's single market. Budget: €15.3 billion for InvestEU. Additionally, a new Strategic Investment Facility to be equipped with €15 billion provisioning from Next Generation EU.
- ***Solvency Support Instrument -*** To be used for equity support to viable companies from all economic sectors to address solvency concerns, caused by the coronavirus pandemic, and help them through their green and digital transformation. Mechanism: Provisioning of an EU budget guarantee to the European Investment

[83] Key Instruments Supporting the Recovery Plan for Europe https://ec.europa.eu/info/sites/info/files/factsheet_2_en.pdf

Bank Group in order to mobilise private capital. Budget: €31 billion.

The Commission is also proposing to *reinforce other programmes* to allow them to play their full role in making the Union more resilient and addressing challenges brought along by the pandemic and its consequences. Digitalization is concerned in the followings:

- A total of €8.2 billion for ***Digital Europe*** programme to boost the Union's cyber defences and support the digital transition;
- Investing in an up-to-date, high-performance transport infrastructure to facilitate cross-border connections through an additional €1.5 billion for the ***Connecting Europe Facility***;
- Creating the conditions for a well-functioning single market driving recovery by maintaining the proposed budgets for the ***Single Market Programme*** and for programmes supporting ***cooperation in the fields of taxation and customs*** at a level of €3.7 billion, €239 million and €843 million respectively;
- A total of €94.4 billion for ***Horizon Europe***, to increase European support for health and climate-related research and innovation activities;
- A total of €2.2 billion for the ***Internal Security Fund*** and a total of €8 billion for the ***European Defence Fund*** to support the European strategic autonomy and security.

According to a communication of the OECD [84], economic recovery packages should be *designed to 'build back better', instead of returning to 'business as usual'* i.e. environmentally destructive investment patterns and activities must be avoided. The restart of the European economy will obviously rely heavily on the opportunities offered by different segments

[84] Shaping government interventions for a faster and more resilient economic recovery, 08/06/2020 - https://www.oecd.org/coronavirus/en/

of digitalization. Achievements of AI, IoT, data analytics, cloud computing, blockchain, visual observation, virtual reality technologies, infrastructure like 5G, development of sector specific systems like e-health, e-education, e-justice, all will have come to the fore much more intensively than before the outbreak of COVID-19.

In July 2020 the European Commission's Joint Research Centre (JRC) published a study on the early lessons from the COVID-19 crises on the digitalization in Europe.[85] "Four months into this global crisis, we can recognise that COVID has acted as booster to the adoption of AI but also as an amplifier of potential opportunities and threats", says JRC researcher Max Craglia in his preface. The main findings of the study are as follows:

- ***The pandemic boost to AI adoption***

  The researchers noted an increased adoption and use of AI in scientific and medical research, in particular in applications such as telemedicine, medical diagnosis, epidemiological studies, and clinical management of patients.

  There was also a shift in attitudes towards AI and data sharing. According to the study, the crisis resulted into a greater acceptance of robots in the workplace and of data sharing for the monitoring of the spread of the virus.

  Similarly, the crisis made it possible to overcome barriers in the sharing of data between commercial entities, and between business and governments. E.g. monitoring of the spread of the virus using data provided by private mobile network operators.

85

https://publications.jrc.ec.europa.eu/repository/bitstream/JRC121305/covidai_jrc_science_for_policy_report_final_20200720.pdf

- ***The jump-start to digital transformation***

The lockdown resulted in a massive surge of activity online for education, business, public administration, research and social interaction.

The pandemic gave a boost to the digital transition of companies, public administrations and schools. Plans that had maybe dragged on for years, had to be implemented at very short notice, overcoming many technological, organizational, skill gaps, and cultural barriers.

As another positive development, teleworking gained wider acceptance as part of the normal working arrangements, with potential social and environmental benefits.

The authors remain cautious as to how permanent these changes are and what proportion of leisure, education and work will continue to take place online in the post-COVID period.

- ***The crucial role of governance in data processing***

The COVID-19 crisis has also raised a number of societal, ethical and policy challenges. Some of them are connected to the increased use of digital tools during the confinement, as well as the use of AI, apps and consequently, data.

The crisis underlined the absolutely critical role of the governance of digital data in modern societies. How data is collected, by whom, for what purpose, how it is accessed, shared and re-used have become central questions during the crisis.

"There were concerns about the possible misuse of people's private data for purposes other than contact tracing or the monitoring of the spread of the virus. It is absolutely crucial that governments remain accountable and transparent to their citizens. The crisis cannot be an excuse to disrespect human rights or advance authoritarianism", said JRC author Lucia Vesnic-Alujevic.

