A New Era for Europe

How the European Union
Can Make the Most of its Pandemic Recovery,
Pursue Sustainable Growth,
and Promote Global Stability

HIGH-LEVEL GROUP ON POST-COVID ECONOMIC AND SOCIAL CHALLENGES

This report presents the work of the High-Level Group convened by Commissioner Paolo Gentiloni to reflect on the post-COVID economic and social challenges.

DISCLAIMER

The views expressed in this document are solely those of the authors and do not necessarily represent the official views of the European Commission. The authors were invited to produce their contribution in a personal capacity and in full independence.

Authorised for publication by István P. Székely, Principal Adviser.

LEGAL NOTICE

This paper exists in English only and can be downloaded from

https://ec.europa.eu/info/publications/economic-and-financial-affairs-publications_en.

Luxembourg: Publications Office of the European Union, 2022

PDF ISBN 978-92-76-xxxxx-x doi:10.2765/xxxxx KC-01-22-xxx-EN-N

A New Era for Europe

How the European Union Can Make the Most of its Pandemic Recovery, Pursue Sustainable Growth, and Promote Global Stability

JEL Classification: D40, E31, L51.

Keywords: COVID-19 pandemic, digital transition, European Union, inequality, social fairness, geopolitics, green transition, institutions, trust

High-Level Group Members

Carlo Carraro, President Emeritus and Professor of Environmental Economics at Ca' Foscari University of Venice

Benoît Cœuré, President of the Autorité de la concurrence

Otilia Dhand, Managing Director, Teneo

Barry Eichengreen, George C. Pardee and Helen N. Pardee Chair, Distinguished Professor of Economics and Political Science, University of California, Berkeley

Melinda Mills, Nuffield Professor of Sociology and Director, Leverhulme Centre for Demographic Science, University of Oxford

Hélène Rey, Lord Raj Bagri Professor of Economics, London Business School

André Sapir, Professor, Institut d'Études européennes, Université Libre de Bruxelles

Daniela Schwarzer, Executive Director for Europe and Eurasia of the Open Society Foundations

***

We would like to thank Commissioner Paolo Gentiloni for setting up this Group to investigate the economic and social implications of the post-COVID economy: we have had his full support and have worked with complete independence.

We would like to thank István P. Székely for supporting our work, Rebecca Christie for editing our co-authored chapter, and Bruno Castanheira for assisting the Group.

Finally, we would like to thank Sandra Gallina and her colleagues at DG SANTE, Mauro Raffaele Petriccione and his colleagues at DG CLIMA, Gerassimos Thomas and his colleagues at DG TAXUD, and Miguel Gil Tertre at DG ENER for their valuable input and insight into current and future policy challenges in their respective areas.

ABBREVIATIONS and ACRONYMS

°C: Degrees Centigrade
AE: Advanced Economies
AI: Artificial Intelligence
ALDE: Alliance of Liberals and Democrats in Europe
AR: Assessment Report
ASEAN: Association of Southeast Asian Nations
ATM: Automated Teller Machine
ATP: Assembly, Testing and Packaging
BAME: Black, Asian or Minority Ethnic
BASF: Badische Anilin- und SodaFabrik
BAU: Business-as-usual
BBC: British Broadcasting Corporation
bn: Billion
BEFIT: Business in Europe: Framework for Income Taxation
BRI: Belt and Road Initiative
BVP: Bayerische Volkspartei (Bavarian People's Party)
CAI: European Union-China Comprenhensive Investment Agreement
CARD: Coordinated Annual Review on Defence
CARES: Coronavirus Aid, Relief, and Economic Security (Act)
CASE: Center for Social and Economic Research
CCP: Chinese Communist Party
CDC: Centerz for Disease Control
CDP: Capability Development Plan
CDU: Christlich Demokratische Union (German Christian Democratic Union)
CEBR: Center for Economics and Business Research
CEE: Central and Eastern European
CEPR: Center for Economic Policy Research
CEO: Chief Executive Officer
CO_2: Carbon dioxide
COVID/COVID-19/SARS-CoV 2: Coronavirus disease 2019/ Severe acute respiratory syndrome coronavirus 2
COP: Conference of the Parties (UNFCCC)
CPI: Climate Policy Initiative
CPS: Current Population Survey
CSIS: Center for Strategic and International Studies
DARPA: Defense Advanced Research Projects Agency
DESI: Digital Economy and Society Index
DG: Directorate-General
DG COMM: Directorate-Genral for Communication
DNVP: Deutschnationale Volkspartei (German National People's Party)
DVP: Deutsche Volkspartei (German People's Party)
DW: Deutsche Welle (German Wave)
EC: European Commission
ECB: European Central Bank
ECE: European Centre of Expertise
ECFIN: Directorate-General for Economic and Financial Affairs
ECOPA: European Consensus-Platform for Alternatives
ECR: European Conservatives and Reformists Party
EDA: European Defence Agency
EDF: European Defence Fund
EDTIB: European Union Defence Technological and Industrial Base
EEA: European Environment Agency
EEAS: European Union Exteranl Action Services
EIB: European Investment Bank
EM-DAT: The international disasters database
EMDE: Emerging Markets and Developing Economies
EMF: Energy Modelling Forum
EPA: Economic Partnership Agreement
EPP: European People's Party
EPRS: European Parliamentary Research Service
ESG: Environmental, social, and governance
ESI: Emergency Support Instrument
ESM: European Stability Mechanism
ETF: exchange-traded funds
ETS: Emissions Trading System
EU/EU27: European Union as of 2020
EUR: Euro
FinTech: Financial Technology
G7: Group of Seven
G20: Group of Twenty
GDP: Gross Domestic Product
GERB: ГЕРБ (Bulgarian Citizens for European Development of Bulgaria)
GFC: Great Financial Crisis
GGEI: Global Green Economy Index
GHG: Greenhouse gas
GNI: Gross National Income
GRPS: Global Risks Perception Survey
GUE-NGL: European United Left/Nordic Green Left
GVA: Gross value added
HERA: Health Emergency Preparedness and Response Authority
IBRIS: Instytut Badań Rynkowych i Społecznych (Poland's Instytut Badań Rynkowych i Społecznych)
ICT: Information and Communication Technologies
ICU: Intensive-care Units
ID (Group): Identity and Democracy (European Parliament Political Group)
IDM: Integrated Device Manufcaturers
IEA: International Energy Agency
IEO: Independent Evaluation Office
ILO: International Labour Organization

IMF: International Monetary Fund
IPCC: Intergovernmental Panel on Climate Change
IRENA: International Renewable Energy Agency
IT: Information Technology
JEDI: Joint European Disruptive Initiative
KPD: Kommunistische Partei Deutschlands (Communist Party of Germany)
LFS: Labour Force Survey
NASA: National Aeronautics and Space Administration
NATO: North Atlantic Treaty Organisation
NBER: National Bureau of Economic Research
NDC: Nationally Determined Contributions
NEET: (persons) Not in Education, Employment or Training
NGEU: Next Generation EU
NGO: Non-Governmental Organisation
NI: Non-Inscrits (Non-Attached - Group of Members of the European Parliament)
NPV: Net Present Value
NSDAP: Nationalsozialistische Deutsche Arbeiterpartei (National Socialist German Workers' Party)
OECD: Organisation for Economic Co-operation and Development
OxCGRT: Oxford COVID-19 Government Response Tracker
OLAF: Office Européen de Lutte AntiFraud (European Anti-Fraud Office)
OSCE: Organization for Security and Cooperation in Europe
PASOK: Πανελλήνιο Σοσιαλιστικό Κίνημα (Panellínio Sosialistikó Kínima ; Panhellenic Socialist Movement)
PEGIDA: Patriotische Europäer gegen die Islamisierung des Abendlandes (Patriotic Europeans Against the Islamicisation of the Occident)
PEPP: Pandemic Emergency Purchase Programme
PESCO: Permanent Structured Cooperation
PLN: Polish złoty
PNL: Partidul Național Liberal (Romanian National Liberal Party)
PP: Partido Popular (Popular Party)
PRRI: Public Religion Research Institute
PS: Partido Socialista (Portugal's Socialist Party)
PSD: Partidul Social Democrat (Social Democratic Party)
PSOE: Partido Socialista Obrero Español (Spanish Socialist Workers' Party)
QMV: Qualified Majority Voting
RRF: Recovery and Resilience Facility
R&D: Research and Development
RCP: Representative Concentration Pathway
REACT-EU: Recovery Assistance for Cohesion and the Territories of Europe
S&D: Socialists and Democrats
SGP: Stability and Growth Pact
SIPRI: Stockholm Peace Research Institute
SIR: Susceptible-Infected-Recovered
SME: Semiconductor manufacturing equipment
SMEs: Small and Medium Enterprises
SPD: Sozialdemokratische Partei Deutschlands (Social Democratic Party of Germany)
SURE: Support to mitigate Unemployment Risks in an Emergency
TSMC: Taiwan Semiconductor Manufacturing Company, Limited
TTC: Trade and Technology Council
TV: Television
UK: United Kingdom
UN: United Nations
UNESCO: The United Nations Educational, Scientific and Cultural Organization
UNFCCC: United Nations Framework Convention on Climate Change
US/USA: United States of America
USD: United States Dollar
USPD: Unabhängige Sozialdemokratische Partei Deutschland (Independent Social Democratic Party of Germany)
VAT: Value-Added Tax
VET: Vocational Education and Training
VPN: Virtual Private Network
WFH: Working from home
WTO: World Trade Organization

CONTENTS

1. A NEW ERA FOR EUROPE

HOW THE EUROPEAN UNION CAN MAKE THE MOST OF ITS PANDEMIC RECOVERY, PURSUE SUSTAINABLE GROWTH, AND PROMOTE GLOBAL STABILITY

Carlo Carraro, Benoît Cœuré, Otilia Dhand, Barry Eichengreen, Melinda C. Mills, Hélène Rey, André Sapir, Daniela Schwarzer

This report was completed before the Russian invasion of Ukraine. Such a turn of history could obviously not be factored in. Nonetheless, in the light of these tragic events, we think that our recommendations, notably those on Europe in the world (including the creation of a Defence Union, in cooperation with NATO) and on accelerating the energy transition (amongst other things, to reduce energy costs and the dependency on Russian gas), though not sufficient, are even more necessary than before the war.

EXECUTIVE SUMMARY

The COVID-19 pandemic devastated the European Union yet also spurred an unprecedented level of cooperation and joint decision making. The EU and its Member States rallied to meet the challenges of the global health threat with a jointly procured vaccine, a jointly funded economic recovery package and a jointly supported public borrowing programme. As a result, 2 years later the economy has begun to recover and the EU is ready to consider its next steps in crisis management and planning.

A triple transition of climate, digital and social change will dictate the EU's overall strategy in coming years. Policymakers have an opportunity to set the Union on a path toward growth and prosperity, but if they are not careful they also could set the stage for entrenched inequality and disagreement. Continuing with longstanding policies also poses a danger, given the need for change to meet the challenges ahead.

The EU will have a chance to set a course along one of three main scenarios: Business as Usual, Fragmentation and Conflict, or a New Era. Under the first option, the EU does not adapt as needed to protect the environment or give its population the skills they need to survive in a digital world, and the EU falls further behind its international counterparts. In the second scenario, EU policies actively unravel the alliances and economic programmes that have taken so long to build, with corresponding threats to political and economic stability. But the EU also has a better option: pursuing policies that will lead to a New Era within the single market and around the world.

Finance will be key to carrying out the many transitional steps needed. We recommend measures to support development of public and private funding models. On the public side, the EU should make the most of the public borrowing capacity it has developed through the NextGenerationEU (NGEU) project, and it should adjust its fiscal rules to allow for prudential budgeting practices. On the private-sector side, the EU can spur investment by strengthening Banking Union, moving faster toward Capital Markets Union, and creating incentives to choose climate-friendly investments over legacy industries and technologies.

In this report, we explore the financial, political and environmental challenges ahead and put forward a series of recommendations to secure the best outcome for the EU in the future. We structure our recommendations in five areas: financing the triple transition; fair and effective taxation; moving towards a Health Union; strengthening Europe's role in the world; and making the governance of the Union fit for purpose.

Public trust will be essential for the EU to succeed. It is important to recall that the EU's problem is not underinvestment in general, and certainly not the lack of available savings to invest. Rather, the EU needs to commit to the triple transition and follow through on its reform and investment goals. It also needs to push for stronger public health measures at home and elsewhere, using its influence to coordinate a global vaccine drive.

The EU has been in crisis-fighting mode for most of the past decade, withstanding the global financial crisis, the euro crisis and the refugee crisis in the years leading up to the global pandemic. In responding to COVID-19, the EU notably departed from its track record of incremental, intergovernmental moves that made it difficult to act quickly or secure centralised fiscal support. On the contrary, the EU's fiscal response was exceptional.

Going forward, the EU would do well to preserve the public financing component of the NGEU programme, perhaps by separating public borrowing from the temporary funding transfers put in place to ease the acute economic challenge. We propose an NGEU 2.0 that would instead distribute money evenly across the EU for projects that meet a jointly agreed definition of public interest. This would provide financing for worthy projects, ease the burden on national balance sheets, and also preserve the safe asset of euro-denominated debt that NGEU made possible. As a follow-on effect, making large-scale EU debt issuing permanent would strengthen the euro as a global currency by bolstering the common currency's stature on world financial markets. We further suggest the EU adopt a Sustainability and Growth Pact, or SGP 2.0, to improve upon the Stability and Growth Pact. The SGP 2.0 would be a prudential fiscal approach ensuring that fiscal planning takes into account large and predictable risks such as climate change. Investing to put the EU on a net zero path is likely to pay for itself as it will prevent part of the large costs linked to climate change, which would otherwise affect public finances.

The EU will need to be mindful of its global sway as well as its performance within the single market. If the EU's climate protection efforts succeed, Europe

will be well placed to offer worldwide leadership on the environment. If other countries sign on to New Era-style policies, these efforts will be more effective at limiting global warming and at boosting the EU's soft power. Furthermore, success on the world stage could reinforce political support for EU-level action within the Member States, combating political polarisation.

Trust will be essential for the EU to carry out its mission. The EU has seen a rise in inequality and economic divergence in recent years. Even before the pandemic, some countries and regions were lagging more and more behind the single market's top performers. With the added strain of lockdowns and other public health measures, adverse effects have piled up for vulnerable groups like young adults, retirees and women overall. Women in particular often have caregiving responsibilities and may be more likely to work in fields not conducive to remote work and exposing them directly to the virus.

EU policymakers therefore need to take a proactive approach towards supporting all levels of society and geographic regions. Keeping these social considerations in mind will be essential for the EU to make progress on its other goals of protecting the planet and succeeding in an increasingly digital world. Tax policy is one avenue for making society more equitable while also raising the funds necessary for public financing to do its part.

Geopolitical and geo-economical concerns should be paramount in guiding the EU's approach to international affairs. We urge the EU to be mindful of relations with major world powers like the US, Russia and China, and we recommend that global and EU-level policies be coordinated so as to complement and reinforce each other better.

Finally, we recommend that the EU acts now to strengthen its institutions. Local, national and EU-level governments need to be more efficient, more transparent, more accountable to the populations they serve. When some countries and regions have access to better public institutions than others, it makes it harder for economic growth to reach all corners of the EU equally.

The EU must do all it can to avoid an economic recovery where only some people benefit. Some segments of society are well positioned to make the most of digital opportunities and climate-friendly policies. These front-runners may find themselves on opposite ends of the political spectrum from communities that feel they have been left behind. Making EU institutions stronger and more accountable will counteract this trend and possibly act as a bulwark against populist movements.

Successful implementation of the triple transition is the only way to sustain sufficiently high growth that is environmentally and socially sustainable. Green transition is inevitable in the medium term. The later it starts and the longer it lasts, the higher the economic and social costs will be. However, without sufficient progress on digitalisation, and more broadly on promoting innovation, the macroeconomic costs of a more ambitious agenda for green transition could make such transition socially, and thus ultimately politically, untenable. The

COVID crisis adds to this difficult trade-off because of the deep temporary decline it caused and the scars it may leave behind.

The EU now faces enormous challenges, as well as enormous opportunity. We hope policymakers will make the most of the moment and set a course for a New Era of better days to come.

Recommendations

Enabling the triple transition

- Accelerate the transition to a climate-neutral economy and mitigate the transition risks
- Focus on reskilling and upskilling the labour force
- Introduce a Sustainability and Growth Pact (SGP 2.0) and NGEU 2.0
- Enhance non-banking finance for innovative green and digital technology firms

Fair and effective taxation for the triple transition

- Encourage and help national tax administrations to fight tax evasion and tax avoidance
- Put more emphasis on behavioural taxes, in particular environmental taxes
- Adjust the composition of taxes towards less elastic tax sources
- Broaden the corporate tax base and adopt BEFIT

Moving towards a Health Union

- Invest in health system resilience, especially through technology and data sharing
- Boost preparedness at the EU level and globally
- Promote sharing best practices and benchmarking
- Tackle market failures in health and complete the single market for health products
- Consider new innovative business models and public-private partnerships

Strengthening Europe's role in the world

- Seek soft-power gains that could accompany the EU's climate transition
- Improve technological innovation and the production of advanced goods and services
- Strengthen the euro internationally
- Fight cyber threats, terrorist attacks, and external state-sponsored propaganda
- Move towards the Defence Union

Making the Governance of the Union fit for purpose

- Reinforce the Community approach and the role of the European Parliament
- Use the European Semester to improve the institutional quality of governments
- Strengthen the institutional capacity of the European Commission

***

INTRODUCTION

The COVID crisis hit the European Union economy hard. The pandemic roared in just a few years after the 2008-2013 financial crisis, a period when Europe was buffeted by global financial shocks followed by the euro area's sovereign debt struggles. Despite 6 years of relatively strong expansion in between, the financial crisis had left deep and lasting economic and social scars in the EU, particularly in southern Europe.

This legacy, combined with an imperfect joint response, meant the pandemic started when the EU was already in a somewhat vulnerable state. For one thing, the macroeconomic imbalances that predated the financial crisis were still largely in place, as EU Member States made only uneven progress with the structural and institutional reforms needed to shore up their economies. For another, the euro area's preference for last-minute workarounds rather than American-style upfront rescues set the stage for real divergence across the EU. As a result, Europe did not seem well prepared for the next crisis to come.

Nevertheless, the COVID crisis unfolded in a very different way. The EU was, remarkably, able to come together to meet the external threat of the novel coronavirus despite the economic, fiscal and social inequalities among its members. If major shocks are stress tests of a society's resilience, the EU's response showed that its institutions had the strength to respond, even if they are not yet as strong as they need to be.

The EU was able to take decisive collective action in part because of the politically unifying nature of the pandemic and in part because the failures of the last crisis response were still fresh in policymakers' minds. During the euro crisis, collective actions were not big enough or timely enough, largely because neither the public nor politicians had enough trust in the EU's institutions to commit fully from the start. Nevertheless, Europe persisted. In the end, the joint financing evolution and bank regulation revolution that emerged from the financial crisis proved essential groundwork for rising to the pandemic challenge to come.

Crises tend to have long-lasting impacts on the economy and society, both positive and negative. Resilient countries and international alliances respond best to a crisis when they take well-designed collective action in a timely fashion with strong societal support. Companies and governments also have a chance to focus on changes in the way they work and on investments that can position them for the post-crisis environment. But when economies and societies do not have the political will to work together, the same crisis environment can exacerbate pre-existing imbalances and weaken the ability to absorb future shocks. In those cases, the political system fails because of a lack of trust, and those shortcomings further erode the ability of institutions to recover the next time around.

The EU must manage an extra dimension to its crisis response channels because of its supranational structure. The EU is still a young and growing organisation, with most instruments of economic and social policies handled at the national level. The pressures of a crisis expose design flaws in the central institutions as well as the levels of integration that bind members together. If those challenges remain unaddressed, the future of the entire Union is jeopardised. But if the Member States can work together, the Union will not only survive, but grow stronger because of the institutional and policy innovations required to move ahead.

In its COVID response, the EU made the most of its resilience and its collective willpower. The life-threatening nature of the pandemic helped spur solidarity, while the memory of the financial crisis provided impetus for moving at speed. As a result, the European political system rose to the challenge and produced the necessary policy and institutional innovations at the European level.

Two major developments showcase the best of the EU response: joint procurement of COVID vaccines and joint fiscal capacity on an unprecedented scale. The macroeconomic policy mix for responding to the pandemic was vastly better than the policy response to the financial crisis, even if there were also missed opportunities. Overall, the EU institutions were able to prove their mettle during the pandemic, despite setbacks along the way, adding up to a strong collective capacity for EU Member States to draw upon. The level of trust required to mobilise the necessary financial resources quickly – and embark on a ground-breaking joint borrowing project – shows the strength of the Union at its best.

The European Commission-led joint procurement of vaccines proved pivotal for getting the pandemic under control, and the EU became the world's largest exporter of vaccines. Nonetheless, the EU and its Western allies have so far not taken sufficient measures to help poorer countries to vaccinate their population. However, it is not too late to act on this front too. The EU must take the lead. Taking steps to lead a global drive to vaccinate the world would be hugely beneficial for the EU politically and economically, while providing an opportunity for global leadership.

1.1. THREE SCENARIOS

Now is the time to build on the EU's short-run success by turning attention to the medium term. The EU needs to manage a triple transition in the areas of climate change, digital transformation and social evolution. The sense of urgency fostered by the pandemic must not be allowed to slip away.

The EU will face three main paths as it moves forward from the pandemic. Each offers both promise and pitfalls, even though one path clearly sets a better course than the other two. In all cases, we would hope that EU Member States work together actively to choose how to proceed, rather than muddling through and trusting inertia to hold the alliance together.

Most of the discussion below will assume that the EU Member States move as a group when initially choosing among these scenarios, and do so on all fronts regarding the economy, society and environment. This is, however, an assumption that belies the complex nature of reaching agreement and following through on those promises. There is a possibility that different countries around the world could select a different mix of outcomes, or pursue the same objectives in a different order, and initial results would then influence whether and how countries changed tracks.

Even if the EU picks an ideal strategy, it will not succeed if it is poorly implemented or if it cannot adjust when subsequent developments necessitate a change of course. The EU will need to strengthen its institutions and actively work to encourage convergence, not divergence, among its regions and Member States.

The initial paths emerge as follows:

1.1.1 Business as Usual

Under this conservative scenario, Europe would repeat its path forward after the 2008-2013 financial crisis due to a lack of political will to take bolder action. There would be a few changes and new institutions that paved the way for recovery, followed by a return to previous habits and trends. Future shifts would likewise be incremental, rather than paradigm shifting: more digitalisation and teleworking, more healthcare spending, and more movement toward green energy sources and climate policy.