- ***Dependency on non-European platforms***

  The lockdown also highlighted the European dependency on non-European collaborative platforms and accelerated the process of market polarization on big digital platforms. These platforms became critical in connecting users, organizations and content, and the vast majority of them are American or Chinese.

  When using these tools, Europeans provide valuable intelligence to the platform operators. This means that these companies have been able to gather additional intelligence about every aspect of the European economy and society, which they can use for profiling, targeting - or manipulation. This dependency adds to the cybersecurity concerns. The number of cyber-attacks increased during the crisis, as did well-orchestrated misinformation campaigns aimed at undermining social cohesion and trust in the institutions.

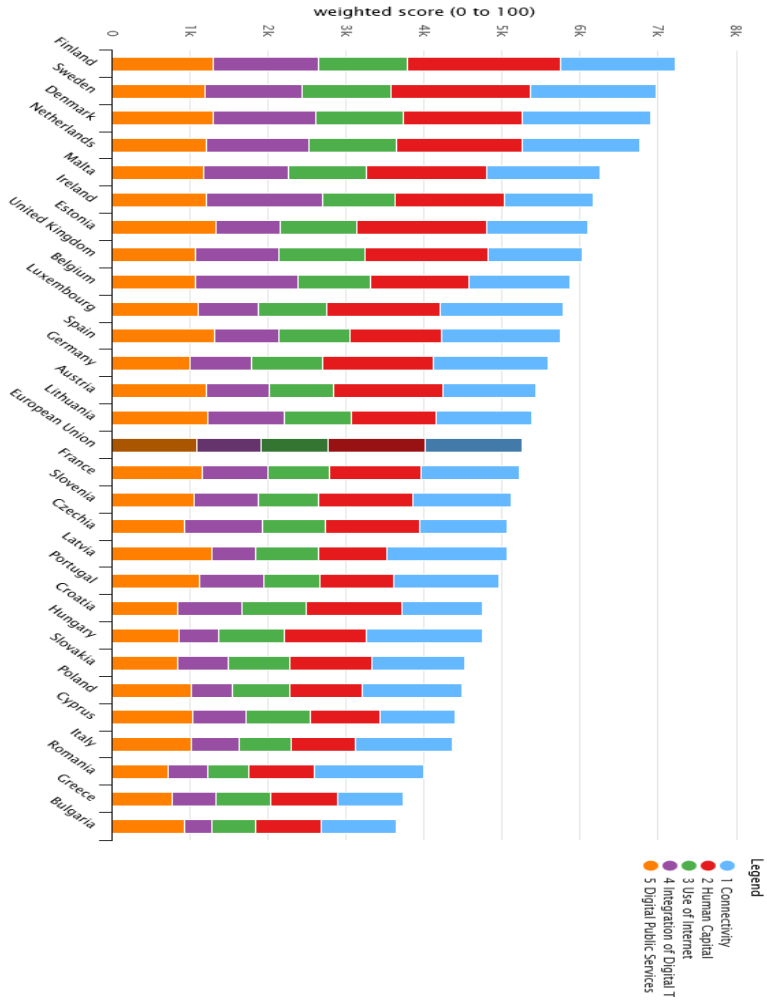
As to the impacts of restart of European economy on the outlook of *digitalization in Central and Eastern Europe (CEE)* it is worth to compare the recent achievements of this region to those of the other member states. The best instrument for this is the Digital Economy and Society Index (DESI)[86] developed and yearly published by the European Commission. The following figures will show the ranking of EU member countries according to different aspects of digital economy and society as in spring 2020. We can say this is a snapshot on their ranking just on the eve of the outbreak of COVID-19 crisis in Europe.

The first figure gives the most comprehensive picture on their achievements, as it combines all the five dimensions of DESI.[87]

[86] https://ec.europa.eu/digital-single-market/en/news/digital-economy-and-society-index-desi-2020

[87] For the details and methodology see: https://digital-agenda-data.eu/charts/desi-components#chart={%22indicator%22:%22desi%22,%22breakdown-