In emerging from the financial crisis, Europe saw real change in how it managed its financial sector, and those improvements prevented the pandemic from triggering another banking crisis. But they did

not do enough to keep the EU's economic prospects on a path of convergence, and the subsequent economic and social divergence exposed a new set of vulnerabilities. On this path, the COVID crisis would bring about notable changes in the health arena, but would not do much to curb climate change, inequality or the challenges of unchecked globalisation.

1.1.2 European New Era

The best-case scenario is one in which the COVID crisis gives Europe the motivation to move past its historic limitations and pursue lasting improvements for its economy, its society and its environment. This path would show the most progress on all three elements of the triple transition and set the EU on a course toward broad-based prosperity.

The historic parallels here are the major steps taken at the end of the Second World War, rather than the half measures that emerged from the 2008-2013 crisis. The mid-20th century brought about a range of transformative initiatives that changed the way governments related to each other and to their own people: the New Deal, the Marshall Plan, the Bretton Woods international financial institutions, and of course the European Coal and Steel Community and European Common Market.

At their best, these efforts paved the way for the modern European Union and its crown jewels of the single market and monetary union. However, the post-war period also set the stage for galloping CO2 emissions and global warming. In moving to a New Era, the EU would need to make the Green Deal and similar climate-centric efforts the centrepiece of its future strategy. It would need to adopt the right technologies to support these efforts, as well as the right social policies to ensure that no region or community gets left behind. In short, it would have to bring about the triple transition.

Current EU strategies show promise for moving toward this scenario. If it is not only agreed on but also properly implemented, it could encourage the rest of the world to follow suit. A European New Era then could provide the leadership to bring about a New Era worldwide.

1.1.3 Fragmentation and Conflict

If the EU and its allies are unable to work together, the outcome will be one of Fragmentation and Conflict. On this path, the EU is unable to manage the difficult trade-offs necessary for the triple transition to take shape, and this sets the stage for another crisis cycle within a decade or so. Even if Europe holds on to its hard-won financial and health stability from managing the last two big shocks, other threats will emerge. Climate is an obvious threat, and one that extends beyond the EU's borders. If other major CO2 emission regions do not opt for a similar New Era scenario, the world as a whole will be vulnerable to Fragmentation and Conflict even if the EU is initially strong enough to pursue an ambitious green transition alone, a scenario that we discuss next. Notwithstanding the analysis below, which suggests that the EU is a large enough region to benefit from pursuing an ambitious green transition alone, such a solo path would challenge the EU's resolve to stay the course and also accelerate existing divergence trends.

Future dangers also could come in the arenas of geopolitics, geo-economics or resurgent populism and societal unrest. Public trust in government would further erode, at unprecedented speed due to the reach of social media, and public and private debt might skyrocket beyond market capacity to provide financing. In this scenario, conflicts of fundamental values combine with conflicts of economic interest to pull the world apart and threaten the future of liberal democracies as we know them today.

1.2. CRISIS RESPONSE

The European Union has been in crisis-fighting mode for the past 15 years, with a brief period of recovery and institution building in between the global financial market and pandemic shocks. The 2008-2013 financial crisis, followed by the refugee crisis and follow-on problems in Greece, and then the global pandemic, all have put pressure on EU systems and institutions. The result has been a combination of shortcomings realised, lessons learned and innovations found.

The pandemic response has been stronger than the EU's response to prior challenges. This was in part because the COVID virus was so clearly an external threat that Europe did not bring upon itself. As a result, collective action and a strong fiscal response became possible without dwelling on the prospect of moral hazard. It also helped that the lessons of the past crisis were still fresh in everyone's mind.

1.2.1 Legacies and lessons of the 2008-2013 financial crisis

The global financial crisis took shape as the US subprime crisis collided with lax financial regulation in Europe, followed by a loss of market access in substantial parts of the euro area. As a result, the EU faced 5 years of global instability followed by several years of aftershocks within the monetary union.

A root cause of the EU's financial crisis was capital misallocation, combined with major structural problems and poor productivity growth in some countries. European politicians eventually responded with a major wave of institutional and policy innovation at the European level (Lane, 2021). However, each of these measures came with substantial delay, unnecessarily extending the crisis in Europe. Moreover, most of the actions taken were only partial solutions, and Member States generally opted to pursue intergovernmental actions rather than going through the EU institutions. Decisions were made as ultima ratio. The overall effect was often too little, too late.

On the positive side, the EU created financial-crisis management tools like the euro area's European Stability Mechanism. But these measures were too closely tied to national balance sheets and hence sub-optimal: a truly common European response was lacking. Financial market integration fared a little better, especially once EU leaders committed to create a Banking Union alongside the common currency. But while the creation of a joint banking supervisor was one of the euro area's big successes, the other central elements of a banking union stalled quickly. Bank resolution remains an unfinished project, and efforts to shore up deposit insurance never really got off the ground. Capital Markets Union was envisaged as a further ambition, but concrete progress in this area has been incremental and limited.

The euro crisis reshaped the approaches that underlie macroeconomic policymaking at the European level, bringing about a 'whatever it takes' attitude in monetary policy that ultimately held the euro area together. This also led the European Central Bank to take up the necessary instruments of unconventional monetary policy, and promoted the EU to take a more pragmatic interpretation of the Stability and Growth Pact (SGP) and other fiscal rules. In a bid to improve economic decision making, the EU sought to strengthen surveillance of national policies via the European Semester economic cooperation process and the Macroeconomic Imbalance Procedure.

However, these achievements came at a price because progress with growth-enhancing structural reforms remained slow and uneven within the EU. Thus, despite 6 years of strong expansion after the peak of the financial crisis, a trend of real divergence emerged in the economic and social performance of EU Member States. Previously existing nominal imbalances were transformed into real divergence in the EU.

Some EU Member States cut back sharply on investment, reducing their growth potential, while countries with current account surpluses exported their investments, reducing aggregate demand at a time when monetary policy was at the zero lower bound, making the EU the world's biggest net saver. In a global environment of persistent very low interest rates, this made policy more challenging and left limited resources available for societal transitions. Elevated public debt did not help matters, and Member States differed widely on what should be the optimal time, speed and structure of fiscal adjustments.

1.2.2 The COVID response: a change of gear

The COVID shock was a common, exogenous shock: national responses were necessary, but not sufficient. Because the pandemic required a strong fiscal stimulus, there was a need for a major policy innovation on the fiscal side. The EU needed to find new ways to mobilise substantial new resources to withstand the lockdowns and support the rebuilding of Europe's growth potential.

Monetary policy was well prepared to take swift action, thanks to the success and lessons learned from the 'whatever it takes' response to the financial crisis. The ECB thus announced its Pandemic Emergency Purchase Programme (PEPP) early on in March 2020[1].

Important support measures also were taken upfront to maintain the soundness of the banking system, which had sizeable exposure to the sectors directly by the COVID crisis as well as second-round effects. Loan moratoria and public guarantee schemes were among the key measures, accompanied by capital relief measures that helped banks build up large capital and liquidity buffers. Thus, banks continued to lend in 2020, mostly to small and medium-sized enterprises. Non-performing loan ratios declined, and the temporary measures were phased out. By the end of 2020, loans under the moratoria declined to EUR 300 billion, down from close to EUR 1 000 billion at the peak.

The EU's fiscal policy response was much larger and much quicker than in the 2008-2013 period, nationally and at the joint level. Swift spending and joint borrowing not only financed crisis-fighting measures but also calmed financial markets by providing confidence that the EU would act to the full extent needed.

First, the European Commission invoked the SGP's General Escape Clause in March 2020. This allowed the Member States to take swift discretionary measures, which together with the automatic stabilisers helped support the economy. Moreover, Member States provided ample liquidity support to their economies, such as state guarantees to support private-sector borrowing and tax deferrals (European Commission, 2021a).

The General Escape Clause was introduced in 2011 by the reform of the Stability and Growth Pact, exactly for situations like the one the EU faced when the COVID crisis hit Europe. It was a further innovation for the EU to trigger this clause so early in the crisis.

Another important and more traditional element of the rapid policy reaction at the European level was the adoption of a temporary framework for State aid rules by the European Commission in March 2020, opening the way for government crisis support to firms at national level.

[1] The PEPP is a temporary asset purchase programme of private- and public-sector securities. The Governing Council of the ECB decided to increase the initial EUR 750 billion envelope for the PEPP by EUR 600 billion on 4 June 2020 and by EUR 500 billion on 10 December, for a new total of EUR 1.850 billion.

Joint borrowing was the most significant fiscal breakthrough, first with the 100 billion SURE programme (Box 1) and then the 750 billion-plus NextGenerationEU (NGEU) effort. SURE was an immediate move to help all Member States take advantage of the EU's overall sound economic fundamentals, offering an immediate counterbalance to the regional divergences that had taken root. It was also a manifestation of European solidarity, as the risk involved in borrowing and on-lending the funds was shared.

Box 1. **SURE**

SURE is a European instrument for temporary Support to mitigate Unemployment Risks in an Emergency. It can provide financial assistance in the form of loans up to €100 billion from the EU to affected Member States, to be financed on capital markets and backed by EU-level guarantees.

SURE was designed as a line of defence against sudden and severe increases in public expenditure for the preservation of employment, for measures such as short-term work schemes and health-related measures.

The loans provided to the Member States under the SURE instrument are underpinned by a system of voluntary guarantees from all EU Member States, as a sign of solidarity towards EU workers and firms. A Member State's contribution to the overall amount of the guarantees corresponds to its relative share in the total gross national income (GNI) of the EU.

So far, the Council has approved a total of €94.34 bn in loans to 19 Member States, based on the proposals of the European Commission. SURE has been a success story, supporting around 31 million people and 2½ million firms in 2020. Participating Member States are estimated to have saved over €8 billion in interest payments by using SURE, and the program can continue accepting loan requests up to the overall limit of €100 bn.

Source: European Commission SURE second bi-annual report:
https://ec.europa.eu/info/sites/default/files/economy-finance/sure_one_year_on.pdf

SURE article in the Quarterly Report on the Euro Area, Vol. 20, No.2 (2021):
https://ec.europa.eu/info/sites/default/files/economy-finance/ip155_en_chapter_iv.pdf

By far the most important EU innovation was the creation of the NGEU (Box 2). With this programme, the EU was finally prepared to borrow at scale from the global capital market to meet immediate funding needs, boost market confidence and provide incentives for projects that would not only help survive the pandemic but also set the course for the triple transition needed in the longer term.

Box 2. **NEXT GENERATION EU (NGEU)**

Next Generation EU is a more than EUR 800 bn temporary recovery instrument of the EU, to be financed through joint borrowing on public financial markets. Its main element is a Recovery and Resilience Facility (RRF) which amounts to EUR 723.8 bn (EUR 385.8 bn in loans, EUR 338 billion in grants in current prices) available Member States. This money can be used to support reforms and investments in the Member States' approved Recovery and Resilience Plans (RRPs) for 2021-2026.

Grant and loan components were allocated among the Member States based on a set of criteria including the damage that the COVID pandemic caused to their economies. The remaining part of the NGEU funds will be distributed through previously existing budgetary instruments of the EU, such as the European Regional Development Fund, the European Social Fund, ReactEU and the European Fund for Aid to the Most Deprived (ReactEU). The NGEU will also bring additional money to other European programmes or funds such as Horizon Europe, InvestEU, rural development, and the Just Transition Fund and RescEU.

Member States have allocated some 40% of their spending to climate measures and some 26% to the digital transition in the 22 RRPs approved so far. This shows that the respective agreed targets of 37% and 20% have been met so far Countries can unlock disbursements by meeting their performance requirements and participating fully in the European Semester.

The implementation of NextGenerationEU, with the RRF as centrepiece, are projected to increase the EU's GDP by up to 1.5% during the years of its active implementation, and by 2031, GDP would still be 0.7% higher. On top of that, investments from NextGenerationEU could generate up to two million jobs in the EU, compared to a baseline if NextGenerationEU had not been established.

The EU will borrow long term to fund this instrument and the loans will be serviced from the own resources of the EU budget, such as customs duties, the VAT-based on resource, the GNI-based contributions of the Member States, and the plastics own resource. The latter is a new own resource of the EU, which was introduced in 2021 to help fund this instrument.

Source: European Commission

https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0241&from=EN

https://ec.europa.eu/info/publications/quantifying-spillovers-next-generation-eu-investment_en

The creation of NGEU is one of the boldest manifestations of European solidarity to emerge. Similar to the other parts of the EU budget, the contributions are broadly based on capacity to pay, while the support from this scheme is based on needs and conditional on implementing the reforms specified in the RRPs. The programme is designed so that countries can avoid the stigma and resentment associated with the IMF and intergovernmental rescue programmes of the euro crisis (Buti, 2020) while still living up to their commitments. Importantly, NGEU is fully integrated into the EU

institutions, in contrast with the separate and intergovernmental nature of much of the euro crisis response. This helped to build mutual trust.

Under the current RRF, the maximum volume of loan support is 6.8% of 2019 gross national income. Thus, the envelope available for loans under the RRF is EUR 386 billion in current prices. While all countries have applied or intend to apply for the grant component of NGEU, the loan component is still in large part unused and a number of countries have announced they do not intend to apply for the loans.

NGEU is a scheme to rebuild the growth potential and increase the resilience of the EU post-COVID, as well as to provide immediate stability and reassurance. Disbursements started in late-2021, once the post-pandemic recovery got under way. Funds will be distributed over 5 years. Given the scope of the planned projects, the public expenditure financed by the RRF is likely to have high long-run multipliers. However, its overall macroeconomic impact will depend also on how far it stimulates expenditure additional to previously planned public investment. Countries with weaker institutions and higher perceived levels of corruption will have a tougher time finding the administrative capacity to make the most of these opportunities.

SURE and NGEU are financed by jointly issued debt of the EU. This is not only a manifestation of solidarity, but also a substantial strengthening of the common currency, which has historically been hampered by a lack of common safe assets.

Issuing of EU bonds is set to increase dramatically under the NGEU programme. The European Commission is potentially issuing up to some EUR 900 billion on behalf of the Member States, making the EU one of the largest players in sovereign and supranational debt markets denominated in euro. Green bonds are set to reach 30% of total issuance under NGEU, making the EU the top world issuer in this segment of the market.

The EU bonds of different maturities issued so far have been well received by investors, as evidenced by the large primary market demand, the low spreads compared to Germany and the strong interest shown by both domestic and foreign investors. The bonds issued under SURE and NGEU trade at lower spreads than previous EU issuances, reflecting the size and liquidity of the market for these bonds. The diversified funding strategy of the EU has allowed for the formation of a full yield curve, which compares well with that of reference EU issuers such as France and other EU supranational issuers such as the European Stability Mechanism or the European Investment Bank.

The EU’s swift and determined fiscal response is the biggest short-term success story of the COVID era. The NGEU fund broke many taboos from the past with its embrace of bond markets and its willingness to pay out money in the form of grants as well as loans, and its success will give a big boost to the European project.

1.3. CHALLENGES

1.3.1 A New Growth Model: the Triple Transition

The EU has risen to the immediate challenges of the pandemic. Now it must build on that newly found political cohesion to turn its attention to preparing the way for growth and change in the medium term. To set a course for the New Era scenario, Europe must simultaneously begin to overhaul the way it approaches climate issues, technology and the underlying shape of its society. This triple transition of green, digital and social factors will need to anchor policymaking at almost every level. Finance, education and institution building will all need to be mobilised, with a constant eye toward improving and sustaining trust in the European project.

Each of these areas brings its own challenges. The green transition is straightforward to describe and complicated to enact, particularly because of the way energy policy and national security interact. The digital transition will require investment in both innovation and education, to make sure the EU can keep up with its global peers and that all its inhabitants can keep up with each other. Finally, the social transition reflects the need for Europe to protect its democracies and reduce inequalities wherever possible, on issues ranging from health to taxes.

The Green Transition

Climate change is a long-term threat to human societies and its control is a difficult and complex task. Between 1980 and 2019, weather and climate-related extremes accounted for over 80% of total economic losses caused by natural hazards in the EU Member States, amounting to some EUR 450 billion (European Environment Agency, 2021). The impacts of climate change will progressively increase and become more persistent in the future. Hence, decisive measures are needed now to avoid catastrophic outcomes in the future.

The COVID crisis depressed output, international trade, and demand for road transportation. Global CO2 emissions declined 5.8% in 2020. In addition, carbon emissions declined more than overall energy demand because demand for oil and coal fell while renewable energy use increased. Despite these developments, CO2 reached its highest-ever average annual concentration in the atmosphere in 2020, and carbon emissions in 2021 are expected to have bounced back alongside the economic recovery.

The lessons from the pandemic are twofold: first, slowing growth is not a viable strategy to tackle emission problems, and second, without decisive government intervention, previous emission trends will re-emerge once the restrictions are phased out. There is a pressing need for action.

Regarding the environmental policies currently in place, the Fragmentation and Conflict scenario describes best the current state of the world. We are far from a worldwide European New Era scenario, at least at this stage. Even in the New Era scenario, damage from climate change would be significant: a recent ECB (2021) modelling assessment finds an annual total damage of about 2-3% of EU GDP by mid-century in the case of the European New Era scenario. That said, total damage would be about 4-6% of EU GDP from 2030 onward in the disorderly transition foreseen in the Fragmentation and Conflict scenario. And if the world proceeds under Business as Usual, the damage would be large.

Time is crucial. Europe should do its best to get all major global players to join the New Era scenario. It takes many years of coordinated action worldwide to stop or reverse the current trend of temperature increase, so it would be economically efficient to start reducing greenhouse gas (GHG) emissions as soon as possible.

Our estimate of the EU's additional investment needs to achieve the -55% 2030 EU target (and net zero in 2050) is about EUR 90-100 billion annually, half of this amount hopefully coming from private sources. For the first 6 years, the publicly funded half is provided by the Recovery and Resilience Facility, assuming that available loans are fully used. That said, these numbers are for the EU as a whole. In some countries, mobilising the necessary domestic budgetary sources will remain a major task, and the EU may wish to redesign its fiscal rules to spur the necessary investment.

Public financing will become a bigger challenge later on after the RRF phases out, unless the EU is willing to extend its pandemic recovery efforts to at least 2030. Some funding will come from planned changes to the EU's Emissions Trading System (ETS) market and from extending ETS to the maritime and aviation sectors. The EU also could spur investment with measures like reducing fossil fuels subsidies and the carbon border adjustment mechanism.

On the private-sector side, the main challenge regarding climate-related investment is to create the necessary market incentives. For the EU as whole, private savings are more than sufficient to fund these investments. The task, then, is to make private returns on such projects attractive and to strengthen the parts of the financial system that can make available external financing as needed.

The EU can encourage investment in greening the economy by making it less attractive to invest in polluting technologies and industries. Given the constraints of capital mobility, the efficiency of doing this unilaterally or doing it more aggressively than other major global players depends on the existence and power of a border carbon adjustment and the extent of home bias in investment decisions. However, as our analysis in Chapter 4 suggests, return on green investment is getting the upper hand worldwide. Hence, pushing things further on this front in Europe seems to be the right direction.

The large investments necessary to de-carbonise the EU economy are expected to have only a limited negative upfront impact in both the European New Era and the Fragmentation and Conflict scenarios, particularly if they are coordinated across borders. At the same time, short-term transition risks should not be ruled out. Household energy price developments have major social implications, particularly regarding the most vulnerable groups in society. Policymakers will need to be mindful of spillover effects on employment levels, price stability and energy security.

Longer-run macroeconomic effects are expected to be positive, due to societal benefits like reduced pollution and lower corresponding healthcare costs. Thus, there seems to be no – or at most a very limited – trade-off between economic recovery and combating climate change.

According to the European Central Bank's estimates (ECB, 2021a), the cost of addressing the transition risk in Europe in the case of an orderly transition (our European New Era scenario) would be practically zero. In the case of a disorderly transition (our Fragmentation and Conflict scenario), it would be about 1-2% of GDP per year from 2030 to 2050. The damage would be concentrated in the energy-intensive sectors and the financial sector. Addressing transition risks is therefore crucial.

As mentioned earlier, at present the world is moving along the Fragmentation and Conflict scenario. The commitments contained in the Paris Agreement will lead to emission reductions consistent with a temperature increase of about 3°C, still far from the 2°C (possibly 1.5°C) target.

The EU can take an active role in fulfilling its net zero commitment by 2050 by reforming its outdated fiscal rules. A possible approach to achieve this would be to replace the Stability and Growth Pact by a Sustainability and Growth Pact (SGP 2.0) with a view to providing the basis for a prudential approach to fiscal policy. The SGP 2.0 would recognise the improvement in debt sustainability coming from providing a global public good thanks to the important positive externality it generates on each country's economic situation. This would justify replacing the target of 60% debt to GDP by a modified long horizon target of an 'inclusive debt'-to-GDP ratio incorporating implicit liabilities due

to climate change. Moreover, this would also justify offering special treatment for investments aimed at decarbonising the economy, e.g. by taking them out of the 3% of GDP limit (or whichever deficit limit), subject to strict costing. Given its new features, SGP 2.0 would be more forward-looking than its predecessor and more rigorous in terms of public finances as it would not leave out large predictable liabilities. It is in the economic self-interest of the EU countries to finance global public goods such as the fight against climate change (or global vaccination campaigns), because this improves their public finances by reducing large predictable liabilities. Moreover, it is the role of the Commission and of EU fiscal rules to make this fact explicit and build prudential fiscal rules. From a pure EU perspective, SGP 2.0 would help improve the debt sustainability of each EU country and, therefore, increase the resilience of the EU.

The EU is a large enough region to benefit from pursuing an ambitious green transition alone. However, these calculations do not take into account the disruptive trends the Fragmentation and Conflict scenario may unleash globally, such as migration or military conflicts.

It will be important to encourage the other major emitting countries to join the EU's decarbonisation efforts as the EU produces less than 8% of total GHG emissions. It is therefore clear that whatever the strategy adopted in the EU, effective control of climate change cannot be achieved without ambitious and fast emission reductions in other countries, particularly the US and China (these two countries together produce 40% of total GHG emissions; India and Russia another 13%; Japan and Korea 4%).

Overall, we believe the EU should try to channel energy price signals in the economy rather than to neutralise them.

For the green transition to be a viable strategy, it has to be fair – and seen as fair – by everyone living in the EU. Green economy initiatives will only be deemed acceptable by the public if they are coupled with education and jobs. After all, if investment redirects substantially, existing 'brown' activities would lose market value and economic viability, which in turn might lead companies and regions to shrink or phase out these activities. As a result, even if the EU benefits as a whole, some regions or individual countries may have difficulty.

The Digital Transition

The digital transition takes place in all parts of society, in firms, governments and public-sector entities, and in families and communities. Firms in the EU recognise that the COVID crisis is likely to accelerate these shifts, so investments are essential (Revoltella and de Lima, 2020).

The COVID crisis triggered a sort of 'forced' digitalisation, especially in the first phase of figuring out how to survive this extraordinary period. Now Europe needs to channel this momentum to make digital operation a permanent and sizeable component of private- and public-sector operations.

Digital transition entails much more than just switching to digital technology – it requires a new business strategy. The initial task was to organise remote working productively and to deliver services over the internet that had previously been primarily available in person.

Companies and public now need the innovation to adopt knowledge-intensive new digital technologies; they also need a management approach that can sustain sufficiently high productivity growth in this new situation. Many companies were poorly positioned before the pandemic hit, especially smaller enterprises, and generally EU firms tend to be less innovative than their US counterparts. Unlike in the US, European SMEs are not the main engines of innovation and digitalisation. At the same time, European firms do appear to be investing more in their green transition than their peers in the US, and their lead in this area is likely to increase further (European Investment Bank, 2021).

For a country to shift its production toward high-value-added services, digital transformation is a prerequisite. The firms at the vanguard of this transition help the economy become more productive and also themselves purchase additional high-value-added services, creating a virtuous circle in industries such as finance, insurance and communications technology. The US trade surplus in the services sector, around 1% of GDP in 2020, shows how these sectors can be economically dominant and relatively resilient, even during the pandemic.

The trend for increasing use of digital technologies to produce, distribute and deliver goods and services started well before the COVID crisis. It has profoundly changed labour relations, the skill structure of labour demand, and labour contracts. In some areas and countries, it has pushed sizeable groups of people, mostly younger workers and people belonging to less vocal minorities, such as migrants with no work permit, outside the perimeters of well-established European welfare systems. The EU will need to overhaul its labour policies to keep up with the way the nature of work is changing.

During the COVID crisis, new forms of employment proliferated, further blurring traditions of working patterns, working hours and formal employer-employee relations. The pandemic brought an explosion of demand for platform workers such as for the delivery of groceries, prepared meals, and medicine and retail goods. It remains to be seen whether this trend will continue post-pandemic and how it will interact with overall societal welfare.

Digital labour platforms can help promote innovation, make labour supply more flexible and create jobs. However, it is important that platform workers[2] are accorded proper working conditions and social protection. Recognising the importance of this, the European Commission has recently proposed a directive to address these matters (European Commission, 2021b).

There has also been a growth in portfolio work by freelancers or small self-employed workers with a large number of clients. Casual and intermittent work had already emerged across two thirds of European countries (EUROFOUND, 2015). As nations across Europe face skill shortages or the need for different skills than those readily available, these new types of job relationships across companies and borders could offer the potential to alleviate short-term shortages during the digital transition.

These changes demand new policies and renewed attention to worker protections. Countries should clarify key aspects of labour arrangements to avoid a new type of labour market segmentation on things such as working conditions, access to vacation or sick pay, minimum wages and health and safety standards.

Digitalisation poses challenges on many fronts, including infrastructure, skills and public acceptance. National governments should not underestimate barriers and bottlenecks along the way, in areas spanning everything from legislation and regional planning to the supply chain, capital investment needs and household adaptation. There also can be problems as pockets of 'excess labour' develop in fields where workers lose their jobs. The shifts required by the COVID crisis may be able to speed up the reallocation of these workers. Social and labour policies need to adapt their focus as the EU economy recovers.

At a time when ageing in Europe requires people to stay in the labour force longer, policies that can help reduce the generational divide in digital skills will become even more important. The pandemic

[2] 'Platform work' is where large companies like Uber rely on freelance employees to match labour supply and consumer demand on short notice. Between 2016 and 2020, the revenues in the platform economy grew almost fivefold, from an estimated EUR 3 billion to around EUR 14 billion.

accelerated the shift to increased technology use as communications moved online throughout the economy, in activities ranging from virtual health and public service visits to online learning and meetings. Europe can build on this momentum, but must also recognise and work to ameliorate digital inequalities within and between countries to maintain a fair transition.

The COVID crisis forced the governments and health systems in the EU to increase the use of digital health tools at an unprecedented pace. For example, the frequency of remote consultations jumped. Differences across Member States reflect their progress towards a digital society before the pandemic, showing the ways that progress toward digital transition enhances economic and societal resilience.

Digital health tools were also applied to support contact tracing or vaccination records, or more general needs like remote renewal of repeat prescriptions. EU-level digital facilities and infrastructures also proved their usefulness, particularly in helping to maintain people's cross-border mobility. The joint EU digital COVID (vaccination, test, and recovery) certificate was undoubtedly a success, which placed the EU at the forefront of global innovation in this area[3].

The Social Transition

The EU needs a comprehensive, coherent, and realistic policy vision to make sure its goals serve its society. If policymakers choose a mix of plans that do not add up, they will reinforce divergence instead of joint prosperity. The overall agenda needs to align internally and externally, and it needs to provide the right incentives to take part.

The pandemic was a shock to the whole economy, but its effects were felt very unevenly. Low-paid workers were often more vulnerable than their more highly paid counterparts, and low-skilled workers also faced underemployment and vulnerable working conditions. In some cases, service sector workers faced severe job losses, especially if they were working for small businesses or in 'non-essential' sectors like tourism. In others, they may have faced intensive extra workloads for jobs that could not be done remotely, such as in healthcare, supermarkets and delivery settings. Supply chain problems further complicated matters, particularly in key sectors like transportation and vehicle repair.

Overall, the immediate social and economic impacts of the pandemic varied across and within the EU Member States. Generally speaking, the majority of COVID-related job losses affected women (Farre et al. 2020), and more broadly the youngest and oldest groups of workers (Bui et al. 2020) and low-wage workers (Cajner et al. 2020). Emerging evidence suggests that lower-income workers were more exposed to the virus due to the nature of their work not being conducive to teleworking, and that that the toll on women was higher in part due to their disproportionate presence in the health and social care fields. On top of that, there were major differences in the level of support available to displaced employees. The cumulative effect is one of widening inequality.

Within Europe, unemployment occurred mainly in southern Europe, which was already hit hard by the previous economic crises. The economic impacts were more profound for younger workers and those with less formal education, even if younger people were spared the direct health and mortality effects that were most severe in older adults. Lockdowns had a regressive effect on the overall population, given that capacity to telework strongly correlates with the education level of a worker.

Health-necessitated lockdowns changed profoundly the way families lived and children were educated. Extra demands on parents increased dramatically. The emerging empirical evidence

[3] There is new empirical evidence suggesting that the COVID certificate actually increased vaccine uptake in France and Italy https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(21)00273-5/fulltext

suggests women were more likely to take on most of the extra burden, with corresponding adverse effects on their mental health and future career prospects (Sevilla and Smith, 2020).

Even before the pandemic, disruptions during the critical life phase of transition from school to work had been shown to produce long-term scarring covering everything from mental and physical health to housing, partnership and family formation. The pandemic added more uncertainty to major family decisions such as childbearing and buying a home. Interruptions in education resulted in learning loss, particularly for the most disadvantaged. Some countries such as Spain and Italy, which already had high levels of school dropouts before the COVID crisis (Eurostat, 2020), were especially hard hit by school closures.

To set a course for a European New Era scenario, policymakers will need to strengthen the cohesion of the Union as well as their own economies. The most difficult task in this regard will be to find a way to improve and even out the institutional quality across in the EU.

Social cohesion is not just a question of Europe's deeply held social preferences as enshrined in the Treaties. It is also an important element of growth. A successful path forward will involve not just better skills but more equally distributed skills within and among EU Member States.

Matching population skill sets to the economy's needs is a considerable task. It demands a re evaluation of educational training, help for workers left unemployed as industries shift, and building attractive employment conditions. Countries must reckon not only with immediate decisions, but also with decisions that will impact the generations that follow.

The recovery and resilience plans therefore need to make workforce training available to people in every career stage: those needing the tools to enter the workforce for the first time, those looking to change fields (re-skilling), and those needing to add skills they did not require in earlier eras (up-skilling). Education and workforce training will need to adapt, so that young adults can avoid long periods of unemployment and NEET (not in education, employment, or training) status.

A radically increased share of working and learning from home exacerbated health risks as well as economic risks. The COVID-19 pandemic exacerbated pre-existing trends of increasing mental health problems in the EU, as periodic general lockdowns and school closures radically changed how people live their lives. Fear, grief and stress caused by COVID-19 infection affected patients, their families, and health workers.

The estimated prevalence of depressive symptoms more than doubled compared to the pre-COVID baseline level in at least seven EU countries (European Commission, 2021d). Moreover, the crisis exacerbated existing structural weaknesses in health systems, such as staff shortages, lack of investment in primary care, emergency preparedness, and public health/surveillance.

As the pandemic unfolded, countries made different choices regarding the main trade-offs between protecting health and economic considerations. This also influenced the fiscal costs of measures (Acemoglu et al., 2020, Boone and Ladreit, 2021, and Hosny, 2021).

The share of public expenditure in health on GDP before the COVID crisis varied significantly among Member States. Public spending on health in most central and eastern European Member States remains significantly below the EU average, which hurt the general preparedness of their national health systems. Furthermore, the economic and social scars of the 2008-2013 financial crisis may have limited southern European Member States' capacity to contain the human cost of the pandemic (Moreno et al, 2021).

COVID dramatically increased excess mortality, or the number of deaths above what we would expect to see in more normal times. Survivors also are affected in lasting ways. Many infected people experience a range of severe symptoms, known as 'long COVID' (Davis et al., 2021). More broadly, the COVID-19 pandemic had a profound impact on all aspects of people's health, not just with regard to the new virus. Life expectancy dropped by more than 8 months in 2020, with several Member States experiencing magnitudes of decline not seen since World War II.

Reported unmet needs for medical care increased significantly throughout the EU, in some countries dramatically so (European Commission, 2021d). To boost the care capacity for COVID-19 patients, many Member States periodically reduced or even suspended non-urgent, non-COVID-19 hospital care, and access to outpatient care also deteriorated. As a result, many critical procedures such as hip replacement and cancer screening were considered elective procedures and were disrupted. Clearing the backlog of delayed health procedures, as well as the consequences of those delays, may hurt the workforce for years to come.

The EU deserves credit for the way it supported vaccine development and production, as well as its efforts to treat all of its members equally in this area, regardless of their size or relative economic strength. That said, the frustrating teething problems of many of these episodes of success also clearly demonstrated the advantages of having firm and carefully designed EU-level arrangements in place before a crisis hits the EU.

Overall, health spending in the EU has not kept pace with society's growing need to manage ageing populations and the growing burden of chronic diseases. Furthermore, the EU was not as prepared as it could have been for a new pandemic to emerge. Asian countries were in some cases better able to respond quickly to the COVID crisis because of their experiences with other coronaviruses and prior viral outbreaks, and the EU could have done better if it had paid more attention and devoted more resources to strategic planning in this area.

1.3.2 Rebuilding Trust

Pandemic control measures tested the trust of Europeans' commitment to protect lives and economic livelihood. It remains to be seen what the final verdict of Europeans in this regard will be and how their experiences will affect their confidence in government, particularly given the recurrent waves of new COVID-19 variants and the resulting societal response.

When governments perform well, public trust improves, and likewise trust falls when people feel they have been let down. Overall, trust towards political institutions, especially national ones, remains low, although these averages hide huge differences within countries, among socio-economic groups, and among countries. Countries and groups that were the hardest hit by the pandemic are also those that had the lowest trust in national and EU institutions before the COVID-19 pandemic, mainly due to the effects of economic disparities.

Young Generations

The EU needs to take care of its young generations better to ensure that they feel at home in Europe. This is true in general, but even more so post-COVID. Particularly during the early phases of the pandemic, inequalities in job loss and furlough were unevenly distributed across the population. Despite a major strengthening of income support schemes at the national level and with the rapid introduction of SURE, the upfront burden of the crisis was distributed in a regressive fashion, with younger workers among the most affected. Young people are highly represented in the group of workers for whom remote working is not a viable option. Furthermore, lockdowns and inefficiencies in remote learning can take away the equivalent of a year or more from time spent in education, which in turn tends to reduce employment and lifetime earnings.

Empirical results suggest that the lasting negative impact on trust among young people is the largest in democracies, as people in their most impressionable years (18 to 25) sharply and persistently revise downward their trust in government throughout the pandemic. As this cohort becomes more politically active and vocal in the coming years, it may shift the political balance within the EU. There is a widely held view that democracies typically respond more effectively to epidemics than autocracies, but new empirical findings suggest that when democracies disappoint this expectation, they are more severely punished. As a result, trust in government, its leaders, and the honesty of elections may suffer for as long as two decades.

This was already a factor before the pandemic, due to the effect of the 2008-2013 financial crisis. Young people were among those most affected in the countries that endured long-lasting scars in that period. Without targeted measures to address this population, the pandemic could deepen those scars and also see similar developments in countries that had made it through the financial crisis in better shape. To sum up, yet again, young people could become one of the worst impacted groups in society.

Young people in democracies are politically more active than in less democratic systems, making the link between trust and political dynamics more direct and faster. Furthermore, recent empirical results also indicate that, other things (socio-demographic factors) being equal, those living in new democracies in the EU are less likely to be politically active (Kitanova, 2020). Taking these empirical results together, the implications of young people losing trust in government and leaders in a lasting manner may have a rather heterogeneous impact on political dynamics in different EU Member States.

The different attitude of young generations to environmental issues and their increased voice in politics brought about major changes in government programmes and the policy priorities of the European Commission. If trust in government declines in a lasting manner, this may also change the political landscape within the EU, but in a less progressive way than in the past.

The current pandemic has emerged as a public health crisis with a European dimension. Therefore, the issue of trust in European institutions naturally emerges as a major aspect. However, the observations researchers can use to identify and estimate the size of the impact of a pandemic on trust are from much smaller epidemics or pandemics that were handled in a national context and never developed a European character. It remains to be seen to what extent these findings on the attitudes toward national governments will apply to the EU and its institutions.

Polarisation and Political Systems

The pandemic is likely to accelerate a redefinition of political party landscapes. We see an emerging division between those that have benefited from an open and globalised economy over the past two decades and those whose fortunes have not kept up. Historical splits along the left-right economic axis will likely fade in relevance as compared to fault lines between the front runners and the left-behinds. Political polarisation may become as much of a threat as populism.

When the COVID-19 pandemic hit, the EU already faced worrying political trends with substantial implications for cohesion within and between the EU Member States, as well as overall political stability. As we discuss in Chapter 7, public trust in institutions has been in decline since the 2008 global financial crisis, disrupting political systems around the world (Funke et al, 2016). Trust in EU institutions has been shaken by the financial crisis and specifically the euro's sovereign debt crisis, followed by the refugee crisis. Before the COVID-19 pandemic, we observed trends, including:

- the polarisation of political opinions within society;
- a lack of stability in party-political landscapes;
- increased voter preference for strong leaders promising easy solutions to complex problems;
- an erosion of trust in the democratic order, and
- questioning of common EU values (Article 2 of the Treaty of the European Union).

The pandemic may exacerbate these patterns and risks, particularly in more fragile countries and regions. Political shifts are likely to be most pronounced in countries that were fragmented before COVID-19, and where the exit from lockdown and economic recovery will be delayed in comparison to their regional peers. It is likely that such governments will be perceived to be mismanaging the situation and, therefore, people will take a more critical view of their crisis response actions. Conversely, governments and political leaders in countries that exit the crisis ahead of the peers may experience a boost in popularity and stability.

As political dynamics change, is likely that new political parties will form, and established ones will seek to redefine themselves. The agenda of parties catering to the economic front-runners will likely be dominated by liberal values, with an emphasis on human rights and diversity, and a reorientation of the economy towards sustainability. Political platforms for the left-behinds may stress 'traditional' values, the strong role of the state in the economy, and an increase in social transfers. At the EU level, the front runners will likely support further integration, while the left-behinds may argue for a stronger role for EU Member States. Tensions between the two camps may emerge on fiscal policy too. For example, on social transfer payments or on support for raising taxes to encourage and fund the green transition.

We can expect the political impact from the pandemic to peak approximately two years after it has ended, if previously observed patterns continue. In the meantime, populist movements seeking to challenge the system will likely gain ground, though their popularity and characteristics will vary among countries.

Populist forces may emerge with far-right characteristics or as centrist movements, most likely with an anti-corruption agenda. In both cases, they may disrupt the political system by refusing to collaborate with established parties and, once in power, upsetting the system of checks and balances among institutions. However, populist movements' fortunes are also not constant. Experiences in recent years show that voters often swiftly abandon them if they do not deliver on their promises, and either back a new populist challenger or return to more traditional parties, especially if the older parties have shifted policy platforms to win back those voters.

Political polarisation may cause more disruption than populist forces, as it becomes increasingly difficult to reach a common ground and the various trends interact with each other. For example, the increase in support for right-wing movements will likely generate a response on the other side of the political spectrum - as per the division between the left-behinds and the front runners - with a rise in more liberal and sustainability-focused political forces.

Meanwhile, the role of presidents and other individual political figures, party leaders, and strong independent actors will likely increase as institutions weaken and changes to the electoral system or constitution become plausible. As political conduct moves online, it may further highlight the role and importance of specific individual leaders in post-COVID politics. This may be both helpful and harmful to political stability, particularly if the rule of law and democratic institutions come under pressure.

EU-exit campaigns may gain particular momentum in countries with multiple large ethnic groups, whether those divisions come from historic or new population trends. As societies wrestle with these types of integration issues, the EU may face challenges to its fundamental values from such developments. Exit campaigns could gather momentum in some countries, as well as potential coordination among the Eurosceptic parties at the EU level. Ultimately, the EU and its values may be challenged by certain political developments in EU Member States, the rise and cooperation of Eurosceptic political forces at EU level, and the re-emergence of exit campaigns in some EU Member States exacerbated by tensions among population groups and the interference of hostile foreign powers in democratic processes.

However, the EU could prove to be a bulwark against the worst effects of the crisis. If public support for the European project increases because of the success of mutual help programmes, vaccination campaign coordination, and funding for economic recovery, it could counteract some of the most destabilising trends. Such an outcome could also boost popular support for European Commission priorities, including climate change, gender equality, and renewed commitment to the rule of law.

The key variable will likely be institutional ability to address the increasing inequalities – the risk of K-shaped recovery (Hauk, 2020) in which some parts of society do much better but other parts fare much worse. If unaddressed, this type of outcome would have a lasting negative impact, particularly for lagging regions (European Commission, 2017) and minority populations (Suessmuth, 2007) that may be left even further behind by the combined effect of the COVID-19 pandemic and the envisaged rapid digital and green transition.

Institutional Quality and Public Revenues

Strengthening trust in national and EU institutions is a prerequisite for any plan to work. Good quality institutions are necessary for the economy to thrive, and consistently good quality institutions are necessary to promote convergence and strengthen the EU.

The EU has an extra responsibility to build trust because of the nature of its inequalities. Divergence between high-growth and lower-growth countries creates a need for fiscal transfers within the EU. This sort of financial support is politically sensitive, and related tensions rise when public trust in the European institutions and trust among political leaders in the Union is weak.

Conversely, success in strengthening and improving institutions even across the EU can build trust and also reduce the need for fiscal transfers, as economic outcomes even out. This in turn is likely to make remaining needs for fiscal transfer more legitimate. It is worth noting that the EU Member States that frequently end up opposing an increase of fiscal transfer within the EU tend to have very generous national social welfare systems available to their own citizens, and they may also employ massive and persistent intra-regional fiscal redistribution within their countries.

Heading into the pandemic, there were big differences in institutional quality across the EU. The EU needs to reverse the trend of diverging institutional quality. Otherwise, it will not have the necessary capacity to pursue the New Era scenario.

To maintain public support, the EU needs to demonstrate that it has the resources and structures, including the internal decision making and rules and financial resources, to respond quickly and effectively to the next crisis that comes down the line, regardless of whether it comes from climate change, an external security threat or some other issue.

To ensure a just green and digital transition, the supply of European and national public goods will require stable public revenue in the decades to come. This suggests the social transition will need to make sure tax policy is fair and fit for purpose.

EU tax revenues have been largely stable in recent years, with a 1 percentage point increase of the tax to GDP ratio, which stood at slightly above 40% in 2020 (European Commission, 2021g). More than half of the EU tax revenue stems from labour taxes (including social contributions and parts of personal income taxes), more than a quarter from consumption taxes (including VAT) and around one fifth coming from capital taxes, including corporate income taxes and property taxes. At the same time, the government debt-to-GDP ratio in the EU increased from around 75% at the end of 2019 to just above 90% at the end of 2020.

Tax policy is already under pressure from aging populations and the effects of the digital transformation. As employment shrinks and shifts, the economy may rebalance its mix of capital income compared to labour income in turn reducing its tax revenues, as capital is currently taxed at lower rates than labour income.

Globalisation and digitalisation further increase the mobility of income, as business models move online and take advantage of geographic flexibility. This contributes to a shift of the tax burden from large companies and wealthy individuals to smaller businesses and the middle class, which typically have fewer means to escape taxation through relocation or strategic accounting.

Recent revelations have exposed the depth of tax evasion and tax avoidance by multinational companies and by wealthy individuals. International tax evasion by individuals results in a tax revenue loss of EUR 46 billion/year for EU Member States (ECOPA and Case, 2019) and an estimated EUR 35-70 billion is lost each year in corporate tax avoidance in the EU (Dover et al., 2015, Álavarez-Martínez et al., 2019, Tørsløv, 2018). A further EUR 150 billion of annual VAT revenue is thought to go missing due to underreporting, fraud and other factors. When EU Member States lose tax revenues due to these tax avoidance measures, it hurts their ability to meet their policy goals. It further distorts the level playing field between companies, weighs on public morale and ultimately threatens the social contract.

The compounded impact of the various challenges of the post-COVID economy for tax systems and tax policies make clear that Business as Usual is not a viable option. Inaction on tax matters will inevitably lead toward the Fragmentation and Conflict scenario, in which the EU fails to deliver on its objectives. There is therefore a need for deep modernisation of the EU's tax systems, at EU, national and local levels. Tax systems need to be adapted to the digital and green transitions and give the right incentives for sustainable investment.

We are living through a period of transition marked by shifting needs, priorities and interests, that necessitate adjustments within governing institutions and political forces before systems settle into a new equilibrium. It is therefore imperative that national recovery plans and their implementation focus on developing the relevant skills, lifelong learning, digitalisation, and infrastructure also in rural areas - particularly in the lagging regions and with regard to minorities. An emphasis on ensuring more balanced economic growth in cities and rural areas, yet another important dimension of cohesion, may help bridge the divide between the two groups. However, this can be a lengthy process and a certain level of negative political fallout from the pandemic is unavoidable in the interim.

1.3.3 Global politics and economic trends

The EU needs to integrate its internal and external agendas. Almost every major reform within the EU will interact with external developments – and more broadly, with the EU's global strengths and vulnerabilities. This requires the EU to take a holistic approach to its analytical work. Debate over the EU's options needs to more prominently include the external and geopolitical dimensions of these areas, as well as their impact on sovereignty and domestic concerns.