Figure 2.3.1. Digital Economy and Society Index, by Main Dimensions of DESI



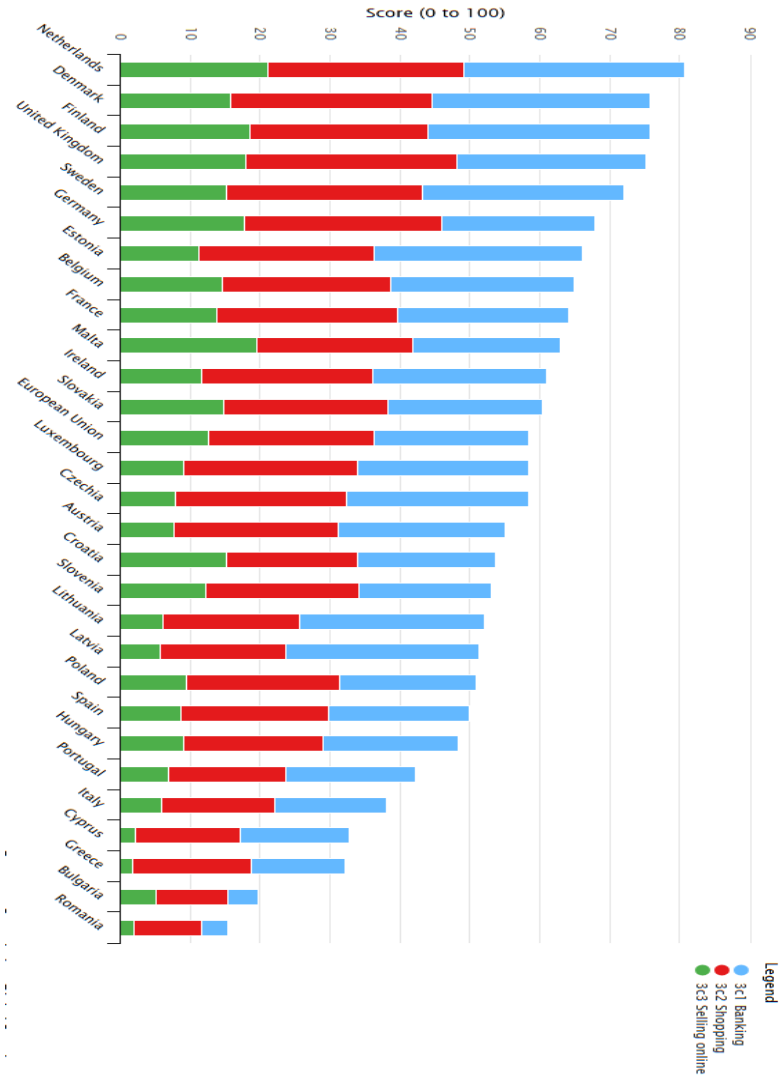
We can see that with the exception of Estonia and Lithuania the score of each CEE country is weaker than the EU average.

group%22:%22desi%22,%22unit-measure%22:%22egov_score%22,%22time-period%22:%222020%22}

By the following figures we would like to demonstrate the place of CEECs in European ranking regarding the components considered of primary importance in upswing of digitalisation after the COVID crises.

The next figure compares the basic infrastructure for digitalization, i.e. the availability of broadband networks.