Global risks

In an increasingly competitive strategic environment, the EU will need to continuously update its assessment of the threats it is facing, ranging from traditional defence and security concerns to emerging geo-economic challenges.

The EU's strategic compass is an important step to develop joint threat assessments and specific measures to better protect the EU. It should be further developed to become a comprehensive tool that includes economic, financial and technological threats as well as the security of energy provision. This assessment of complex security challenges should go hand in hand with efforts to strengthen the capacity of individual EU Member States and the EU collectively. As this will require investment, for instance in defence and technology budgets, the debate on the EU's strategic challenges should be brought to national audiences.

Once a shared EU risk assessment is developed and procedures and good practice for regular updates and capacity assessments are in place, a further priority is to improve the EU's capacity to make decisions. Coordination of possible initiatives with policy areas that are integrated such as trade policy or policies linked to the euro area, is key, as is cooperation with the United Kingdom.

Dealing with three major powers

The EU and its Member States today need to work with three main players: China, the US and Russia. Each of these relationships brings its own dependencies and security challenges.

The US continues to be the most important provider of security and economic partner, and a key ally to work with when it comes to managing transnational risks and crises and defending liberal democratic norms and governance. A close relationship with the US is therefore clearly a strategic choice for the EU, but it is potentially fragile in the medium term due to the domestic situation in the US. The Trump administration showed that US's international commitments are not as stable as they were once perceived to be.

The EU has no alternative to its alliance and partnership with the US in security, defence and economic terms, and these ties could extend to energy dependency. That said, recent events show how that alliance can fray depending on political developments, and the EU therefore needs to prepare for what it would do in the worst-case scenario of a far less cooperative US administration.

Firstly, the EU should increase its capacity to act on its own behalf, which implies closer cooperation on defence and security. If the EU were perceived as able to take on more of the security burden, that might also make staying with the transatlantic alliance more attractive to any future US administration.

Secondly, the EU needs to reduce its own vulnerabilities in case the US again turns away from Europe. Scenarios of a decline in transatlantic cooperation in an increasingly crisis-driven and adverse international environment make a very strong case for the EU to become more self-reliant and competitive in technology, digital, defines, energy and health.

To project geopolitical power, the EU will need the transatlantic partnership, in the medium to long term. Doing more for its own security is a sign that the EU is increasing its contribution to the transatlantic project, rather than turning away from the US. The deepening of the EU-US strategic conversation about China is key, as are talks on how to manage Russian aggression toward neighbouring countries.

Russia is a security threat because of its military might and also the EU's need for its energy exports. The energy relationship creates interdependencies that will need to be carefully managed.

The role and behaviour of the Russian gas supply is a special factor in the EU's energy policy, making up about 40% of total extra-EU gas imports of its Member States. This has global implications as well as particular impact on European gas and energy price trends. While economic activity in the EU is approaching its pre-crisis level, the gas imports from Russia are significantly below their 2019 levels and they are likely to remain low for the foreseeable future, which means the EU may soon be feeling a squeeze. This will not be helped by trends in gas storage – EU levels are significantly below normal because of corresponding low levels in Gazprom-controlled storage facilities. This starting point, combined with projected future disruptions to Russian gas supplies and the possible impact of international sanctions, will create a big challenge for the EU's energy outlook.

Russia also has become an increasingly dangerous and assertive neighbour, which has violated the principle of territorial integrity of sovereign states in the EU’s eastern neighbourhood. It has combined economic pressure, cybercrime, the targeting of discussions on social networks and the manipulation of information in the media.

China is a key and rising economic partner, a systemic competitor on whom the EU depends in areas including technology and with whom global challenges like the fight against climate change and pandemics can only be tackled together. It is also a security concern. China has become the number one world power with the declared goal of re-shaping the current global liberal order. Its institutions are on route to becoming the number one world power. China has also been supporting other autocratic regimes as it expands its regional and global influence.

Our analysis suggests that improving the relationship with China will be a challenging task. The EU needs to find ways to strengthen cooperation with China on climate and arms control, while managing disagreements over issues such as security matters in the South China Sea, human rights and foreign investment. China reaches far into European societies, so local authorities, businesses and civil society need to be supported as they work to manage this relationship. The EU may further wish to counteract Chinese influence within the EU by making a corresponding push to increase EU ties in other major Asian countries.

Attaining strategic sovereignty requires considerable investments and time. As part of this effort, the EU and its Member States should strengthen ties with like-minded countries around the world, including with Japan, South Korea and Australia. Global trends in the coming decades will be driven by developments in Asia much more than in any other region around the world.

With some partners, the EU will have to compartmentalise relations, defending its interests in some areas while seeking close cooperation in others. The EU will need allies to achieve its regional and global ambitions. In this, it would do well to follow developments in the 10-member ASEAN bloc of south-east Asian countries, who are pursuing regional integration policies with the potential to surpass the EU in some areas. (ASEAN, 2015). Meanwhile, South Korea is emerging as a global innovator, with strength in many critical technological areas, although so far it has much closer political and economic ties to the US than the EU.

Japan and India are both countries where the EU will have new opportunities to strengthen and deepen ties, in connection with ongoing multilateralism and US-led military alliances. India in particular is emerging as a major global service exporter with particular strength in software development. Moreover, India will soon be the most populous nation in the world, while China's workforce will age rapidly. The EU should be mindful of these dynamics as it seeks to manage its alliances around the world.

EU Strengths and Weaknesses

It will be a major challenge for the EU to strengthen its hard power, either to reverse the secular decline in its share in the world economy, or to increase its military strength relative to the major global military powers. However, the EU could strengthen and use better its soft power, which is based on the size of its single market and the attractiveness of the European model of development (Buti and Messori, 2021). The most important elements of the soft-power narrative are social inclusion and environmental sustainability. Strengthening the EU's cohesion, which would entail social convergence and would help keep the EU firmly on the path toward the European New Era scenario, would undoubtedly make this narrative stronger.

The COVID crisis brought about unprecedented stimulus packages worldwide, which also offer a unique opportunity to achieve stronger but sustainable, low emission economic growth post-COVID. The RRF is explicitly designed to deliver this in Europe.

The EU should use this characteristic of the European crisis response to put peer pressure on other major players to opt for and stay with the New Era scenario. Moreover, the green public accounting and fiscal rules we propose can be extended globally through the International Monetary Fund (IMF), which would also enhance the soft power of the EU in the medium term.

This EU soft power could be put to immediate use in encouraging other global powers to join in efforts toward the triple transition. For example, the EU might be able to use this larger influence to de-escalate tensions with China, and shift the focus toward global coordination of climate measures instead of on merely limiting trade and reducing technological dependence.

The EU has several possible tools that might be useful in improving its social and political resilience to external influence, digital propaganda campaigns and technological threats.

The EU and its Member States should try to provide advisory and educational services for business associations, companies, municipalities and schools on how to deal with partners or influence from authoritarian countries. Propaganda sources should be publicly labelled as much as possible. EU and national authorities could use very specific examples: they could name media outlets that censored the outbreak of the COVID crisis in China for three months or those that broadcasted confessions considered to have been coerced under torture.

1.4. RECOMMENDATIONS

PROPOSALS FOR THE NEW ERA

We are living through a period of political and societal transition marked by shifting needs, priorities and interests. As with any transition, we only know what we are transitioning from, not what we are transitioning to.

While trends in the pre-pandemic period provide guidance as to what we can expect, transition periods tend to be turbulent before settling into a new medium-term equilibrium. The contours of that future system will be determined by the actions that we take now. Pandemics have also typically been followed by periods of economic growth, and such resilience offers rich opportunities for taking action to set the EU permanently on course for a better future.

Decision-makers are too often biased towards doing 'too little too late' when they are faced with predictable long-term, costly global phenomena such as climate change and biodiversity loss. Such bias is observable at the national level as well as for the EU, as was the case during the global financial crisis. Too often, the consequences of inaction are predictable and very dire. Nonetheless, mitigation or preventive policies are not put in place, even when the cost of acting is greatly outweighed by expected future or even current losses. This is the 'the inaction puzzle.'

The EU now has an opportunity to move forward in a more strategic direction, rather than stick to its past habits of muddling through and hoping for the best. Building on the forceful response to the COVID crisis, the EU can show that this time is truly different.

We structure our recommendations in five areas:

- Enabling the triple (green, digital and social) transition,
- Fair and effective taxation for the triple transition,
- Moving towards a Health Union,
- Strengthening Europe's role in the world,
- Making the governance of the Union fit for purpose.

Decisive actions offer the best chance to put the EU on course for a New Era of sustainable growth and prosperity for all of its Member States and inhabitants.

Financing will be key. Redirecting private savings to fund the triple transition will require effective completion of the Banking Union and Capital Market Union. In the long run, the NextGenerationEU will be most successful if it can be integrated permanently into EU policy in a way that limits institutional divergence while accelerating the green, digital and social transitions. Our calculations suggest that the EU is a large enough economic area to reap sufficiently large benefits from such investment even if other global players do not follow suit. As a bonus, the euro's role would be strengthened globally thanks to higher and permanent levels of common safe assets.

Along with necessary financial support, the Recovery and Resilience Fund identifies needed structural changes that will set a course for future growth. However, the EU and its Member States will only fully achieve this potential if commitments are followed up with high-quality, lasting implementation.

The green transition represents a particular challenge, because its financing requirements and instrumentalities run the gamut from carbon pricing and subsidies to building codes and technological innovation. To the extent the EU can offer a strong and fair, joint-level financing component to manage transition costs, particularly in countries with heavy production and use of fossil fuels, it will help market-efficient solutions become politically and socially viable.

Tax policy will play an important role in reorienting private investment, changing consumption and production patterns, and promoting R&D. It will also play an important supporting role in bringing about the social transition and strengthening fairness.

When it comes to public health, the pandemic has taught us that resilience requires well-sized reserves of capacities and supplies – and that nobody is safe until everybody is safe in the EU and globally. European and global levels of governance are therefore best positioned to provide this kind of public good. While the former is in our hands in the EU, the latter requires us to cooperate with other countries and international organisations to develop global health leadership.

One of our main recommendations is to ensure coherence between the domestic and external agendas of the EU. Europe needs to strengthen its capacity to act and seek cooperation with partners where needed, with a view to pursuing strategic autonomy. In particular, the EU needs to be more self-sufficient and competitive in technology, digital, defence, energy and health – in short, areas in which cutting off the provision of international supplies could be very harmful. At the same time, the EU needs to make the most of its leadership potential, particularly in areas like combating climate change and setting global standards.

Finally, the EU needs to strengthen its own institutions and governance. Improved and more consistently high-quality institutions that deliver public goods efficiently will reduce inequality and bring about a more prosperous and resilient Union.

1.4.1 Enabling the triple transition

For the EU to move ahead in all three fronts of the triple transition, it needs to make sure public and private financing is available for green, digital and social innovations.

To move further, the EU should seek ways to re-direct existing private investments from fossil fuel sources to renewables, green hydrogen, and other zero-carbon energy sources. Policy options include changes to carbon pricing, well-targeted subsidies, insurance schemes, research and development incentives, and other kinds of sector-specific standards and norms. Market conditions may also help: reductions in the cost of crucial technologies - from photovoltaics to batteries - may combine with increases in fossil fuel prices to drive low-carbon investments throughout the economy. The green transition is also the only definitive way for the EU to achieve energy security, price stability, and a lower energy bill in the long run.

When it comes to technology, the EU requires competitive levels of R&D investment to compete globally in the new post-COVID green and digital labour market. It also needs more fundamental research and improved governance around R&D and innovation. Many European decision-makers mention the US DARPA in their speeches, yet no institution like it – agile, well-resourced and focused, involving researchers in government and in the private sectors – exists in the EU.

The energy transition requires special attention because of the interaction of carbon pricing and subsidy levels with national budgets. Ideally, one would want to make adjustments collectively and concurrently, but because EU budget powers remain with its Member States these shifts will in practice take shape at very different rates.

The triple transition entails not only physical infrastructure improvements but also gains in human capital, or skills. Better also entails more equally distributed skills among and within EU Member States. Therefore, as the EU moves towards the implementation of the recovery and resilience plans, employment and re- and upskilling and developing agile educational training in strategic areas will have to be a core consideration. Improving the regulation of labour relations and labour contracts will also be essential to avoid an increase in inequality in pre-distribution income post-COVID. To make the triple transition socially acceptable, fair and, therefore, politically feasible, it is also imperative to mitigate the transition risks for employees and firms.

Climate change, if unchecked, will be extremely costly for public finances. Investing preventively to limit temperature increases will improve fiscal accounts in the longer run. A prudential fiscal framework for the EU which would keep with the purpose of the Stability and Growth Pact should recognise the improvement in debt sustainability coming from providing a global public good. This would require complementing and, eventually, replacing the target of 60% debt-to-GDP by a modified long-horizon target of an ‘inclusive debt’ to GDP ratio incorporating implicit liabilities due to climate change and the pandemics. In addition, we see merit in considering a prudential fiscal framework would also require taking out of any deficit limit investments that promote global vaccination or decrease carbon emissions, subject to proper and strict costing.

This framework, which would constitute a new Sustainability and Growth Pact (SGP 2.0), would ensure better sustainability of each EU country’s public finances, increasing the EU’s resilience.

We further suggest that there would be strong benefits from developing a next-generation joint spending scheme, called NextGenerationEU (NGEU) 2.0. Such scheme could build on the successful implementation of NGEU, which is a temporary pandemic structure. The financing side of the NGEU would continue, while the spending would side shift from the temporary system of transfers to a follow-on regime that would funded only projects that help increase the provision of European Public Goods. The defining characteristic of NGEU 2.0 is not its redistributive nature, but the enhancement

of the quality of public finances it could achieve by focusing public expenditure to support the most important strategic goals of the Union, such as the triple transition. A well-designed NGEU 2.0 could also help EU Member States to refocus their own public spending programmes to reflect better the EU's shared priorities.

Taken together, these two proposals regarding SGP 2.0 and NGEU 2.0 could form a robust basis for a New Era of EU prosperity. Furthermore, they offer avenues to make progress even if there is little appetite for changing the EU Treaty or further harmonising budgeting. For example, if the EU created a second-generation NGEU programme, it could increase funding for projects that are in line with EU goals and finance them centrally, rather than going through national balance sheets and affecting national debt and deficit levels.

Recommendations

• Accelerate the transition to a climate-neutral economy and mitigate the transition risks.

Quickly approve and fully implement Fitfor55. Consider ways to support the gas market during the transition, for example by offering insurance schemes or other risk-reduction methods for companies that engage into long-term contracts with more certain pricing. Strengthen the stabilising function of the EU emissions trading scheme (ETS) market stability reserve of the. Consider options for reform of its governance to make it more agile and professionally managed, possibly by an independent authority (such as the ECB) based on a mandate from the European Parliament. Allocate the additional revenue from an expanded ETS to increasing the Just Transition Fund.

• Put the focus of the EU and national support on reskilling those that work in the most affected sectors and jobs, and upskilling newly emerging digital and green economy jobs.

The triple transition needs to be fair and will be more palatable to governments and the public when coupled with human capital development and tied to employment. The digital economy demands skill development in computing, software, and data analytics but also non-cognitive skills such as critical thinking and creativity. To transition to the green economy in the short term, the EU could build on shovel-ready investments to create employment from highly skilled jobs in areas ranging from renewables, hydrogen power and carbon capture technology, to other jobs such as those in transportation and construction, to retrofit and upgrade buildings. New types of thinking and processing will likewise be in demand such as building climate-friendly agriculture or steel production.

Skill development in the EU must also acknowledge the variation in starting points such as unequal access to high-speed next-generation digital services. Building human capital also demands a re-evaluation of educational training, targeted reskilling of the unemployed as industries shift, building attractive employment conditions and being able to forecast and build flexible and agile training to meet evolving needs.

• Introduce a Sustainability and Growth Pact (SGP 2.0) and NGEU 2.0.

Reforming the EU fiscal rules by encompassing global and European public goods will help ensure the coherence between the EU growth agenda and its surveillance and coordination framework. Eventually, financing of such 'commons' will need to take place at EU level. As a bridge to central financing, we recommend exploring the possibility of using at least part of the unused loans still available under NGEU for the delivery of European public goods in the areas of health, the green transition or the strengthening of strategic autonomy.

• **Enhance non-banking finance for innovative green and digital technology.**

Progress with completing the Capital Markets Union will improve EU innovation prospects. Reforms that help EU companies to improve their equity position and make themselves more visible to cross-border investors; and promote and diversify small and innovative companies' access to funding, including by listing at stock exchanges and from venture capital funds are of particular importance in this regard. A robust regulatory framework for non-bank financial intermediation, digital assets and decentralised (blockchain-based) finance would help new EU and global players enter the field.

1.4.2 Fair and effective taxation

Tax fairness will be crucial for the effort to restoring trust in public institutions. A modernised EU tax system is key in pursuit of the European New Era, a Europe with high growth, low inequalities and with low-carbon emissions.

The EU needs to rely on tax bases that can provide stable tax revenue over time, in a fair and efficient manner and with proportionate levels of compliance costs for companies and individuals. Tax policy also can be used to shift behaviour, such as carbon taxes that are intended to reshape the economy as well as to raise revenue.

The EU may wish to put more emphasis on less mobile revenue sources such as immovable property taxes as it considers how to structure its tax base to support future needs. Traditional taxes such as value added taxes or personal income taxes need to be adapted to the digital economy and new forms of work, including cross-border telework. The EU also will want to assess its approach to finance and investment, particularly for crypto assets and other evolving sectors.

Energy taxation needs to be coordinated with other measures like the ETS and environmental levies. To reach the EU's environmental objectives and to meet its revenue targets, environmental tax revenues need to increase substantially from their current levels of around 6% of total tax revenues in the EU-27.

When it comes to corporate income tax, the process of global modernisation has already started. The OECD/G20-led inclusive framework has agreed to a two-pillar solution to address challenges arising from the digitalisation of the economy: establishing a minimum level of effective taxation of 15% (Pillar 2) and the re-allocation of a share of excess profits of the world's largest and most profitable multinationals (Pillar 1). This agreement, when implemented, will restore governments' ability to ensure that large businesses pay the proportionate levels of taxation where their economic activities take place, leading to additional tax revenues and contributing to more tax fairness.

The EU can and should go further, given the integration of its single market. The Commission has announced that it will propose a new EU business tax framework (BEFIT) to further this aim, creating a common rulebook for groups of companies operating in the single market and replacing earlier efforts to standardise the corporate tax base. BEFIT would contribute to job creation and inclusive growth by reducing barriers to cross-border investment, cutting red tape and compliance costs in the single market, and combating corporate tax avoidance. The EU also needs to step up work on other initiatives regarding personal and capital income taxation, such as the European Commission's proposal against the misuse of shell companies.

These initiatives will reduce the scope for tax abuse and harmful tax competition, but they will not put the issues to rest. Such a challenge requires EU and global cooperation as well as increased use of systematic data analysis as part of the digital transition.

Tax systems now have to deal with the increasing mobility and fungibility of certain types of income, including business income stemming from digitisation and globalisation. Reforms of tax systems should always aim to promote equity and fairness. Besides policy design, the improvement of tax administrations is also essential. Lack of robust enforcement of tax rules and imperfect design have corrosive effects on trust.

Recommendations

• Encourage and help national tax administrations to fight tax evasion and tax avoidance.

Implement the OECD/G20 Inclusive Framework on Base Erosion and Profit Sharing. Build on existing initiatives to increase transparency and exchange of information. Eliminate the opportunities for tax avoidance that dividends and crypto assets seem to have created. Support EU Member States in strengthening their tax authorities. Promote the use of digital technology and the simplification of national tax rules.

• Put more emphasis on behavioural taxes, in particular environmental taxes.

To promote fairness, pay special attention to flanking measures to maintain a desirable overall level of progressivity of the tax system. Adjust taxes and redistribution schemes to offset regressive carbon taxes.

• Adjust the composition of taxes towards less elastic tax sources.

Taxing immovable property would be one way to reduce exposure to profit shifting.

• Broaden the corporate tax base and adopt the proposed BEFIT unified rulebook for corporate taxation.

Go beyond the OECD/G20 Pillar 1 deal by looking at ways to include certain financial sector activities. Consider setting up a High-Level Expert Group on reviewing the taxation of the financial sector. Continue promoting closer cooperation among Member States in areas where harmful tax competition leads to unattractive ‘races to the bottom’ by maintaining the political momentum on this front at the EU level.

1.4.3 Moving towards a Health Union

Chronic underinvestment in health, driven by a general decline in public investment, before the pandemic hampered the EU health systems' response to the COVID crisis. The EU now has a chance to make improvements and move toward a Health Union, or at least a more cohesive and equitable joint strategy.

The pandemic exacerbated existing structural weaknesses in health systems, such as staff shortages, lack of investment in primary and social care, emergency preparedness, and public health/surveillance. On the upside, recent events have also served as a catalyst for digital and EU-integrated health solutions, a trend on which future polices should build. An important lesson of the COVID crisis is that the EU should do much more to help strengthen the resilience of national health systems to pandemics, but also climate change or other natural disasters.

Progressing with major reforms in other areas, most importantly with the public finance reforms discussed above and the Capital Markets Union would help provide the public and private funds for the required investments in the health area. Completing the Capital Markets Union would be particularly important to enhance non-banking finance for innovative health-technology firms.

Health security in the Union is only as strong as its weakest link. When major shocks arise, the EU can also help by pooling resources and provide a buffer in cases of urgency. Examples of this include the Emergency Support Instrument (ESI), the EU Civil Protection Mechanism or and joint procurement efforts. The EU should support the health systems of its Member States to address future health challenges such as population ageing and antimicrobial resistance.

As the COVID-19 pandemic illustrated, nobody is safe in the world until everybody is safe. This puts a major responsibility on the EU (and other developed countries) but also offers an opportunity to strengthen Europe's role in the world. Moreover, by helping others more effectively (e.g. regarding global vaccine distribution and emergence of variants), the EU would also better protect its population. Taking steps to lead a global drive to vaccinate the world would be hugely beneficial.

Besides the moral responsibility to help less developed countries to save lives, supporting African countries to accelerate their COVID-19 vaccination campaigns would be also a good investment for the EU and other developed countries. Even so, currently COVID-19 vaccination rates in Africa are still very low and not enough resources and logistical help have been devoted to increasing them. Climate change and biodiversity loss are two other glaring manifestations of policymakers doing too little, too late. In these areas also, accelerating global action toward these public goods will be a good investment for the EU alongside efforts to do as much as possible at home.

Recommendations

• Invest in health system resilience, especially through technology and data sharing.

Accelerate the digital transition to promote more agile, innovative and better data infrastructure and digitalisation of public health services, data sharing among Member States, and medical treatments. Improve the efficiency of health spending, possibly by developing a European Health Data Space to smooth this transition. Conduct regular stress tests of national health systems resilience.

Issue recommendations to Member States where necessary (European Semester, Cross-border health threats regulation). Set up a support programme (building on joint project with the OECD and the Observatory on health systems and policies).

• Boost preparedness at the EU level and globally.

Conduct joint procurement of specific vaccines, medicines and medical equipment. Develop solidarity mechanisms, such as the European Medical Corps, that can be established in non-crisis times and quickly deployed when needed. Pursue and negotiate a Treaty on Pandemics that strengthens the global capacity to detect and respond to public health emergencies at their source, while pledging to a fair distribution of the resources available to control emerging threats.

• Promote sharing best practices and benchmarking.

Consider including a State of Health check-up into the EU cycle. Incorporate lessons-learned from the pandemic in the evaluation of the Cross-Border Healthcare Directive (e.g. for patient mobility).

• Tackle market failures in health and complete the single market for health products.

Through the pharmaceutical strategy, establish mechanisms to ensure the timely availability of affordable medicines in all Member States while ensuring an innovation-friendly regulatory environment.

• Consider new innovative business models and public-private partnerships.

Possible avenues include seeking ways to decouple revenue from consumption when developing new antibiotics and encouraging channels like the Innovation Health Initiative to bring public and private funds to bear together to address unmet needs.

1.4.4 Strengthening Europe's role in the world

The EU is operating in a rapidly evolving international context. Its goals should continue to be economic policies that bring positive gains for all participants, but power dynamics mean zero-sum games may be in play. The EU should continue to strive for global economic integration, while keeping in mind the motivations of other international actors.

The strategy we suggest has two main strands where the EU should:

1. Boost its soft power and form alliances that will bolster its strategic autonomy. To develop closer ties with like-minded technologically advanced countries, the EU can offer an attractive economic, environmental and social model, as well as access to a large and open single market in goods and services.

2. Systematically assess the threats it faces, including geo-economic risks, and accordingly manage its relations with key partners. These measures should include a renewed approach to trade policy and a more strategic approach in setting global standards, particularly in as-yet unregulated areas such as artificial intelligence or crypto currencies.

Climate change is the most critical global public good, and thus one of the EU's biggest opportunities to pursue its principles and its relevance. Other intermediate goals like international vaccination and the green energy transition can help the EU to reduce its own vulnerabilities and take more of a leadership role in its geographic neighbourhood.

The best way to make the Union strong and globally attractive is to make progress on all elements of the triple transition internally, and use that progress to help persuade others to follow suit. Particularly, by making progress with the climate transition in a way that eases the social burdens of these policies, the EU can greatly strengthen its influence around the world. Moreover, completing the euro architecture and the single market would help strengthen the international role of the euro. This would assuredly increase the EU's capacity to act in times of geo-economic conflicts.

If the EU can establish a global leadership position and get other countries on board, it could lead to better outcomes for everyone. The economic and social returns to the EU itself would be a high reward on its investment. Moreover, the EU may be able to make progress on its internal reform agenda if its international profile increases.

Cyber-attacks pose particularly major threats to modern societies and can inflict huge economic losses, both in the public and private sectors. In an era when such attacks have taken on as much security relevance as conventional warfare, EU governments should aim to ward off threats to society, economic systems, digital or physical infrastructure to the extent possible. We welcome the EU's data privacy framework as a significant step towards protecting its population that may inspire others to develop similar initiatives.

Recommendations

• Seek soft-power gains that could accompany the EU's climate transition.

Promote global leadership in climate transition through research. Set up and fund cooperative international efforts to develop new technologies that could be particularly relevant for developing countries, most importantly to Africa.

• Improve technological innovation and the production of advanced goods and services.

Boost the EU's strategic autonomy by working to complete the digital single market and increasing funding to fundamental research through Joint European Disruptive Initiative (JEDI). Strengthen the EU's ties with allies who are also major global innovators and producers of critical technology. Make the universities in the EU globally more competitive. Particularly in new technologies that are critical to gaining strategic autonomy, improving the highest levels of the educational system would be also an important step.

• Strengthen the euro internationally.

Enhancing the international role of the euro requires completing EMU's architecture. Deepen capital markets by completing the Banking Union and moving ahead with the Capital Markets Union. Pursue reforms that enhance the issuance of a European safe asset, such as the introduction of NGEU 2.0.

• Guard better against cyber threats, terrorist attacks, and external state-sponsored propaganda.

Take more joint action against cyber threats, including through the increasing use of sophisticated artificial intelligence. Implement measures to counter the effects of hate speech and fake news. Particularly, examine whether Sweden's new Psychological Defence Agency could serve as a model for similar initiatives across Europe. Since the protection of democracy is a common interest globally, strengthen cooperation with 'like-minded' countries on this issue.

• Move towards the Defence Union.

It is crucial that the EU's contribution to the security and defence architecture in Europe, in its close neighbourhood, east and south, and globally is strengthened. The EU should promote, wherever possible and necessary, economies of scale, joint procurements, stronger interoperability and advanced operational capacities, investments in research of dual use technologies (such as through the Space programme), common planning, analysis and intelligence. It should strengthen expertise in civic protection and military peace keeping and surveillance missions. It will also be important to learn lessons from the European Defence Fund. Last but not least, further developing cooperation with NATO as the essential pillar for defence in Europe remains the crucial condition for a stronger role of the EU in defence matters.

1.4.5 Making the Governance of the Union fit for purpose

The major societal changes spurred by the pandemic and by the necessary next phases of economic transition make it necessary for the EU to reframe the debate over its future development.

At the beginning of the pandemic, there was a rapid rebuilding of trust between Member States that allowed the Union to cross red lines that had previously seemed insurmountable. This led to a revival of the Community approach to problem solving, working through EU institutions rather than the unconstrained intergovernmentalism that prevailed during the euro crisis. The new Community approach was embodied in particular by NGEU, with its advances in joint financing side and in the EU spending, given its cross-country redistributive features and the strong emphasis on reforms and investments.

The EU should now cement this achievement to make it resilient to idiosyncratic shocks and renewed divergence among its Member States, which could remerge in the future. It should build on NGEU's achievement and go further to strengthen its institutions at the local, national and European levels. High-quality public institutions encourage private investment, particularly in knowledge-based and innovation-driven activities necessary for the green and digital transitions critically depend on the rapid development of such industries. The more even the institutional quality in a country or Union, the more even the distribution of private investment, which helps economic and social cohesion. Good institutions also promote trust not only in themselves but also among its population.

Efforts to elevate more functions and responsibilities to the European level need to go hand in hand with reforms that strengthen democratic control; at the European level, in order to maintain people's trust. The European Parliament plays a central role in this regard, as it is the only directly elected European Institution.

The European Commission also deserves scrutiny. The European Court of Auditors regularly audits the activities of the European Commission, including initiatives such as the RRF and performance reviews.

The European Commission also has a standard framework for internal audit and a strategic foresight function, which form a good basis to develop stronger capacities in critical areas like contingency planning for a geopolitical crisis. Nonetheless, as the COVID-crisis demonstrated, more needs to be done to better prepare the European Commission for future crises.

Recommendations

• Continue and strengthen use of the Community approach and enhance the role of the European Parliament.

In the process of establishing the NGEU, a new relationship has emerged between Members States, the Commission, and the Council which has increased trust among Member States and between EU institutions. Such an approach should inspire the reform of economic governance and other coordination processes, including by bringing the European Stability Mechanism (ESM) within the Community framework. Embarking on the reforms we recommend in the report, such as SGP 2.0 or NGEU 2.0, would require the strengthening the role of the European Parliament to enhance democratic control, accountability and legitimacy.

• Rely on the European Semester to accelerate and make more even the improvement of institutional quality at all levels of government in the EU.

Finds ways to better reveal the divergences among and within Member States in this regard, and promote measures that can narrow such differences.

• Strengthen the institutional capacity of the European Commission

Create a unit within the European Commission with a special institutional arrangement to promote and create a platform for institutional self-reflection. This unit should aim to be a 'ruthless truth-teller' and its activities should be fully transparent and cover the most strategically important policy areas of the Commission's work. It should have the administrative and financial resources to incorporate critical views from the outside. Conduct an independent external assessment of the Commission's foresight function with a view to strengthening further capacity in this area and finding ways to enhance transparency.

2. THREE SCENARIOS FOR THE EUROPEAN ECONOMY POST-COVID: THE GOOD, THE BAD AND THE UGLY

André Sapir
Professor, Institut d'Études Européennes,
Université Libre de Bruxelles

EXECUTIVE SUMMARY

What will Europe, and indeed the world, look like after COVID-19? Three scenarios seem plausible. The first could be described as '**business as usual**'. Under this scenario, Europe returns to its previous trend albeit with some changes: more digitisation and teleworking than previously anticipated, more greening of the economy, and more healthcare spending. But the changes are relatively modest and do not equate to a new paradigm. Instead, companies close the chapter on COVID and broadly go back to their previous habits. This scenario corresponds roughly to what happened after the great financial crisis and the great recession a little over a decade ago. The only real changes that occurred then were limited to the financial sector and did not affect the real economy significantly. The equivalent after COVID-19 would be changes that focus mainly on the health sector. This scenario would be bad since 'business as usual' was already unsustainable before COVID-19.

Under the second scenario, the COVID-19 crisis provides Europe with the impetus it needed to move away from its previously unsustainable model. Perhaps this will happen too in other advanced capitalist societies such as the United States. This scenario could be described as a '**new deal**', combining the Green Deal already adopted in the EU with policies to substantially reduce disparities within and across societies. It would reproduce the magic formula that characterised the 'Trente Glorieuses', with high growth and low inequalities but this time with low carbon emissions. It would therefore be a good scenario.

Whether this combination of high growth, low inequality and low carbon emissions is feasible is an open question. Some believe this nirvana is out of reach and something must give. Whether we sacrifice high growth to reach net-zero greenhouse gas emissions, or the other way round, whether we need to sacrifice the goal of zero carbon emissions to maintain or improve growth and reduce inequality does not really matter. The crux is that they believe that high growth, low inequality and zero carbon emissions are not compatible, and that there may be a trade-off between climate action and economic welfare.

The possibility of there being trade-offs gives rise to a third potential scenario, '**conflict**'. In this scenario, accelerated action on greening and digitisation of the economy leads to more rather than less inequality. In addition, the increase in public debt due to the COVID crisis requires either higher taxes or cuts in public spending, which trigger a backlash from some social groups. To make it worse, in

this scenario there could be another crisis in 10 years. Not necessarily a financial crisis like in 2008-12, nor a health crisis like in 2020-21, but a different crisis that again requires vast sums of public money and further erodes public trust in governments, which is already very low in most EU countries and which social media amplify. Perhaps a crisis of geopolitics with grave economic consequences. This scenario can be described as 'ugly' or 'catastrophic' for liberal democracies and for EU integration.

So, how do we expect Europe to emerge after COVID? Or, more modestly, what should European policymakers be aware of post-COVID to avoid the bad and the ugly scenarios and steer our economies and societies towards the good scenario?

Inevitably, the pandemic has **increased disparities** within and between EU countries. However, 'Team Europe' (the EU and its Member States) has proved remarkably resilient thanks to institutions that took the action needed to show solidarity. Together they designed and implemented two new policies for the first time during the pandemic. Specifically, they are NGEU and the EU's joint vaccine procurement strategy.

Europe's resilience in weathering the pandemic was by no means a foregone conclusion at the start of the crisis given its poor handling of the euro area sovereign debt crisis barely a decade earlier and the scars it had left, including in terms of the loss of trust in political leaders. During the COVID crisis, most EU countries rallied around their leaders and leaders were able to take bold decisions at EU level, such as the Next Generation EU plan and joint vaccine procurement, which have paid out. This is certainly good news. But it does not determine which of the three scenarios above is most likely to unfold post-COVID-19.

The handling of the pandemic certainly does not preclude a scenario of 'business as usual', at least in Europe. True, this scenario seemed already unsustainable before the COVID-19 crisis partly because of the disparities that it implies. It seems even more unsustainable now since disparities increased during the pandemic. At the same time, the relatively good management of the crisis and the resilience of Europe's economy and society seem to indicate that **business as usual may have a longer shelf life** than some would fear or hope.

While those inclined to short-termism would be happy with a 'business as usual' scenario, especially in advanced countries where living standards are high, others concerned about sustainability recognise that countries **need to change course by taking bold action** to prevent (or at least seriously mitigate) climate change and reduce social disparities. But changing course is never easy in democracies that characterise most advanced countries. Change typically produces winners and losers, and changing course in a big way (like moving away from fossil fuels) tends to produce big gains and big losses.

Because crises typically change the political calculus in countries, they may produce changes that would not have been possible otherwise, and these changes may be 'good' or 'bad'. This will depend on whether political forces able to put together a transformational post-COVID-19 societal project, like the European

Green Deal plus a programme of greater economic justice (for instance by investing wisely in quality education for all children), that can win the votes of most European citizens by promising them a better future.

If the answer is 'yes', then the 'new deal' scenario is possible.

If the answer is 'no', then there are two options: either we get stuck in the 'business as usual scenario' until it proves unsustainable, by which time it turns into a 'conflict' scenario, or the 'new deal' scenario is put in place but fails and also turns into a 'conflict' scenario. In both instances, 'conflict' refers to the strong disagreement between internal economic and political forces within Europe about how to distribute the gains and losses associated with the 'new deal' scenario that prevent its implementation or its robustness.

The 'conflict' scenario may also result from strong **disagreements outside Europe**. For instance, it could stem from a conflict between China and the United States over Taiwan or a conflict between rich and poor over climate policies.

In the decade between the global financial crisis and the COVID-19 crisis, the European Union seems to have succeeded in **greatly improving its capacity to respond to crises**. Unfortunately, during the same period, the capacity of global institutions to meet global challenges seems to have decreased, partly due to increasing rivalry between the United States and China, the two biggest economies in the world.

The EU can and must step up work at global level to increase **international cooperation to tackle global challenges**, such as pandemics and climate change. It is in Europe's long-term interest now to turn its gaze outwards.

***

INTRODUCTION

What will Europe, and indeed the world, look like after COVID-19? Three scenarios seem plausible.

The first scenario could be described as 'business as usual.' Under this scenario, Europe returns to its previous trend albeit with some changes: more digitisation and teleworking than previously anticipated, more greening of the economy, and more healthcare spending. But the changes are relatively modest and do not equate to a new paradigm. Instead, companies close the chapter on COVID and broadly go back to their previous habits. This scenario corresponds roughly to what happened after the great financial crisis and the great recession a little over a decade ago. The only real changes that occurred then were limited to the financial sector and did not affect the real economy significantly. The equivalent after COVID-19 would be changes that focus mainly on the health sector.

This scenario would be bad, at least for people who believe that 'business as usual' was already unsustainable before COVID-19 hit and hoped that the pandemic would be the last nail in its coffin. The three features of the pre-pandemic economic model that people who held this view most criticised were globalisation, climate change and economic disparities.

Three books published just before the COVID crisis by leading mainstream economists illustrate well these concerns that pre-dated the pandemic. They question the viability of our economic, social and political system, especially due to the disparities it has generated within and across societies:

- The Future of Capitalism – Facing the New Anxieties, by Paul Collier (2018);
- Capitalism, Alone – The Future of the System that Rules the World, by Branko Milanovic (2019);
- and
- Deaths of Despair and the Future of Capitalism, by Anne Case and Angus Deaton (2020).

Under the second scenario, the COVID-19 crisis provides Europe with the impetus it needed to move away from its previously unsustainable model. Perhaps this will happen too in other advanced capitalist societies such as the United States. This scenario is sometimes equated to what happened after World War I (the 'Roaring Twenties')[4], though it is probably more correct to draw a parallel with what happened after World War II. Then a new world order was built on the ashes of the old, with greater social justice embodied in the welfare state, and international cooperation embodied in global institutions (the United Nations) and regional ones (in Europe, the European Steel and Coal Community, the European Community and eventually the European Union).

This scenario could be described as a 'new deal', combining the Green Deal already adopted in the EU with policies to substantially reduce disparities within and across societies. It would reproduce the magic formula that characterised the 'Trente Glorieuses', with high growth and low inequalities but this time with low carbon emissions. It would therefore be a good scenario.

Whether this combination of high growth, low inequality and low carbon emissions is feasible is an open question. Techno-optimists believe that we can reach this nirvana thanks to climate-specific innovation and the digital transformation.

[4] See Terzi (2021).

Others, however, believe that this nirvana is out of reach and that something must give. Whether we sacrifice high growth to reach the net-zero greenhouse gas emissions objective, or the other way round, whether we need to sacrifice the goal of zero carbon emissions to maintain or improve growth and reduce inequality does not really matter. What is important is that they believe that high growth, low inequality and zero carbon emissions are not compatible, there may be a trade-off between climate action and economic welfare.

The possibility of there being trade-offs gives rise to a third potential scenario, a 'conflictual' one. In this scenario, accelerated action on greening and digitisation of the economy leads to more rather than less inequality. In addition, the levels of public debt reached because of the COVID crisis (that helped mitigate inequalities during the crisis and finance the green and digital transition after the crisis) require either higher taxes or cuts in public spending, which trigger a backlash from some social groups.

To make it worse, in this scenario there could be another crisis in 10 years. Not necessarily a financial crisis like in 2008-12, nor a health crisis like in 2020-21, but a different crisis that again requires vast sums of public money and further erodes public trust in governments, which is already very low in most EU countries and which social media amplify. Perhaps a crisis of geopolitics with grave economic consequences. This third scenario could also be described as 'ugly' or 'catastrophic' for liberal democracies and for EU integration.

The purpose of this paper is not to find out which of these three scenarios is most likely to unfold. What will happen in the future is obviously not up to this author but it is up to us all and to our societies as a whole.

The goal of this paper is more modest. It is to alert European policymakers that, although they have taken bold measures - such as Next Generation EU (NGEU) and its flagship Recovery and Resilience Facility (RRF) - that demonstrate their ability to project themselves and the EU in the post-COVID world, the challenges ahead are even more formidable. This is due to disparities within and across EU countries and between the EU and the other two economic giants (the United States and China). Policymakers must avoid complacency.

The rest of the paper is divided into three sections. The first looks at disparities within EU countries, the second at disparities between EU countries and the third at disparities between the EU and countries in other regions of the world, especially China and the United States. We return to the question of the three scenarios in the conclusion.

2.1. DISPARITIES WITHIN EU COUNTRIES

As Stantcheva (2021) abundantly documents, COVID-19 has increased existing disparities across income groups and across genders, regions, sectors, occupations and education levels. This has been true everywhere, though in Europe the situation has been mitigated by the welfare systems[5] and by ad hoc policies adopted in response to the crisis.

The situation in America is not fully comparable to the situation in Europe, as unemployment rose sharply in America during the 2020 recession while it remained relatively low in Europe thanks to furlough schemes. Nonetheless, the heaviest economic burden of the recession fell on the shoulders of the same groups on both sides of the Atlantic: workers with the least education and in the lowest-wage job categories. See Table 1, based on a detailed analysis of US data by Hershbein and Holzer (2021).

[5] See, for instance, Aspachs et al. (2021).

Table 1 **The socio-economic profile of teleworkers, EU27, during COVID, %**

	February	April	June	October	December
All	73.9	55.8	63.1	68.1	68.1
Less than high school	55.1	36.3	43.3	50.1	49.6
High school/some college	68.7	47.4	56.2	62.4	61.9
Associate degree	78.1	59.7	67.8	72.0	71.3
Bachelor's degree	82.3	67.0	71.7	76.5	77.1
Graduate degree	86.5	75.0	80.6	83.4	83.8
Hourly wage quartile 1	85.4	51.2	65.5	75.4	74.2
Hourly wage quartile 2	92.3	66.3	77.1	84.2	84.6
Hourly wage quartile 3	95.0	74.7	83.2	88.4	89.3
Hourly wage quartile 4	96.4	85.6	89.9	93.0	93.9
Teleworkable	94.2	78.2	84.9	89.0	89.6
Non-teleworkable	91.0	63.4	74.9	82.7	82.7

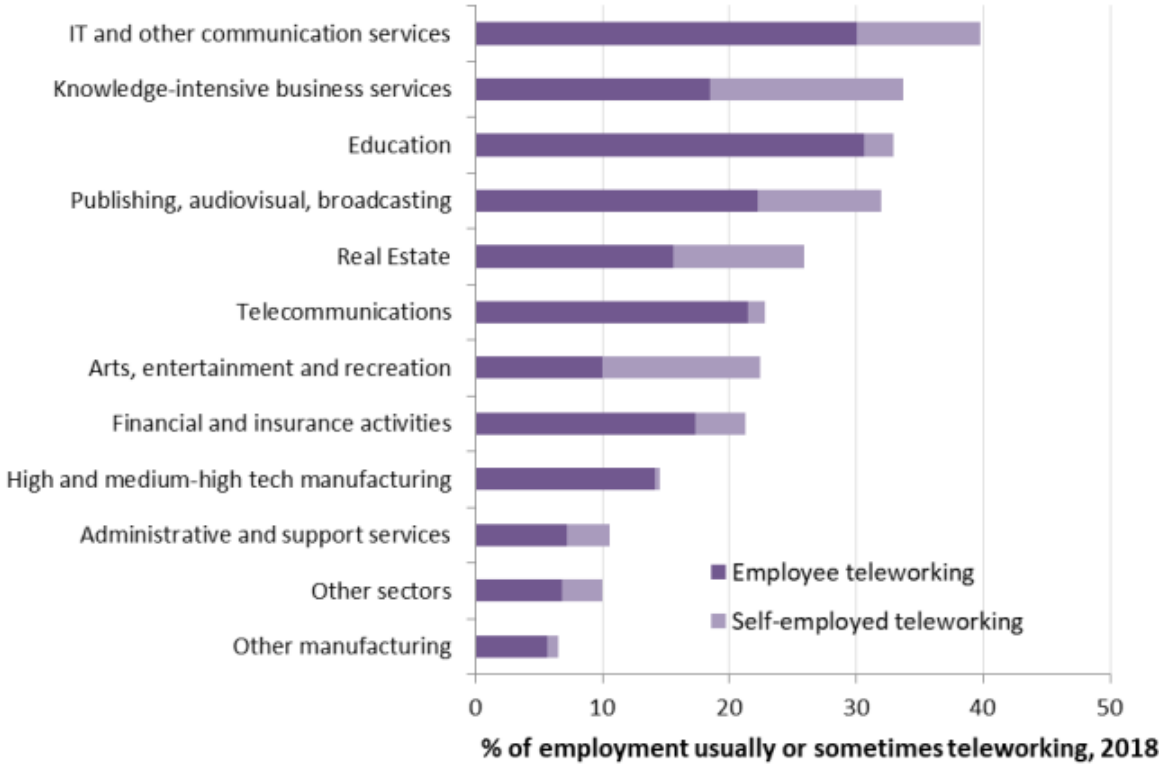
Note: The adjusted employment rate is an estimate of the share of people employed, net of involuntary part-time workers. The underlying sample is civilian adults aged 18–64 using microdata from the Current Population Survey (CPS).
Source: based on Hershbein and Holzer (2021)

The profile of workers most affected by the recession caused by the pandemic is typical of most recessions. What is specific to the COVID-19 pandemic is that it divided workers into two groups: those who could telework and those who could not. The dividing line between these two groups underscored the dividing line between workers based on education and job categories. In other words, teleworking, which vastly expanded during the pandemic, has reinforced existing disparities.