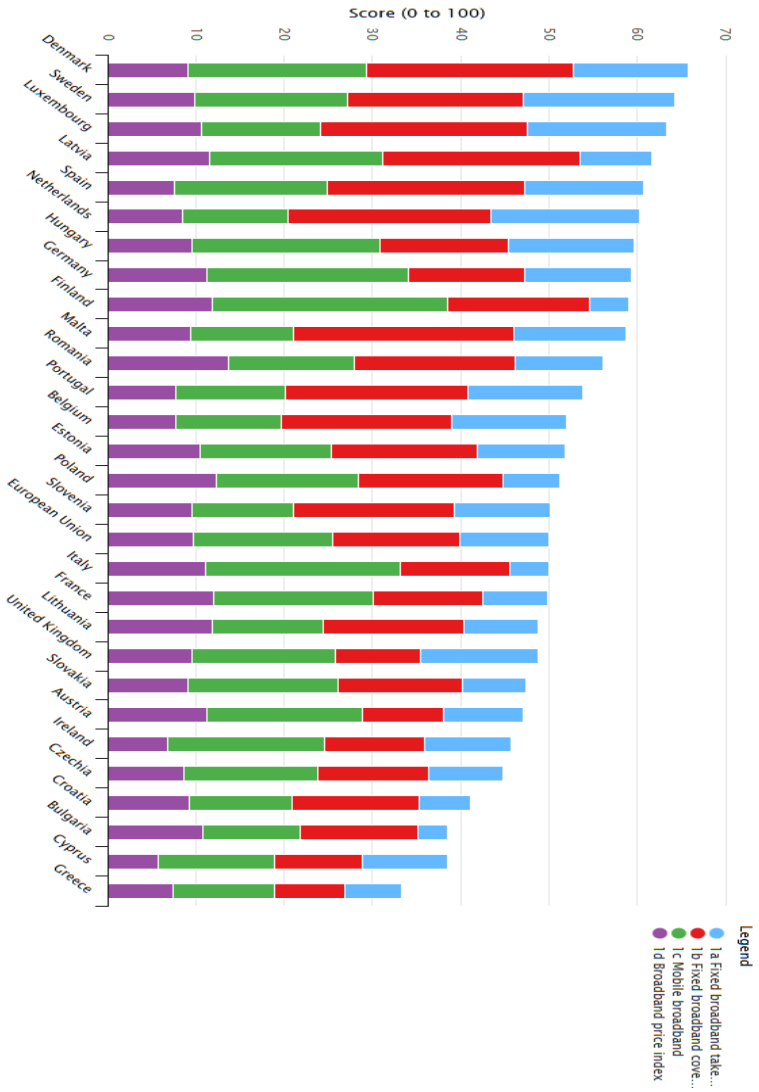
Figure 2.3.2. Connectivity



We can state that broadband coverage in Latvia, Hungary, Romania, Estonia, Poland and Slovenia is better than the EU average. Taking into account the fact that developing broadband infrastructure is an awfully expensive segment of digitalization, it is encouraging for the future. It is also noteworthy that on the list of countries regarding the 5G readiness Hungary is the third, Slovakia the fifth, and Romania is also stronger than the EU average.

The following figure introduces the rank of EU countries regarding the ability of their citizens for performing online transactions. With the exception of Estonia and Slovakia CEE citizens are less active in online transactions like e-banking, shopping or selling online than their counterparts in other EU countries. (See Figure 2.3.3.)

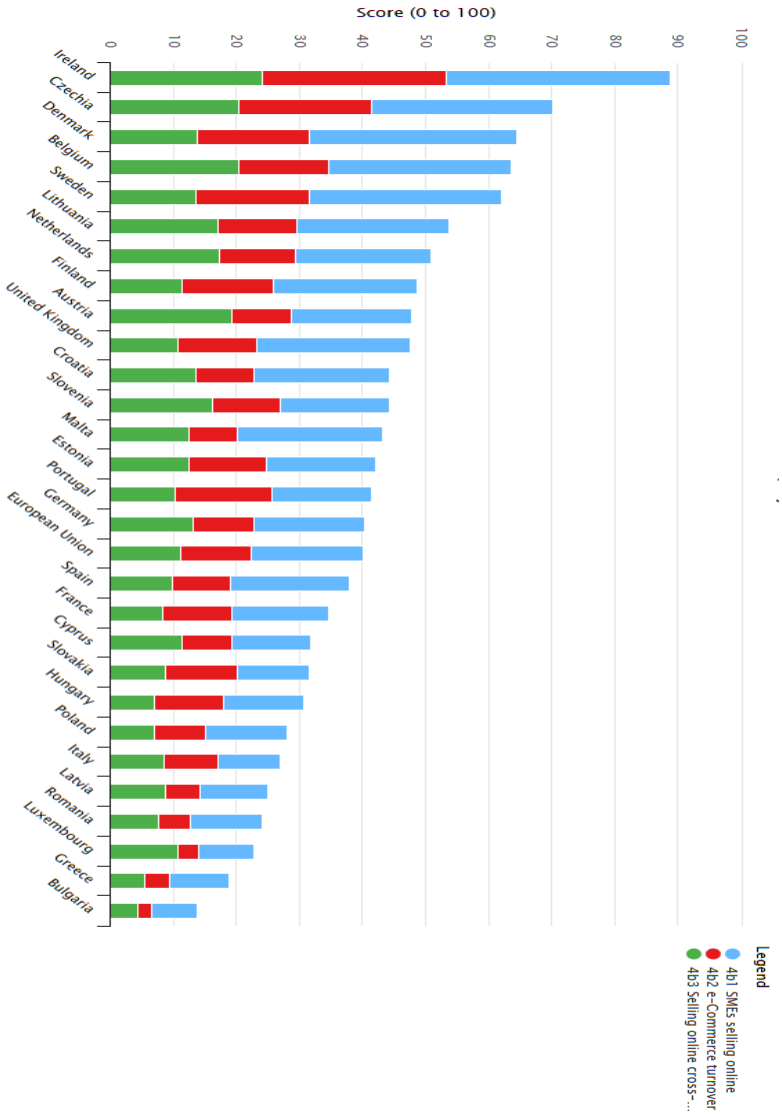
Figure 2.3.3. Online transactions of the citizens



In CEECs *business digitization* i.e. using electronic information sharing, social media, big data and cloud solutions, currently is in a state of infancy. The results of any country from the region could not surpass the value of

the EU average. On the other hand, *e-commerce* is popular in several CEECs. (See Figure 2.3.4.)