One of the legacies of COVID-19 will no doubt be the great digital acceleration, with the increase of teleworking. The pandemic has been a mass social experiment in digitisation and working from home (WFH). Barrero et al. (2021) surveyed 27 500 Americans over multiple waves of the pandemic to study whether WFH will stick after the crisis. They found that 20% of full workdays in the US will likely be supplied from home after the pandemic ends, compared with just 5% before. Their evidence suggests several reasons for this large shift: better-than expected WFH experiences, including the reduction in commuting; new investment in physical and human capital that enable WFH; greatly diminished stigma associated with WFH; persistent concerns about crowds and contagion risks; and a pandemic-driven surge in technological innovation that support WFH. The authors also project two major consequences of this shift: workers with high levels of education and income will continue to be the main beneficiaries of greater remote work; and the shift to WFH will further reduce economic activity and spending in major cities.

Similar patterns were observed in the EU27 by Sostero et al. (2020). Before COVID-19, nearly 40% of European workers with a tertiary education did some work from home, against about 10% of workers with only a secondary education and only 3% of workers with low or no education. Similarly, around 25% of workers in the top quartile of the EU27 income distribution did some telework, compared to around 5% among those in the bottom quartile. See Graph 1.

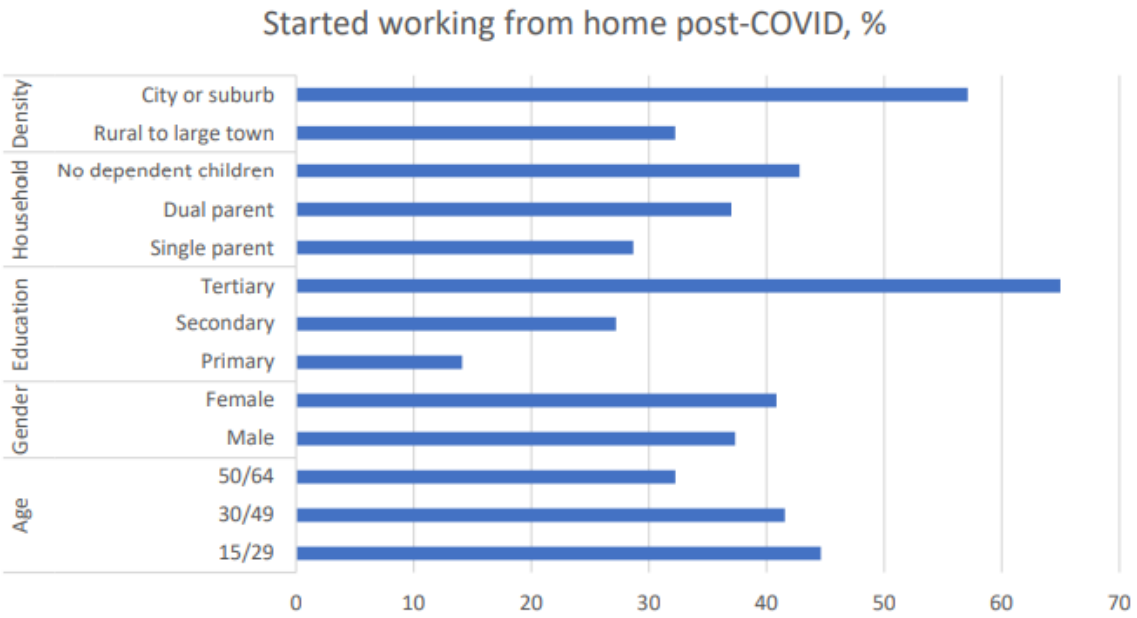
Graph 1 **The socio-economic profile of teleworkers, EU27, 2018, %**



Source: Sostero et al. (2020)

COVID-19 has amplified the digital divide, with 70% of workers with tertiary education working from home, but only 30% of workers with a secondary education and 10% of those with primary education able to do so. See Graph 2.

Graph 2 **The socio-economic profile of teleworkers, EU27, during COVID, %**



Source: Sostero et al. (2020)

Besides accelerating the digitisation of the economy and society, COVID-19 is also accelerating the green transformation of the economy and society in the EU and elsewhere mainly because massive recovery plans are allocating large sums to green investment.

While the digital and green transformations hold many promises, they also produce negative distributional consequences. There is not only a digital divide but also a green divide, between high and low income and between urban and rural citizens.[6]

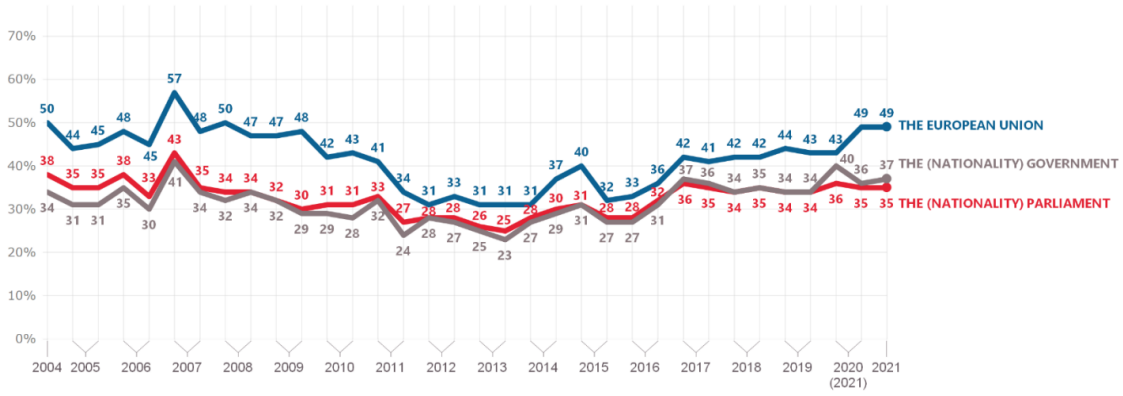
All these distributional questions have clear political implications for policymakers in terms of trust. As Eurobarometer data shown in

Graph 3 indicate, trust in the EU and in national institutions (government and parliament) did not fall during the pandemic as it did during the euro area sovereign debt crisis a decade earlier. On the contrary, in the winter 2020-21 (February-March 2021) trust was at its highest level since 2007-8, just before the start of the great financial crisis.

But policymakers should not rejoice too much. Trust in political institutions, especially national ones, remains low, although these averages hide huge differences within countries, between socioeconomic groups and between countries. One thing is clear, the countries and groups that were the hardest hit by the pandemic are also those that had the lowest trust in national and EU institutions before the COVID-19 crisis, mainly because they were already the main victims of (and/or the most concerned about) economic disparities.

[6] See, for instance, Chapter 5 in European Commission (2019).

Graph 3 **Trust in EU and national institutions (% - EU - Tend to trust), Feb-Mar 2021**



Source: European Parliament (2021)

The effect of COVID-19 on trust and on politics is more likely to surface post-COVID than during COVID. Policymakers should not be reassured by the fact that the political landscape has been calm during the pandemic. There may be anger and distrust by some voters, but whilst COVID is ongoing, uncertainty and fear are likely to be the dominant sentiment.

According to the European Parliament's Spring 2021 Eurobarometer, a year into the pandemic the predominant feelings of EU citizens were uncertainty (45%), hope (37%), frustration (34%) and helplessness (30%) in that order. Frustration or helplessness were the top or second most important feelings among respondents in two thirds of EU countries. Survey results show a clear correlation between positive or negative emotions and how COVID-19 has affected the respondents' personal income. Those who had already experienced a negative impact on their personal financial situation were more likely to feel negative emotions like uncertainty (51%), frustration (41%), helplessness (37%) or even anger (31%). Those whose financial situation had not deteriorated were more likely to describe positive emotions such as hope (41%), calm (27%) or confidence (19%).[7]

Few people would want to vote for new, potentially populist leaders while their lives are in danger. This view is corroborated by a recent study by IMF economists, which examines the implications of epidemics on social unrest using global evidence collected in recent decades.

Using cross-country data, Barrett and Chen (2021) found a positive relationship between social unrest and epidemics, which reverses in the short run during the epidemic due to scarring. They conclude their study by noting that trends in social unrest immediately before and after the COVID-19 outbreak are consistent with their findings. Unrest was high before the COVID-19 crisis began but fell as the pandemic continued. If history is a guide, they note, 'it is reasonable to expect that, as the pandemic fades, unrest may re-emerge in locations where it previously existed, not because of the COVID-19 crisis per se, but simply because underlying social and political issues have not been tackled.' (Barrett and Chen, 2021, p. 19).

The situation during and after the financial crisis in some countries, for instance the votes in favour of Brexit in the United Kingdom or to elect Donald Trump in the United States, suggests however that crises may in fact increase the level of discontent. Therefore social and political unrest increases,

[7] See European Parliament (2021).

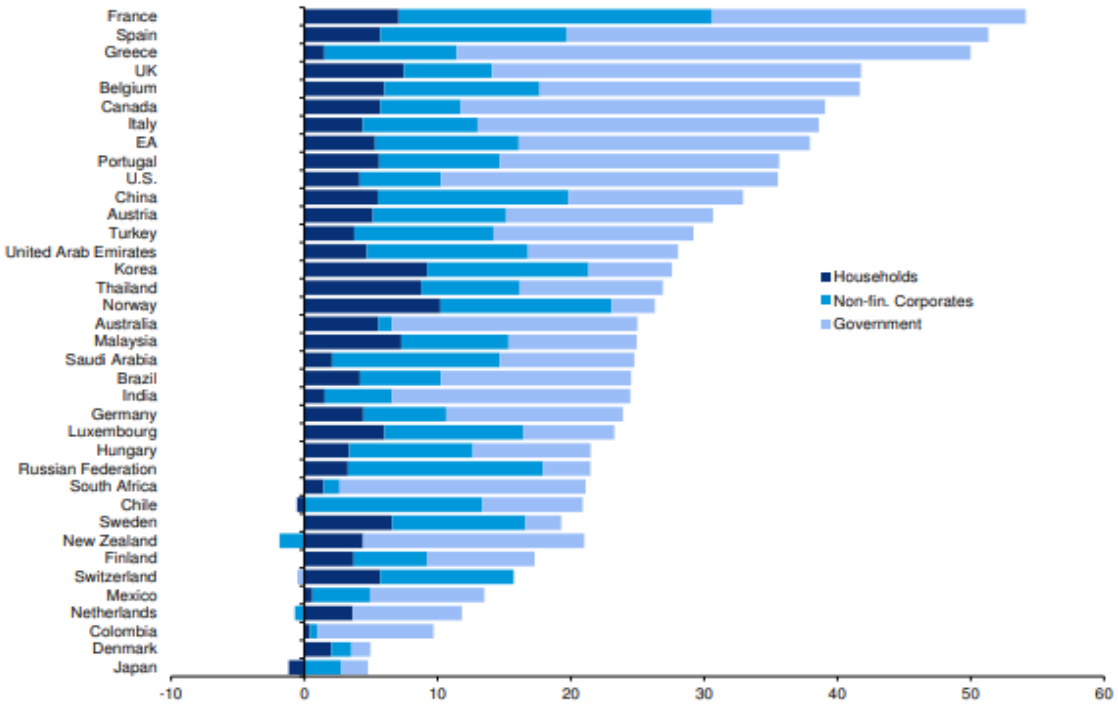
compared to the pre-crisis situation, or at least increases the probability of a shift to vote for populist politicians.

At the end of their recent survey of the literature on the political economy of populism, Guriev and Papaioannou (2020) conclude that 'there is ample evidence that the rise of populism is caused by economic factors, both secular (trade and automation) and crisis-related (the rise in unemployment, credit squeeze and the post-crisis austerity). There is growing evidence that the spread of broadband internet and of online social media have also played a major role.'

In Europe, expansionary fiscal and monetary policies have prevented a rise in unemployment and a credit squeeze. Post-COVID austerity will also probably be avoided thanks to the painful memory of handling the financial and sovereign debt crisis, which is still present in the minds of policymakers. The flip side, however, is that one of the legacies of COVID-19 will be a much higher level of private and public debt than before the crisis.

According to estimates by Deutsche Bank (2021), the private plus public debt-to-GDP ratio increased by 38 percentage points in the euro area between 2019Q4 and 2020Q4, reaching 241% at the end of 2020. A rapid calculation shows that the increase in this ratio can be broken down into two components: an increase of 14 percentage points due to the fall of GDP on the denominator by 6.6% in 2020 and an increase in 24 percentage points due to the increase in debt on the numerator.[8] Alternatively, the 38 percentage point increase can be broken down into increases of 16 percentage points for private debt and 22 points for public debt.

Graph 4 **Change in private and public debt-to-GDP, between 2019Q4 and 2020Q4 (pp)**



Source: Deutsche Bank (2021)

[8] The situation for the United States is roughly the same, with an increase in the (private plus public) debt ratio of 35 points, due to the fall of GDP (9 points) and an increase in debt (26 points).

There is no political consensus on how to finance the COVID debt. The techno-optimists hope that the digital transformation, which the COVID crisis has accelerated, will increase productivity and GDP growth in the medium term, and therefore easily eat the COVID debt. In its Autumn 2021 Fiscal Monitor, the IMF (2021a) adopted a more prudent attitude.

For advanced economies, assuming that post-COVID GDP growth is similar to its pre-COVID level and effective real interest rates is at 1%, IMF economists estimate that the average primary surplus required to bring debt to pre-COVID-19 levels by 2045 would be higher in 2024-45 than in 2010-19 by 0.5% of GDP. For the typical advanced economy, they estimate that by the end of 2021, debt as a share of GDP will be 18 percentage points higher than pre-pandemic levels, not much below the 22 percentage points estimated by Deutsche Bank (2021) for the euro area mentioned above.

Increasing the primary surplus by 0.5% of GDP post-COVID will not be politically easy. EU countries, like other advanced economies, will face new demands for public spending, of which two are both unavoidable and necessary: health care and the green transition.

The issue of the public cost of health, which is partly linked to the ageing of our societies, was addressed before COVID mainly from a cost perspective: trying to streamline the system to avoid costs getting out of hand and the system becoming too expensive. Although costs will remain an important part of the equation post-COVID, there is also a clear political demand from society to spend more public money on the health sector.

Given the other demands on public finances and the difficulty in raising revenue, this will generate intense political discussions and difficult choices. Obviously, one must strive to improve productivity throughout the economy in general and in the health sector also. But there are limits, especially for ageing societies. Productivity in the health sector has improved in recent years but at a cost that our societies will not be able or willing to repeat post-COVID. Perhaps the digital transformation will increase productivity, but this is far from sure. And above all, there is little chance that people will accept to be treated by robots instead of people, though this is already happening in some countries. The kind of healthcare that we all want for ourselves and our loved ones requires human care. Human care does not go hand in hand with robotics or other forms of productivity enhancement that decrease human contact.

The situation is broadly similar for the green transition, which will require major public spending for many years to come. Again, the digital transformation should help meet the climate objectives in a more energy-efficient, less costly manner, but public investment will still need to rise substantially.

Given the difficulty in raising public revenue in most EU countries because levels were already very high pre-COVID, the increased debt and the increased demands for public expenditures coming from the health sector and the green transition will pose a conundrum to policymakers, unless post-COVID optimism and the digital and green transitions sufficiently boost economic growth. Otherwise, policymakers will need to either cut some spending or increase taxes, while being mindful of the need to reduce inequalities.

Some economists, especially those most concerned with inequalities in the distribution of income and wealth have proposed cancelling the COVID public debt (which may at some point increase further if the private sector is unable to meet its COVID debt obligations) held by the European Central Bank (ECB) and other central banks[9]. So far, policymakers have strongly rejected this proposal, including

[9] See https://www.lemonde.fr/idees/article/2021/02/05/la-bce-peut-offrir-aux-etats-europeens-les-moyens-de-leur-reconstruction-ecologique-sociale-economique-et-culturelle_6068861_3232.html

the ECB president, but the twin political questions of the COVID public debt (i.e. the distribution of its burden across societies) and the disparities in income and wealth will not go away easily. Post-COVID, policymakers will have to tackle these issues one way or another.

One proposal floated by the IMF (2021b) to help finance the COVID public debt would be to levy a temporary COVID-19 recovery contribution. This could take the form of a temporary increase in personal income tax rates on those in the highest income brackets or an increase in corporate income tax rates on businesses that prospered during the COVID crisis.

Another avenue to raise revenue in a more permanent manner is the recent G20 agreement on corporate tax. This agreement paves the way for a reversal in the trend of lower corporate taxation that started during the Reagan years in the 1980s.

The acuity of all these questions will obviously vary across EU countries depending on several factors: the economic and social situation prior to the COVID crisis, the economic shock they suffered during the pandemic and the response provided to mitigate the shock.

2.2. DIVERGENCES BETWEEN EU COUNTRIES

I find it useful to divide the EU27 countries into three groups when looking at the evolution of GDP per capita at purchasing power parity prior to the COVID crisis, over the period 2008-19.

The first group comprises the high-income western countries that had above-average GDP in both 2008 and 2019 but were (often) closer to the EU average in 2019 than in 2008.

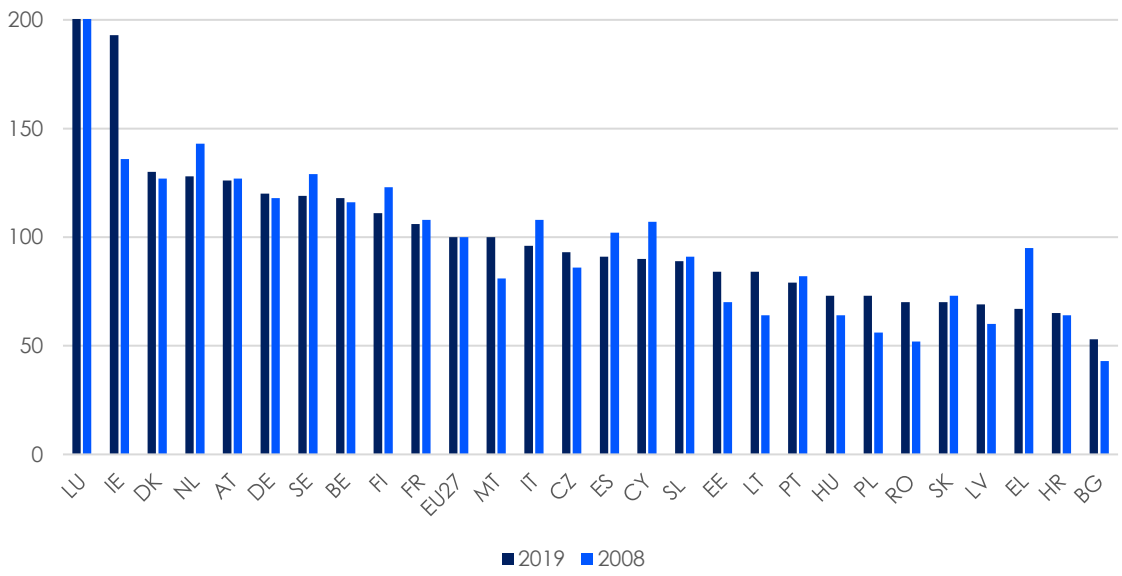
The second group comprises the lower-income eastern countries that had below-average per capita GDP in both 2008 and 2019 but were (all) closer to the EU average in 2019 than in 2008.

The trends for these two groups demonstrate that the EU 'convergence machine' has worked well for the eastern countries that joined the EU since 2004, despite the great financial crisis and the fears that it would reduce the flow of capital to these countries and hamper convergence.

Unfortunately, the EU convergence machine has gone in reverse for the third group of countries in southern Europe. These countries all lost ground during the financial crisis and the ensuing sovereign debt crisis and by 2019 they had still not recovered their place in the EU ranking. Regardless of whether their per capita GDP was above the EU average (as for Italy, Spain, and Cyprus) or below (as was the case for Portugal and Greece) in 2008, their per capita GDP were all below the EU average in 2019[10]. See Graph 5.

[10] Two eastern countries (Slovenia and Slovakia) suffered the same fate.

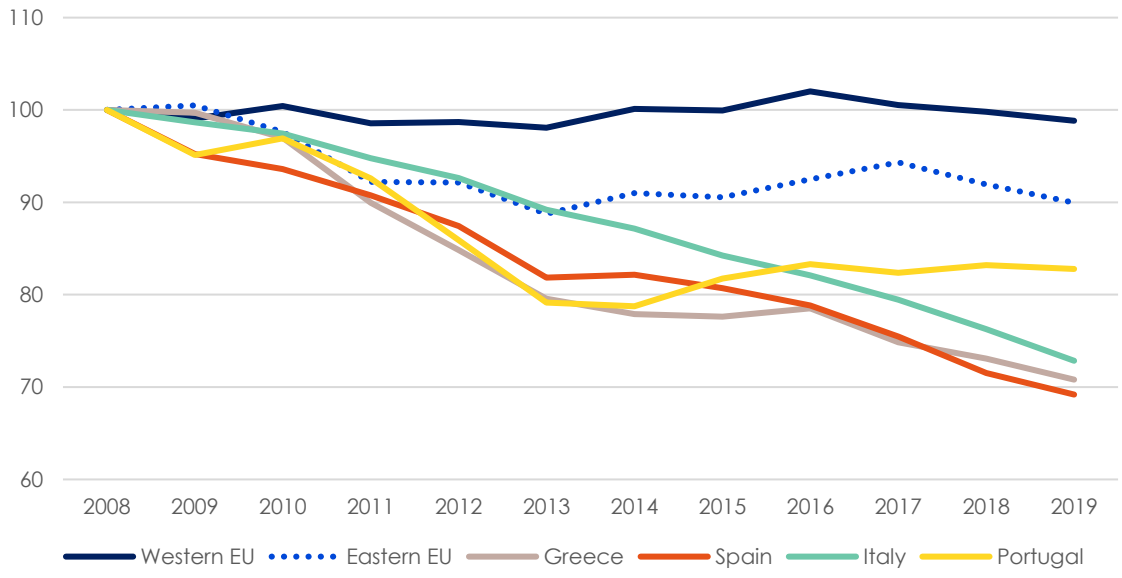
Graph 5 **GDP per capita at purchasing power parities (EU27=100), 2008 and 2019, excluding Ireland and Luxembourg**



Source: own computation based on Eurostat data

The divergence of the southern EU countries in terms of per capita GDP over 2008-19 was compounded by particularly bad demographics. The number of live births fell substantially in all these countries. The fall was particularly sharp in Greece, Italy and Spain, where the number of live births in 2019 was nearly 30% lower than in 2008 and it was nearly 20% lower in Portugal. There was also a fall in the number of births in the eastern group of countries, but on average by only 10%, and in the western group it did not fall. See Graph 6.