Figure 2.3.4. E-commerce



Czechia is the second best European country as e-commerce is concerned. The results of Lithuania, Croatia. and Slovenia are also better than the EU average.

In 2018 a reliable research and consulting firm defined CEECs as digital challengers where digitalization can be the next driver of sustained economic growth because they have demonstrated strong potential for growth in the digital area.[88] We envisage that the COVID crisis will boost the process of digitalization even in the cautiously developing CEECs. Several new partisans of digitalization have been borne during the pandemic period, when people were forced to work, learn, purchase, entertain, etc. with the help of digital devices and networks.

Regarding the companies, especially the SMEs, the importance of e-commerce will increase considerably relying on the experiences of the period of crises forced online selling.

In Central and Eastern Europe, we assume the most important changes will take place among the governmental service providers, because there were the weaknesses of e-health, e-education and e-public administration structures, especially the interoperability of them, what have emerged the most intensively. However, on these fields a vivid collaboration has developed spontaneously among users, developers, content and service providers even during the pandemic period. And this is the basis for a jump-start to a new phase of digitalization in the CEECs.

[88] https://digitalchallengers.mckinsey.com/

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3.4. Trade relations between China and CEE

Review on the economic and trade relations between China and Central and Eastern European countries

The economic and trade relations between Central and Eastern European countries and China have been maintained at a good level for a long time. From 2004 to 2013, 11 Central and Eastern European countries joined the European Union one after another. Trade relations between China and Central and Eastern European countries have been better developed within the framework of cooperation between China and the European Union. Since the 12-point initiative for cooperation between China and Central and Eastern European countries was put forward in 2012, bilateral economic and trade cooperation has been promoted. "16+1" cooperation has become a new part of the relationship between China and Central and Eastern European countries. In 2019, the "16+1" cooperation became "17+1". Over the years, the economic and trade relations between Central and Eastern European countries and China have been further improved in bilateral, "17+1" and Sino-European layers.

Table 2.4.1：Trade Values between China and 11 CEE countries in 2013-2019

(In 10 thousand USD)

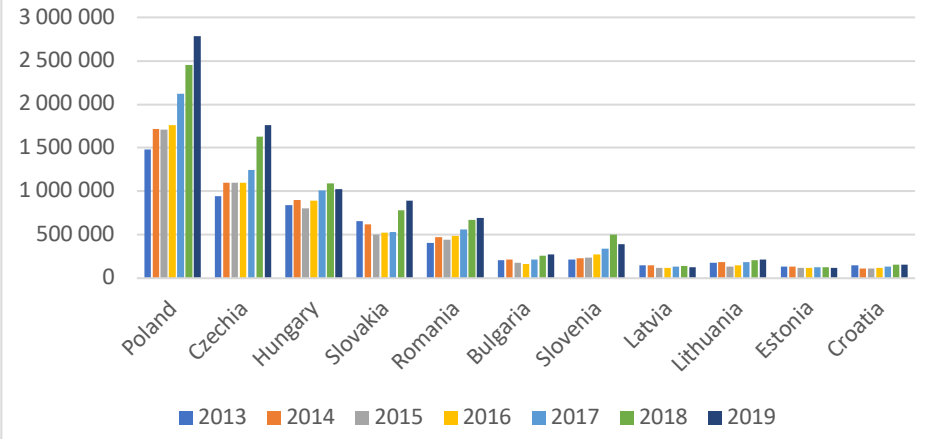
REGION	2013	2014	2015	2016	2017	2018	2019
GLOBAL	416,030,8	430,303,7	395,690,1	368,557,3	410,450,4	462,303,8	457,530,3
EU28	55,904,03	61,513,92	56,475,48	54,701,79	61,691,57	68,216,424	70,510,98
EU11	5,355,20	5,842,182	5,463,41	5,703,90	6,607,33	8,006,60	8,423,09
EU11 in EU28	9.58%	9.50%	9.67%	10.43%	10.71%	11.74%	11.95%

Source: Chinese Ministry of Commerce

From 2013 to 2019, the import and export trade volume between China and Central and Eastern European countries increased steadily, from US$53.6

billion in 2013 to US$84.2 billion in 2019, with an increase of 57%. At the same time, China's global trade volume increased from US$4.160.3 billion in 2013 to US$4.575.3 billion in 2019, with an increase of 9.98%. The trade volume between China and the 28 EU countries increased from US$559 billion in 2013 to US$7051 billion in 2019, with an increase of 26.13%. The growth rate of trade between China and the 11 countries of Central and Eastern Europe significantly exceeds the growth rate of trade between China and the EU. China's trade with 11 countries in Central and Eastern Europe accounted for the proportion of China's trade with 28 EU countries, which increased from 9.58% in 2013 to 11.95% in 2019. The growth rate of imports is higher than that of exports. From 2013 to 2019, China's imports from Central and Eastern Europe increased from US$14 billion in 2013 to US$23.3 billion in 2019, with an increase of 66.57%. The largest increases were in Lithuania, Romania and Latvia. From 2013 to 2019, China’s exports to 11 countries in Central and Eastern Europe increased from US$39.5 billion in 2013 to US$60.8 billion in 2019, with an increase of 53.99%。China's exports to Central and Eastern Europe accounted for China's exports to EU28 increased from 11.66% in 2013 to 14.20% in 2019. The countries with the largest increases were Poland, the Czech Republic and Slovenia.

Figure 2.4.1：Trade between China and CEE in 2013-2019
In 10 thousand USD



Source: Chinese Ministry of Commerce

From destination country perspective, among the 11 Central and Eastern European countries, Poland, the Czech Republic and Hungary have the highest trade volume with China, followed by Slovakia and Romania. Meanwhile, Slovakia, the Czech Republic, Poland and Hungary are among the top imports. The top exporters are Poland, Czech Republic, Hungary and Romania. Among them, the trade volume between the four Visegrad countries and China accounted for more than 70% of the trade volume between the 11 countries of Central and Eastern Europe and China, reaching 76.58% in 2019. As China's largest trading partner in Central and Eastern Europe, the trade volume between Poland and China has increased from US$14.8 billion in 2013 to US$27.8 billion in 2019, with an increase of 88%. The Czech Republic and Slovenia also increased by more than 80%.

From the perspective of import and export product categories, mechanical and electrical products account for the largest share of the trade between Central and Eastern European countries and China, which basically occupy

the top two trade categories with China. The main commodities imported by Poland from China are mechanical and electrical products, furniture, toys, miscellaneous products, textiles and raw materials. These products accounted for 68.1% of Poland's total imports from China in 2019. Poland's main exports to China are organic electrical products, base metals and products, and plastics and rubber. These types of products accounted for 63.7% of Poland's total exports to China in 2019. The main products imported by the Czech Republic from China are also mechanical and electrical products. The annual imports of such products accounted for 81.0% of the total Czech imports from China. Base metals and products are the second largest category of Czech imports from China. The main Czech products exported to China are mechanical and electrical products. In 2019, exports accounted for 47.1% of the total Czech exports to China. The second and third largest categories of Czech exports to China are optics, watches and medical equipment, cellulose pulp and paper. The main commodities that Slovakia exports to China are transportation equipment, mechanical and electrical products, and wood products. In 2019, the total exports of the three categories of products accounted for 93.3% of Slovakia's total exports to China. The main commodities imported by Slovakia from China are mechanical and electrical products, base metals and products, and transportation equipment. In 2019, the total imports of the three types of products accounted for 82.5% of Slovakia's total imports from China. Mechanical and electrical products and chemical products are the two main categories of Hungary's exports to China. The two categories of products together accounted for 62.6% of Hungary's total exports to China from January to September 2019. The number one commodity imported by Hungary from China is mechanical and electrical products. The import value from January to September was 4.34 billion US dollars, an increase of 13.0%, accounting for 69.9% of Hungary's total import from China.

Table 2.4.2 ：Chinese FDI stock in CEE between 2013-2018

In 10 thousand USD

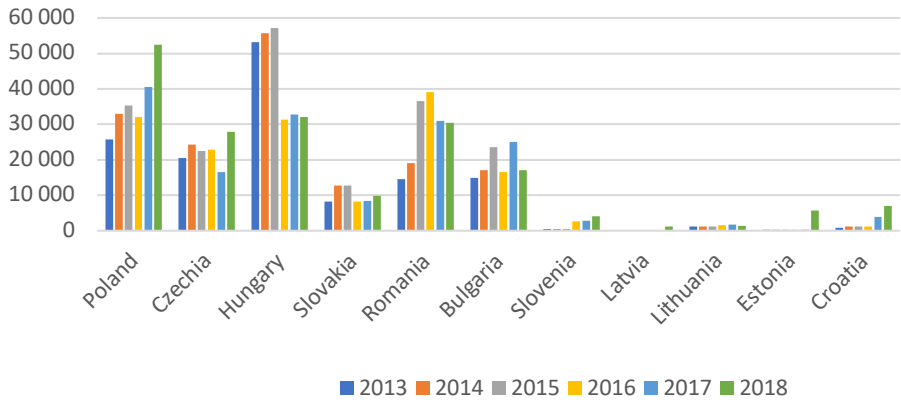
REGION	2013	2014	2015	2016	2017	2018
GLOBAL	66,047,84	88,264,24	109,786,46	135,739,04	180,903,65	198,226,59
EU28	4,009,661	5,421,040	6,446,013	6,983,669	8,601,478	9,073,906
EU11	140,165	165,121	190,983	156,171	163,036	188,925
EU11 in EU28	3.50%	3.05%	2.96%	2.24%	1.90%	2.08%