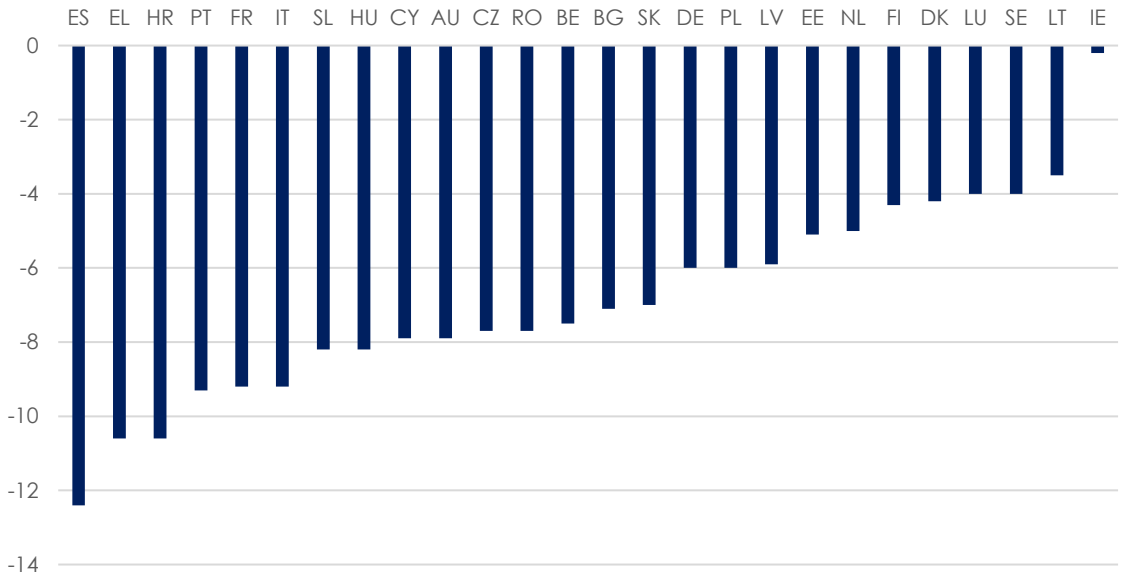
Graph 6 **Number of births, in the EU27, 2008-19 (2008=100)**



Source: own computation based on Eurostat data

The COVID pandemic has dealt a further blow to EU convergence, especially to the southern countries. The difference between the May 2021 and February 2020 Directorate-General for Economic and Financial Affairs (ECFIN) forecasts for GDP indicates that, on average, the southern countries suffered a negative shock of roughly 10% in 2020. By contrast, the high-income western countries suffered a roughly 6% negative shock and the eastern countries had a 7% shock on average. Graph 7 gives the details by country.

Graph 7 **GDP shock in 2020: difference between the May 2021 and February 2020 Commission forecasts, EU27 (%)**



Source: own computation based on ECFIN (2021) data

In Sapir (2020), I tried to explain why GDP in some countries has fallen since the pandemic more than in other countries. This paper was written during summer 2020, so the size of the 2020 GDP shock was measured as the difference between the July 2020 and February 2020 ECFIN forecasts. Using a simple econometric model[11], I found that that the strictness of lockdown (measured by the stringency index computed by the Oxford COVID-19 Government Response Tracker), the share of tourism in the economy and the quality of governance (measured by the World Bank Worldwide Governance indicator) all played a significant role in explaining the differences in GDP losses across EU countries.

I have updated my earlier estimates, using the latest (May 2021) ECFIN forecasts to calculate the size of the 2020 GDP shock shown in Graph 7. I have also updated the strictness of lockdown measures, which is now based on the situation over 12 months rather than the first six months of 2020. The new estimates along with the corresponding estimates in Sapir (2020) are shown in Table 2. They confirm the earlier results, but with an even greater role for the quality of governance.

[11] I took Ireland out of the new econometric estimate because the role of the pharmaceutical sector makes estimating its GDP for 2020 even more hazardous than for other years. It is the only EU country whose GDP forecast for 2020 was revised so dramatically by ECFIN between July 2020 (with a forecast of -8.5%) and May 2021 (with forecast of +3.4%). For a discussion of the problems with the GDP measurements for Ireland, see Honohan (2021).

Table 2 **Estimation results for the GDP shock in 2020**

	Shock=July 2020-February 2020 ECFIN GDP forecasts		Shock=May 2021-February 2020 ECFIN GDP forecasts	
	Coefficient	t-value	Coefficient	t-value
Constant	-4.500	-2.222*	1.873	0.734
LOCKDOWN	-0.134	-3.331**	-0.209	-4.396**
TOURISM	-0.148	-2.584**	-0.180	-2.632**
GOVERNANCE	0.175	1.993*	0.303	3.051**
Adjusted R Squared	0.575		0.655	

Note: ** means significant at the 1% level; * means significant at the 5% level.

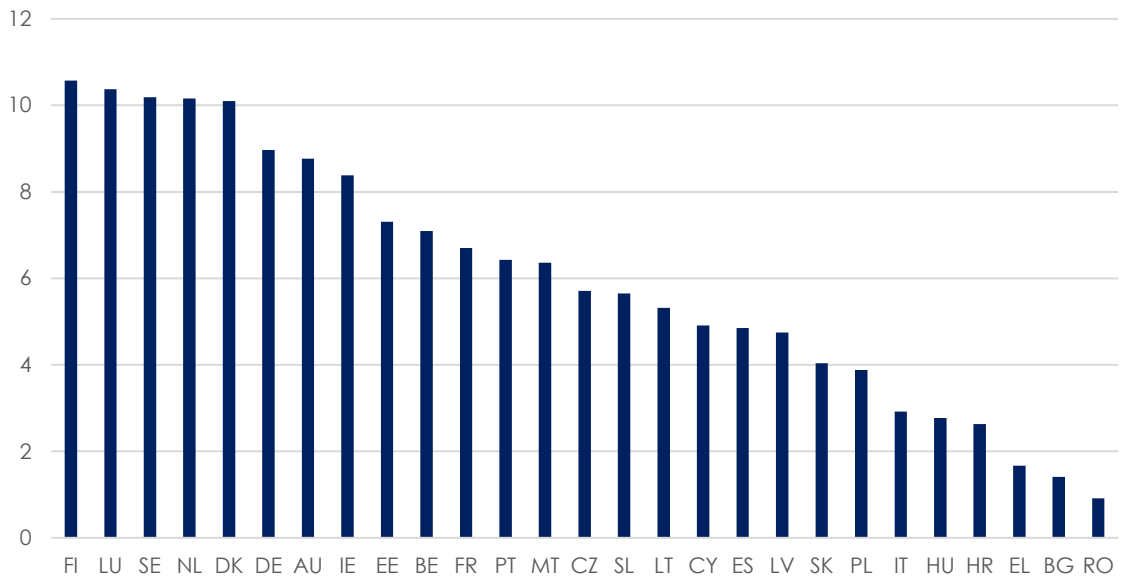
Source: Sapir (2020) for the left panel and new own estimates for the right panel.

Like in Sapir (2020), I have used these econometric estimates to explore why the southern EU economies have been more affected by the COVID crisis than the high-income western countries, especially those in northern Europe (like Denmark, the Netherlands and Sweden). Depending on the pair of countries or country groupings that I compared, I found that the difference in GDP loss was between 30 and 50% due to the quality of governance, between 20 and 50% to the strictness of lockdown measures and between 5 and 30% due to tourism. For the average of the southern versus the average of the western countries, their 4-percentage point difference in GDP growth can be attributed to governance (roughly 40%), lockdown measures (40%) and to tourism (20%).

These results strengthen the conclusion of Sapir (2020) on the use of the Recovery and Resilience Facility, and how it should be divided between recovery and resilience spending. Supporting the recovery through a combination of demand and supply initiatives is important to ensure that countries rebound as quickly as possible from the COVID crisis, without leaving too much permanent damage to their economies. But in many countries, especially the southern countries that were among the hardest hit by the COVID crisis, resilience is a major issue. Too often, in some of these countries, poor quality governance has had a negative impact on their resilience, as the relatively large size of GDP shocks demonstrates.

There are, obviously, many ways to measure the quality of governance. The indicator used here is based on the World Bank Worldwide Governance Indicator, which in principle can vary from -15 to +15. In 2018, the governance index was above zero in all 27 EU countries, ranging from below 3 in Bulgaria, Croatia, Greece, Hungary, Italy and Romania to above 9 in Denmark, Finland, Luxembourg, the Netherlands and Sweden. See Graph 8.

Graph 8 **Quality of governance (World Bank indicator), EU27, 2018**



Source: own computation based on World Bank (2020) data

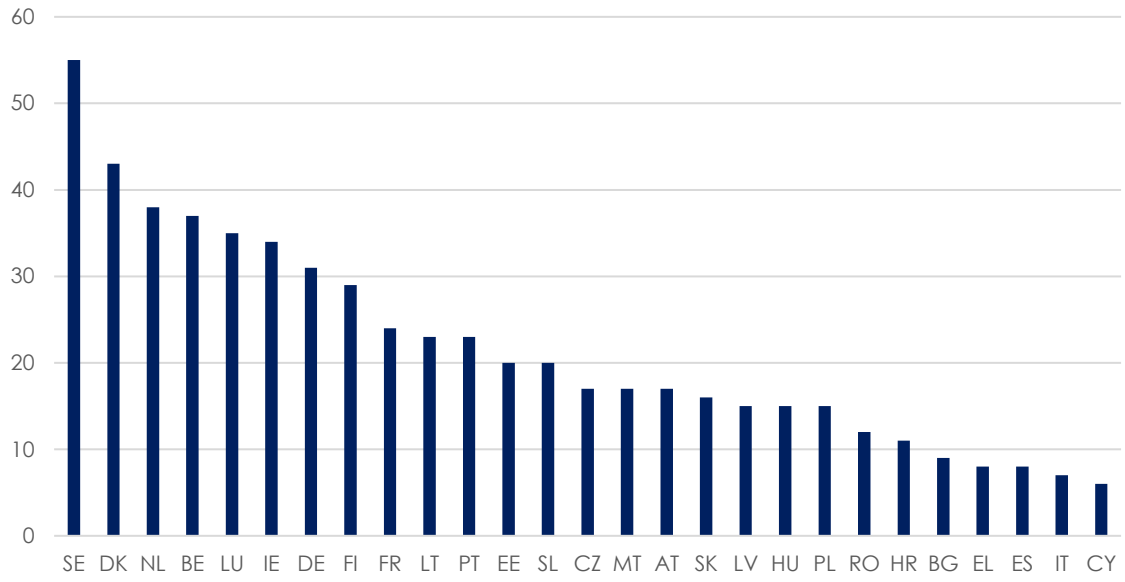
The governance index differed significantly across our three groups of EU countries. In 2018, it averaged 9 for the high-income western group, but only 4 for the lower-income eastern group, and 4 for the southern group. Poor governance is therefore a very serious problem in many EU Member States. This requires a great deal of attention by European policymakers, not only for economic but also political reasons.

It is welcome therefore that Recovery and Resilience Facility programmes devote some attention (and resources) to improving the quality of governance, especially in countries where it is still very low. But improving governance and eventually resilience will not be easy nor quick. In the meantime, countries will implement recovery policies, but it is important to keep in mind that the better the quality of economic governance and resilience, the faster EU countries will recover and the better they will be prepared for future shocks.

The Recovery and Resilience Facility (RRF) can make up to EUR 672.5 billion in loans and grants to support reforms and investments by the Member States. Besides helping to mitigate the economic and social impact of the COVID crisis, its main aim is to better prepare EU countries for the green and the digital transitions, to which they must allocate at least 37 and 20% of RRF spending respectively.

There are major differences between the EU countries in the importance that their citizens attach to the green transition. One indicator is the share of the population rating climate as one of the two most important issues facing the EU in spring 202I at the time of the Eurobarometer survey. See Graph 9 below.

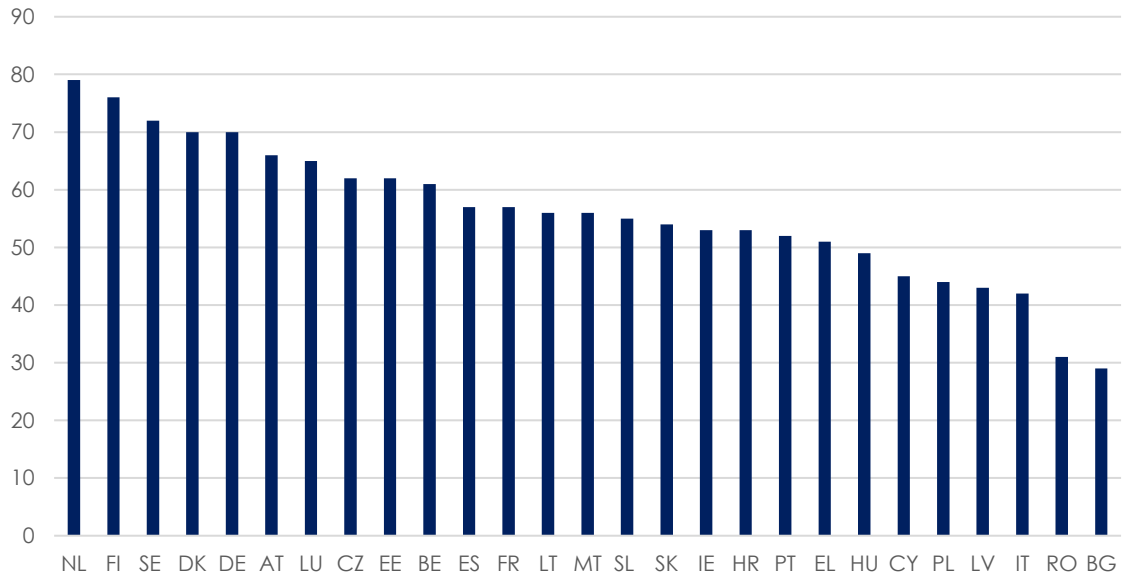
Graph 9 **Share of the population who thinks that climate is one of the two most important issues facing the EU at the moment, winter 2020-21 (%)**



Source: own computation based on European Parliament (2021) data

There are also major differences between the EU countries in their level of preparedness for the digital transition. One indicator is the share of people aged 16 to 74 who have basic or above basic overall digital skills. See Graph 10.

Graph 10 **Share of Individuals aged 16 to 74 who have basic or above basic overall digital skills (%)**

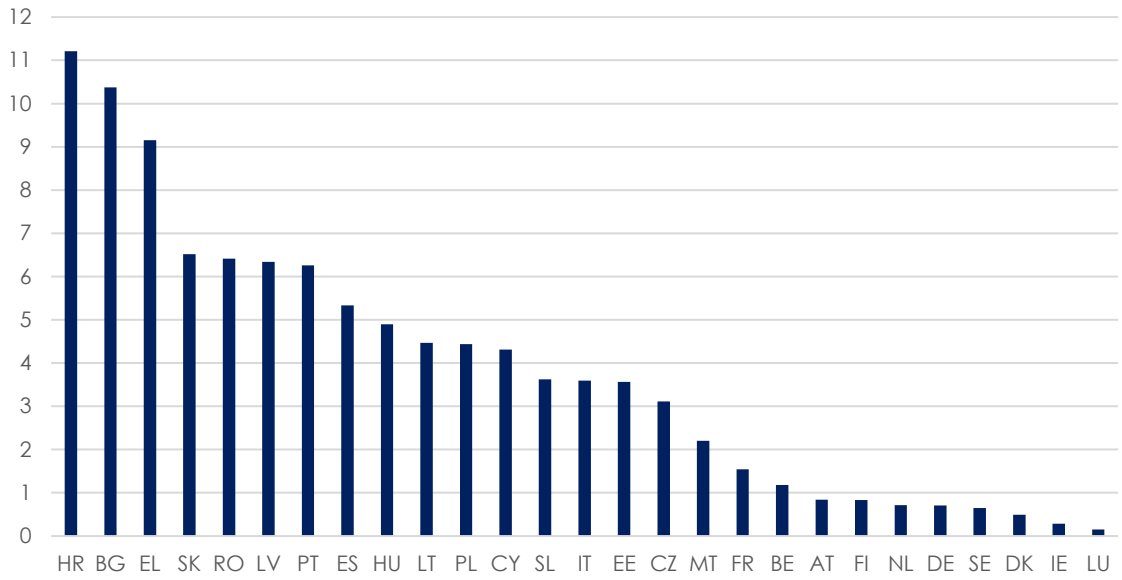


Source: own computation based on Eurostat data

Not surprisingly, the top countries in terms of digital skills and adhesion to the green agenda all belong to the high-income western group. In fact, the correlation coefficient between the green and digital indicators reported here and per capita income is 0.7 and 0.8 respectively.

It is also welcome, therefore, that most of the RRF money will go to the southern and eastern countries, which have below EU average per capita incomes. See Graph 11. But it also makes it even more crucial that sufficient action is taken to improve the quality of governance in these countries.

Graph 11 **RRF grants (at 2018 prices) as a share of 2018 GDP (%)**



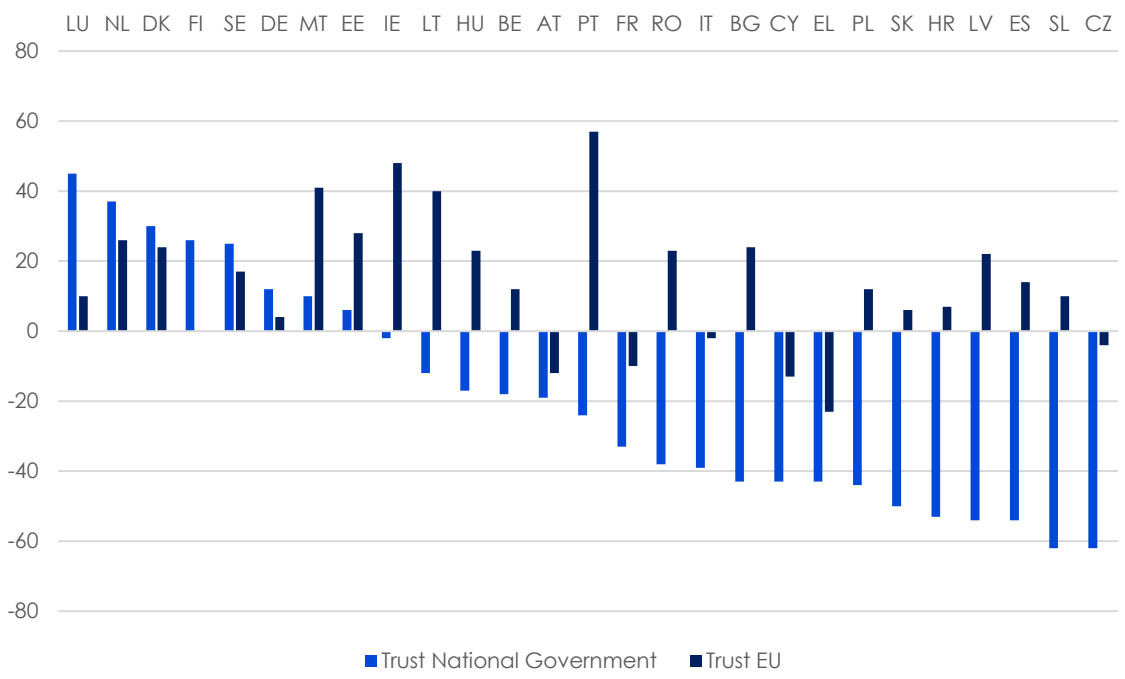
Source: own computation based on European Commission data

Improving the quality of governance not only improves economic growth and convergence. It can also increase the level of public trust in national political institutions, which, as we saw in the previous section, has been very low for a long time in EU countries. In the winter of 2020-21, at a time when trust was relatively high, 19 out of 27 EU countries had higher levels of public distrust than trust in their national governments.

The eight countries where more citizens trusted than distrusted their national governments had relatively high governance scores. The top six countries in terms of governance also ranked among the top six for trust in the government (see Graph 12). The simple correlation coefficient (r) between net trust - those tending to trust minus those tending to distrust – in national governments (in winter 2020-21) and the quality of governance (in 2018) is 0.8. Note that variations across countries in trust in their governments in winter 2020-21 was highly correlated (r=0.9) with average trust in governments before the COVID crisis (during 2004-19), so the problem of trust and governance obviously runs much deeper than simply being a reaction to how they handled the COVID crisis.

Trust in the EU seems to follow a different pattern. In the winter of 2020-21, net trust in the EU was positive in 22 out of 27 EU countries. There was a low correlation with net trust in national governments (r=0.3) or the index measuring the quality of governance (r=0.1). In some countries, the public seem to trust the EU because they trust governments in general, while in others they seem to trust the EU because they do not trust their national governments. In the five countries where net trust in the EU was negative (Austria, Cyprus, France, Greece and Italy), citizens also distrusted their national governments. There was not a single country where citizens distrusted the EU but trusted their national government.

Graph 12 **Trust in national governments and the EU (% - Tend to trust minus tend to distrust), EU27, Feb-March 2021**



Source: own computation based on European Parliament (2021) data

In conclusion, Europe appears to be divided into three groups of countries, with one group, the southern group, having been hit particularly severely by two profound economic crises in the space of 10 years: the sovereign debt crisis and the COVID crisis.

This suggests that southern EU countries suffer from several structural problems, including weak governance and low trust in national political institutions.

The RRF, which is really a convergence fund aimed mainly at the southern and eastern EU countries[12], holds the promise not just to boost investment in two critical areas, digital and green, but also to implement long overdue structural reforms. But the challenges should not be underestimated, precisely because of long-standing governance problems in so many eastern and southern EU countries.

The success of the RRF is important both for the beneficiary countries and for the EU as a whole, since the RRF breaks new ground in terms of EU integration. Although temporary in principle, the RRF could become a permanent feature of the EU's armoury to fight crises if it proves successful. Conversely, failure of the RRF would set back the hope for other joint EU recovery programmes in the future.

Nowhere will the success of the RRF be more important than in Italy. The country accounts for nearly 40% of the requests for RRF grants and loans made by September 2021 by 25 EU members[13], and

[12] The allocation of RRF grants by country groupings is as follows: 50% for the southern countries, 23% for the eastern countries and 27% for the north-western countries.
[13] By September 2021, 25 EU countries had finalised their RRF plans, requesting grants and loans totalling nearly EUR 500 billion. Italy's requests total more than EUR 190 billion. See Darvas et al. (2021).