Source: Statistical Bulletin of Chinese outward Foreign Direct Investment 2018

In recent years, China's investment in Central and Eastern European countries has increased significantly. In terms of investment stock, China's investment in 11 Central and Eastern European countries increased by 35% from 2013 to 2018. As of 2018, China's investment in 11 Central and Eastern European countries accounted for only 2% of China's investment in the European Union. There is still huge room for China's investment in Central and Eastern Europe. At present, the country distribution, industry composition and investment methods of China's investment in Central and Eastern Europe are relatively concentrated. From the perspective of investment destination countries, it is currently mainly concentrated in five countries: Poland, Czech Republic, Hungary, Romania, and Bulgaria. By 2018, China’s investment stock in these five countries accounted for 85% of China’s investment stock in 11 countries in Central and Eastern Europe. It can be seen that economic size and market size are extremely important investment reference indicators. These five countries are the among the countries with the highest total GDP in this region. In addition, political relations and investment policies are also important factors affecting Chinese investment, since political and diplomatic relations will affect the investment preferences of Chinese investors. In 2016, China and Czech announced the establishment of a strategic partnership. China and Poland upgraded from a strategic partnership to a comprehensive strategic partnership. In 2017, China and Hungary announced the establishment of a

strategic partnership. The improvement of bilateral relations between these countries and China provides better expectations for corporate investment. From the perspective of industry composition, China's investment in Central and Eastern European countries is mainly concentrated in the fields of infrastructure such as energy and communications. From the perspective of investment methods, China's investment in Central and Eastern Europe mostly adopts mergers and acquisitions, and there are fewer greenfield investment projects.

Figure 2.4.2：Chinese FDI stock in CEE betweeen 2013-2018
In 10 thousand USD



Source: Statistical Bulletin of Chinese outward Foreign Direct Investment 2018

The impact of the coronavirus epidemic on trade relations between China and Central and Eastern European countries

The outbreak of the coronavirus pandemic at the beginning of 2020 has spread from Asia to Europe, Americas, Africa, which has a great impact on the economies of all countries. Whether it is the large-scale shutdown of China's manufacturing industry in February and March, or the countries of Central and Eastern Europe after April, the impact of the virus is inevitable. The shutdown of manufacturing and the large-scale suspension of transportation have brought great negative impact on both import and export. However, judging from the import and export data released by the Chinese Customs in the first half of the year, although the trade volume

between China and Central and Eastern European countries fell by 0.82% compared with the same period last year, which only reached 39.3 billion US dollars, but half of the 11 countries' trade volume These countries have maintained positive growth: Hungary, Lithuania, Czech Republic, Poland, Romania and Croatia. Among them, the trade volume between Hungary and China reached 5.3 billion US dollars, which is the country with the largest increase. There seems to be no correlation between GDP growth and China-CEE trade recovery, since the EU expects Hungary's to have the biggest negative GDP growth in the second quarter among these 11 countries. In the first half of the year, Poland, the Czech Republic, Hungary, Romania and Slovakia were still in the forefront of import and export trade. But Slovakia is also the country with the largest year-on-year decline in trade volume, with a decrease of 27.51%.

Table 2.4.3: Trade between China and CEE in Jan-Jun 2020

In 10 thousand USD

Country	Jan-Feb	March	April	May	June	Jan-Jun	Compared with last year
EU11	1,162,424	627,356	699,546	698,353	746,753	3,934,432	-0.82%
Poland	137,316	50,897	43,757	33,223	47,728	312,921	-27.51%
Czechia	56,414	31,895	32,551	29,362	32,806	183,028	-9.11%
Hungary	17,655	7,608	9,213	9,392	11,471	55,339	-9.97%
Slovakia	30,738	16,050	19,710	22,224	19,462	108,184	7.39%
Romania	12,918	7,152	9,601	9,497	10,466	49,634	-23.19%
Bulgaria	384,204	202,255	234,868	251,112	256,777	1,329,216	3.17%
Slovenia	222,637	139,947	153,165	147,136	157,208	820,093	3.66%
Latvia	143,419	84,048	97,941	99,441	110,031	534,880	10.24%
Lithuania	94,735	53,697	64,373	57,090	63,069	332,964	1.15%
Estonia	39,024	22,800	20,978	22,114	22,529	127,445	-3.98%
Croatia	23,364	11,007	13,389	17,762	15,206	80,728	0.60%

Source: China Customs

From a long-term perspective, the epidemic will have a profound impact on the global economy. Whether it is a V-shaped, U-shaped or W-shaped curve, it means that it will be difficult for the economy to resume positive growth for a long time. Although the epidemic has negative expectations for economic growth, it also provides opportunities for countries and regions willing to strengthen cooperation. The European Union, which the CEE 11 are highly dependent on economically, is becoming an increasingly important trading partner of China. The stable trade relations between China and Europe will provide impetus for the economic recovery of both sides, including the Central and Eastern European countries. According to data released by Eurostat on September 16, in the first seven months of 2020, the total import and export volume of the 27 EU member states and China was 328.7 billion euros, with an increase of 2.6%. For the first time, China became the largest trading partner of the European Union, surpassing the trade volume between Europe and the United States by EUR 5.2 billion. At the same time, China maintained its position as the EU's largest source of imports and the third largest export market, accounting for 21.9% and 10.3% respectively. Affected by the epidemic, the volume of air and sea transportation dropped sharply. Many Central and Eastern European countries such as Poland, Lithuania, Hungary, have China-Europe Express trains, which has become an important route for cargo transportation between China and these countries. In the first half of this year, the number of China-Europe freight trains increased significantly, with a total of 5,122 trains, a year-on-year increase of 36%.

In the medium term, the epidemic provides opportunities for structural adjustment of trade and investment. In the process of globalization, the search for lower production costs often leads to the extension of the value chain. However, during the epidemic, many factories in Asia once stopped production, which caused the supply chain to break. Therefore, the shortening of the global value chain may become a strategy of multinational companies. Considerably some large European multinational companies may transfer their industrial chains from faraway to the

geographically closer Central and Eastern Europe to reduce risks. Although Central and Eastern European countries started the second wave of epidemics at the end of August, this adjustment may become a long-term plan after the epidemic is under controlled. Since the Central and Eastern European countries may lack of EU funds in a timely manner between 2021-2022, government debt have risen due to the epidemic, the adjustment of the industrial structure may bring new possibilities for Chinese investment in Central and Eastern Europe with a win-win opportunity. The trade structure between China and Central and Eastern European countries will get corresponding optimization opportunities in this adjustment, in spite of the rising possibility of protectionism.

In the short term, the epidemic provides opportunities for China and Central and Eastern Europe to explore new cooperation models. Cloud transactions and online sales bring new possibilities for trade and investment between China and Central and Eastern Europe. In June, the Central and Eastern Europe Commodity Cloud Exhibition was officially launched and will provide free online services throughout the year. The exhibition focuses on Central and Eastern European countries, with 18 pavilions covering 17 Central and Eastern European commodity pavilions and 1 global commodity pavilion. The exhibited products are in 8 categories including food, beverages, daily household appliances, alcohol, skin care products, and smart technology, 2,571 exhibits were launched, attracting 2,516 Chinese buyers to register and purchase online, and the number of daily visits exceeded 80,000. At the same time, China's online shopping platform "Pinduoduo" launched the Central and Eastern Europe Premium Gallery. Diplomats stationed in China from Poland, Czech Republic, Slovakia, Hungary, Bulgaria and other countries introduced more than 200 high-quality products from Central and Eastern Europe through live broadcast. During the event, the cumulative number of online users exceeded 2 million. On June 16, 157 SMEs and institutions from China and 135 SMEs from 17 Central and Eastern European countries held a video information exchange and conference on the resumption of production and production of SMEs

from China and Central and Eastern European countries. The four major sections of "manufacturing", "trade and investment, agriculture", "tourism, cultural exchange" and "medical and health" were discussed and matched, 29 memorandums of cooperation were signed, and 19 cooperation intentions were reached.

Summary

In the past few years, China and Central and Eastern European countries have maintained good economic and trade relations. Bilateral trade volume has increased year by year. China's investment in Central and Eastern European countries has increased steadily. Since the pandemic, trade exchanges have not shown much fluctuation. From a long-term perspective, the epidemic will have a profound impact on the global economy. If stable trade relations between China and Europe can be maintained, it will lay the foundation for economic and trade relations between China and Central and Eastern Europe. In the medium term, china may have the opportunity to make the structural adjustment of trade and investment in this region; in the short term, under the normal epidemic situation, China and Central and Eastern Europe can seek new cooperation models through network technologies.