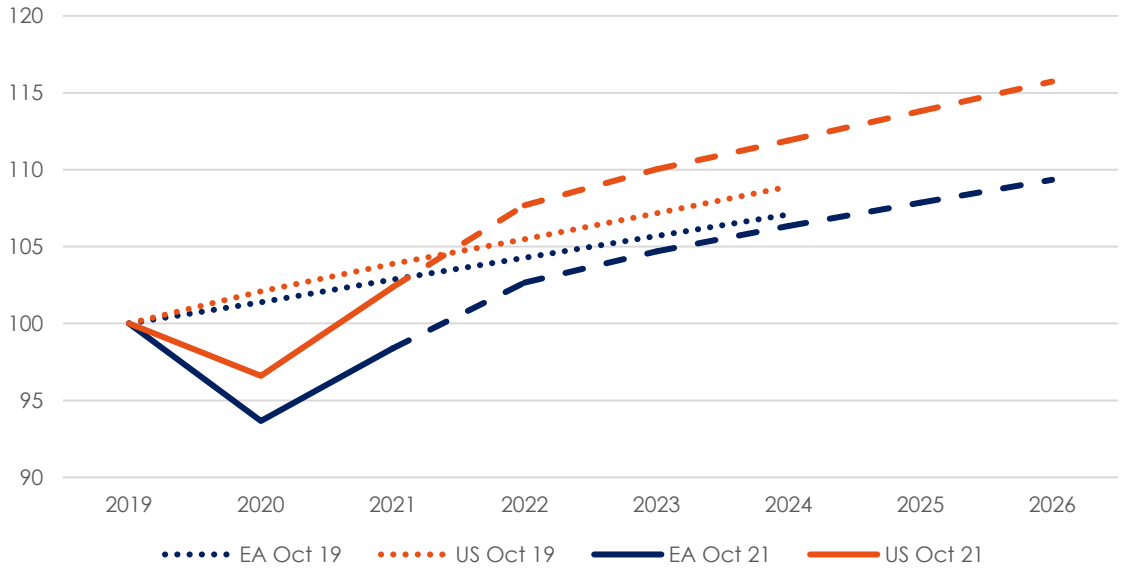
ranks 22nd out of 27 EU countries in terms of the governance index discussed above and reported in Graph 8.

2.3. CONVERGENCES AND DIVERGENCES BETWEEN EUROPE AND THE REST OF THE WORLD

Economically, Europe has been more severely hit by the COVID pandemic than most other regions of the world.

There has been much discussion about the macroeconomic divergence between the euro area and the US See Graph 13. Like most analysts, ECB economists attribute this divergence in 2020 to two main factors: stricter lockdown measures and less fiscal support in the euro area than in the US[14]. The lower level of fiscal support also explains the somewhat slower recovery in 2021 in the euro area than in the US

Graph 13 **IMF forecasts from October 2019 and October 2021 for real GDP, 2019=100**



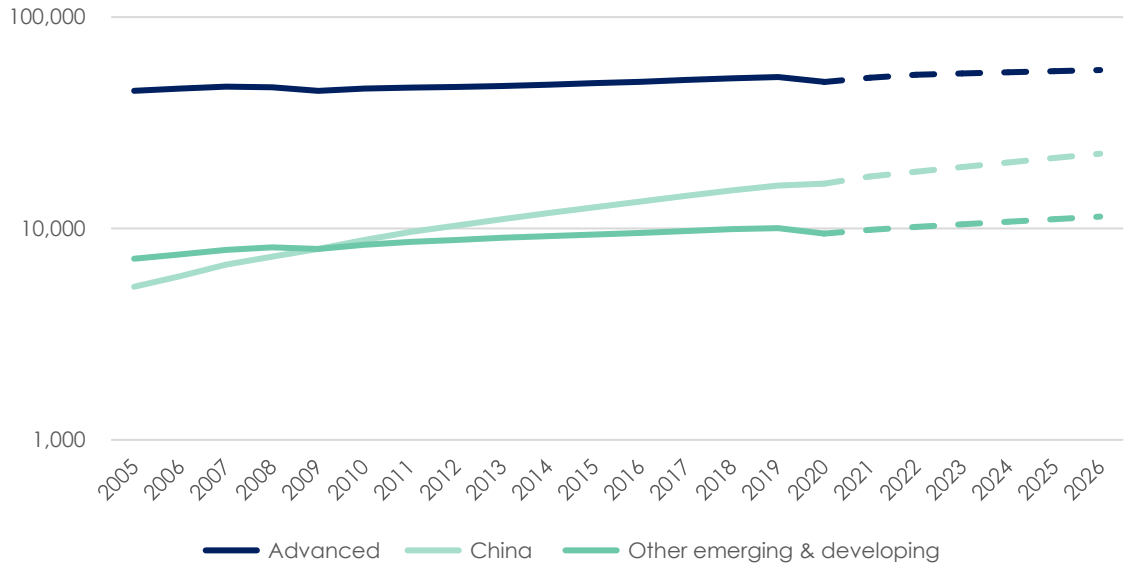
Source: own computation based on IMF data

Although there has also been a macroeconomic divergence between the euro area and China, what is more striking is the continuous structural convergence between China and advanced economies.

In 2005, China's GDP per capita at purchasing power parity was below the average for all the other emerging and developing economies, and barely 12% of the average for advanced economies. By 2019, it was 50% above the average for other emerging and developing economies and 30% of the average for advanced economies. By 2026, the IMF expects that it will reach 40% of the average for advanced economies. By contrast, the group of the other emerging and developing is not catching up with the advanced economies. See Graph 14.

[14] See Andersson et al. (2021).

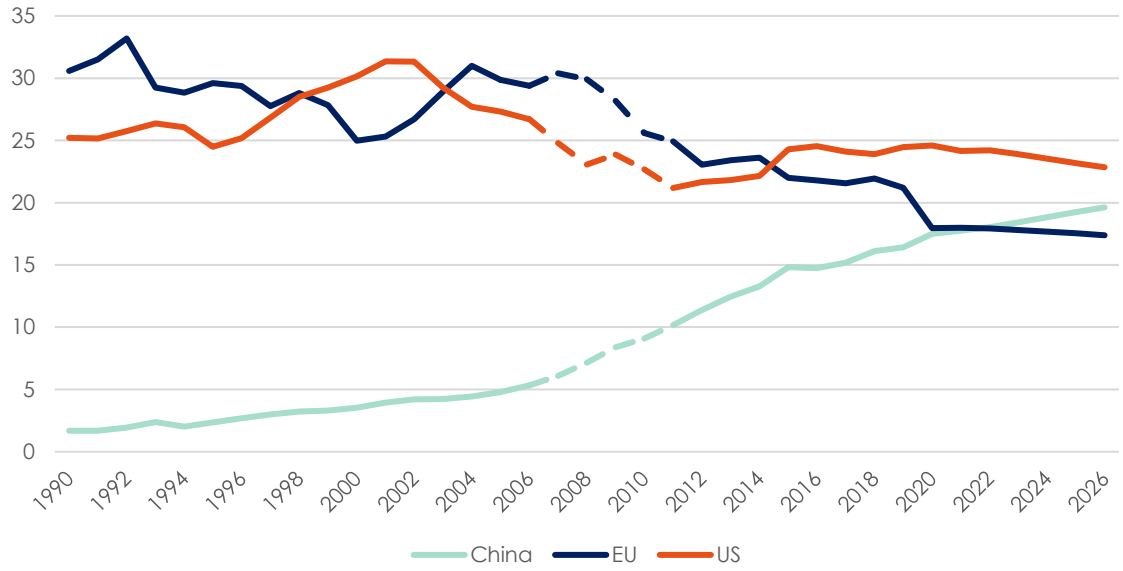
Graph 14 **GDP per capita, at purchasing power parity, 2017 international dollar (log scale)**



Source: own computation based on IMF data

In 2005, after the enlargement of the EU to central and Eastern Europe, the EU was the largest economic bloc in the world. It accounted for 30% of global GDP, slightly ahead of the US at 27%, while China's share was barely 5%. The great financial crisis and the euro sovereign debt crisis produced a great reversal of fortunes. By 2019, the global GDP shares of the EU and the US had dropped to 21 and 24% respectively, while China's share had tripled to 16%. By 2026, according to the IMF, the gap between the three economic superpowers will have further decreased, owing mainly to two factors: the continuous fast growth of China, and the departure of the UK from the EU. By 2026, the US will still be the largest economic power in the world (at 23% of global GDP), but China will be a close second (at 20% of global GDP), with the EU third (at 17% of global GDP). See Graph 15.

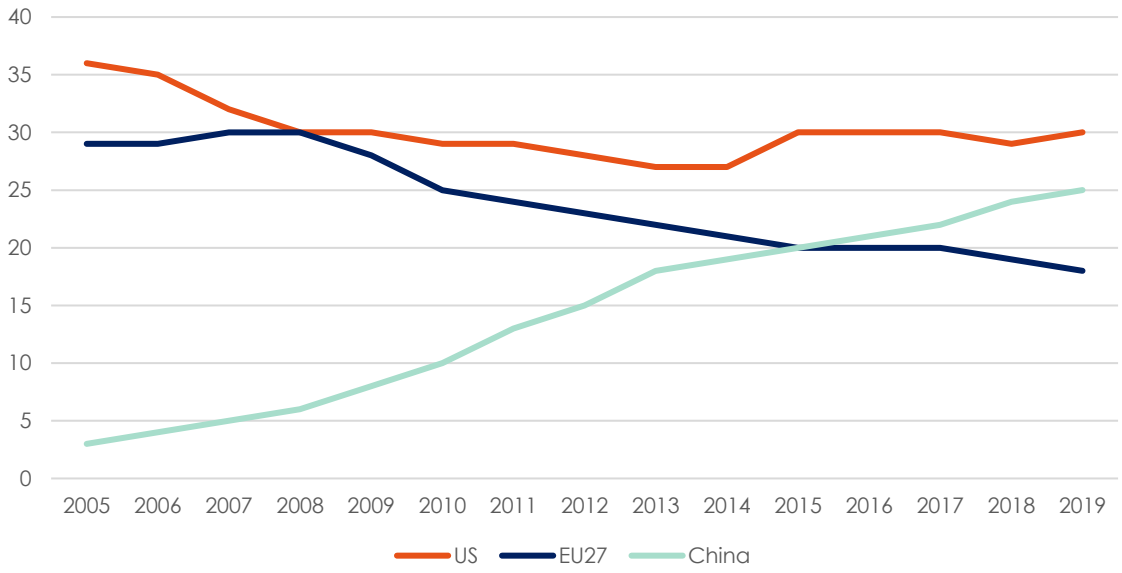
Graph 15 **Share of world GDP, in current prices and current dollar**



Source: own computation based on IMF data

A similar change has taken place among the Global Fortune 500 (GF500) companies, the 500 largest global companies in terms of revenue. In 2005, firms headquartered in China accounted for less than 5% of the Global 500's total revenue, well below the share of US- and EU27-headquarted companies (at 36 and 29% respectively). By 2019, the share of the 121 China-headquartered companies in the Global Fortune 500 had reached 25%, midway between the share of the 91 EU-headquartered in the Global Fortune 500 (with 18% of global revenue) and the 121 US-headquartered companies in the Global Fortune 500 (with 30% of global revenue). See Graph 16.

Graph 16 **Share of Global Fortune 500 revenues, by country of headquarters (%)**



Source: Huang et al. (2021), based on Fortune data

Although the three economic superpowers have currently roughly the same size, the EU is clearly lagging the US and China in the digital area.

Although the three economic superpowers have currently roughly the same size, the EU is clearly lagging the US and China in the digital arena.

The EU is a powerhouse in corporate R&D, in line with its overall economic status. According to data compiled by the European Commission, in 2018, EU-headquartered companies accounted for 22% of the top 2 500 companies ranked by R&D expenditure and 25% of the total R&D spending by these 2 500 companies. These figures correspond closely with the EU's share of global GDP, which was 22% in 2018 according to IMF statistics.

However, Europe is sadly very weak in R&D in information and communications technology (ICT), which is at the heart of the digital transformation. In 2018, EU-headquartered firms accounted for barely 14% of global spending on ICT products and 12% in ICT services. The comparable figures for US-headquartered companies were 42 and 68%, and 15 and 14% for Chinese companies. See Table 3, first panel.

The second panel in Table 3 indicates that only 13 and 7% of R&D spending by EU- headquartered companies are in sectors producing ICT products and services, respectively. This is far behind US-headquartered companies, with shares of 26 and 27%, and behind China-headquartered companies, with shares of 29 and 18%.

Table 3 **The country and sectoral distribution of R&D by the world's top 2500 R&D companies, 2018 (in percentages)**

Country	ICT products	ICT services	Health industries	Auto & other transport	Other industries	All industries
USA	42	68	49	17	29	38
EU	14	12	26	46	40	25
Japan	12	4	8	24	25	13
China	15	14	3	8	25	12
ROW	17	2	14	4	22	12
World	100	100	100	100	100	100

Country	ICT products	ICT services	Health industries	Auto & other transport	Other industries	All industries
USA	26	27	27	8	13	100
EU	13	7	22	31	27	100
Japan	20	5	12	31	32	100
China	29	18	5	11	36	100
ROW	34	3	25	6	32	100
World	23	15	21	17	17	100

Source: Sapir (2021), based on Hernández et al. (2020)

EU-headquartered companies have a strong position in more traditional sectors, like the car industry and other industries, where demand growth is lower than in the ICT sectors. In these more traditional sectors, which together absorb nearly 60% of total R&D spending of EU-based companies, EU firms account for more than 40% of global R&D spending. This is more than double their average share in three high-tech sectors (ICT products, ICT services and health industries) which together account for nearly 60% of global 2 500 R&D spending.

Table 4 illustrates the strong position of EU-headquartered firms in medium-tech sectors such as cars, and their weak position in high-tech ICT sectors, which lists the global top 20 companies in terms of R&D spending. There are only four EU-headquartered companies in the top 20, but none in the high-tech ICT or health sectors.

Table 4 **The world's top 20 companies in R&D spending, 2018**

Rank	Company	Country	Sector	R&D (€bn)
1	Alphabet	USA	ICT services	18.3
2	Samsung Electronics	S. Korea	ICT products	14.8
3	Microsoft	USA	ICT services	14.7
4	Volkswagen	Germany	Automobiles & Parts	13.6
5	Huawei	China	ICT products	12.7
6	Apple	USA	ICT products	12.4
7	Intel	USA	ICT products	11.8
8	Roche	Switzerland	Pharma & Biotech	9.8
9	Johnson & Johnson	USA	Pharma & Biotech	9.4
10	Daimler	Germany	Automobiles & Parts	9.0
11	Facebook	USA	ICT services	9.0
12	Merck US	USA	Pharma & Biotech	8.5
13	Toyota Motor	Japan	Automobiles & Parts	8.3
14	Novartis	Switzerland	Pharma & Biotech	8.0
15	Ford Motor	USA	Automobiles & Parts	7.2
16	BMW	Germany	Automobiles & Parts	6.9
17	Pfizer	USA	Pharma & Biotech	6.8
18	General Motors	USA	Automobiles & Parts	6.8
19	Honda Motor	Japan	Automobiles & Parts	6.6
20	Robert Bosch	Germany	Automobiles & Parts	6.2

Source: Sapir (2021), based on Hernández et al. (2020)

Europe's poor performance in ICT is particularly worrying in semiconductors, which are often referred to as the 'the brains of modern technology' and 'the essential fuel of the digital economy. With few exceptions, EU-headquartered companies play only a minor role in the global semiconductor supply chain, which includes three main blocks: R&D, semiconductor production and the production of key inputs.

According to Khan et al. (2021), US-headquartered companies account for 60% of global R&D spending by the semiconductor industry. Next come companies headquartered in Japan, Korea and Taiwan, which account for 30% of global R&D spending in this sector. EU-based companies only play a minor role.

The situation of EU-headquartered companies is not any better in the production of semiconductors, which includes three segments: (1) design, (2) manufacturing, and (3) assembly, testing, and packaging (ATP).

The production of semiconductors, and in particular integrated circuits (chips) consists of three distinct steps: (1) design, (2) fabrication, and (3) assembly, testing, and packaging (ATP). Whether a company provides all three production steps or focuses solely on a single production step depends on its business model. Integrated device manufacturers (IDMs), such as Intel or Samsung, perform all three steps in-house. By contrast, some companies only design chips and rely on contract chipmakers for production. These 'fabless' companies, such as US-headquartered Qualcomm, Broadcom or Nvidia, collaborate with foundries that manufacture chips in their fabrication plants (fabs). By far the largest foundry in the world is TSMC, headquartered in Taiwan. In between these two business models, there is a hybrid model, the 'fab-lite' business model, with several IDMs relying on external foundries, such as TSMC, to produce some chips.

EU-headquartered companies play a minor role in the production of semiconductors. The region has a share of barely 10% for design, 8% for manufacturing and 5% for ATP according to Khan et al. (2021). They are strong, however, in some segments, in particular the production of chips sold to the car industry. In this segment, four EU companies ranked in the global top 6 in 2019 thanks, according to Kleinhans and Besakova (2020), to their close links with European car manufacturers and vertical integration. The four companies - Infineon, STMicroelectronics, NXP and Bosch - are all IDMs, but with a fab-lite approach, which means that they also rely on external, contract foundries, such as TSMC, which are located outside the EU.

The only important part of the semiconductor supply chain where EU-headquartered companies play a significant role is in the production of certain key inputs. Firms headquartered in the EU account for over 20% of the global production of semiconductor manufacturing equipment and are leaders in some niche sub-sectors. This is particularly the case of ASML, with ASM International and Aixtron also playing important roles. EU-headquartered firms also have a significant presence in the production of wafers (Siltronic) and special chemical products (BASF, Linde, Merck). By contrast, they are almost completely absent in design software (although Siemens acquired an important US-based design company in 2017).

Will this dismal situation change post-COVID? The signs are not good, simply because Europe's poor performance in semiconductors has been a persistent feature for such a long time (see Table 5). The EU has niche players, but none seems capable of becoming a global leader in the design and production of semiconductors, which together account for about 70% of the sector's value added.

Table 5 **Top 10 global semiconductor firms, by sales revenue, 1980–2020**

Ranking	1980	1990	2000	2010	2020*
1	Texas Instruments	NEC (Japan)	Intel	Intel	Intel
2	National Semiconductor	Toshiba (Japan)	Samsung (South Korea)	Samsung (South Korea)	Samsung (South Korea)
3	Motorola	Intel	NEC (Japan)	TSMC (Taiwan, foundry)	TSMC (Taiwan, foundry)
4	Philips (the Netherlands)	Hitachi (Japan)	Texas Instruments	Texas Instruments	SK Hynix (South Korea)
5	Intel	Motorola	Toshiba (Japan)	Toshiba (Japan)	Micron
6	NEC (Japan)	Texas Instruments	STMicro (Europe)	Renesas (Japan)	Broadcom (fabless)
7	Fairchild Semiconductor	Fujitsu (Japan)	Motorola	SK Hynix (South Korea)	Qualcomm (fabless)
8	Hitachi (Japan)	Mitsubishi (Japan)	Micron	STMicro (Europe)	Nvidia (fabless)
9	Toshiba (Japan)	National Semiconductors	Hyundai (South Korea)	Micron	Texas Instruments
10	Mostek	Philips (the Netherlands)	Hitachi (Japan)	Qualcomm (fabless)	HiSilicon (China, fabless)

* First half of 2020.
Note: Companies shaded in green are domiciled in Europe.
Source: Bown (2020)

There is, however, one reason for optimism: the agreement by EU countries to allocate at least 20% of their RRF programmes to digital investments, which represents EUR 100-150 billion over the next two to three years. This is a substantial amount, but the question is how this money will be used. Will it simply increase the adoption of ICT products and services by EU companies, or will it also boost innovation and production by EU firms in key ICT areas, like semiconductors?

EU Member States seem to have become aware of the urgency to act. In their joint declaration of April 2021 on A European Initiative on Processors and Semiconductor Technologies, ministers of telecommunications from 22 EU countries indicated that 'Europe's share of the… global semiconductor market is around 10%, well below its economic standing. Europe is increasingly dependent on chips produced in other regions of the world… To ensure Europe's technology sovereignty and competitiveness […], we need to strengthen Europe's capacity to develop the next generation of processors and semiconductors.' (Ministers of Telecommunications of the European Union, 2021).

This concern of EU Ministers was echoed in the European Commission's communication of May 2021, 'Updating the 2020 New Industrial Strategy'. It reaffirmed both that '[o]penness to trade and investment is a strength and source of growth and resilience for the EU, as a major importer and exporter' and that 'the EU needs to improve its open strategic autonomy in key areas.' They added that COVID-19 had had a negative impact on global supply chains and led to shortages in Europe, including in semiconductors for the car industry. (European Commission, 2021j)

To remedy this situation, the Commission proposed a three-pronged strategy with:

1) the creation of an industrial alliance on processors and semiconductor technologies, a platform for stakeholders to discuss new business partnerships and models;
2) support for Member States' efforts to pool public resources via an important project of common European interest in semiconductors, which would provide a legal framework for State aid for cross-border projects; and
3) the mobilisation of a share of RRF funding allocated to the digital transition.

This strategy sounds promising. But a question remains about how to overcome the EU's long-standing disadvantage in semiconductors.

One idea that seems to have gathered momentum is to build and operate a new fab in Europe. However, as a Commission working document recently noted, 'A new fab with the latest technology (2 nm in 2025/6) is challenging both technologically and economically (EUR 20 billion upfront and EUR 5 billion a year to operate) and is not in the reach of any individual EU supplier today.'

This leaves only one other option: inviting TSMC, Samsung or Intel to set up a fab in the EU, alone or in partnership with an EU company. Apparently, neither TSMC or Samsung are interested, preferring to expand production in their home countries, Taiwan and South Korea respectively, and in the US, which is also keen to achieve greater strategic autonomy in semiconductors, and is the guarantor of these two countries' military security[15]. However, Intel, which already operates a fab in Ireland, seems very interested, according to its CEO, to expand production in the EU[16].

To try and overcome this hurdle, the Commission tabled in February 2022 the European Chips Act to promote research and production of cutting-edge semiconductors. Under this plan, which still needs approval by national governments and the European Parliament, the European Commission and national governments would spend €11bn to build three pilot facilities for any company to use. Member States and businesses are expected to invest a further €32bn by 2030. The Commission has agreed to adapt EU state aid rules to allow for public subsidies. However, whether the subsidies will simply help attract companies headquartered outside the EU to come and produce semiconductors on

[15] See https://www.eenewseurope.com/news/2nm-eurofab-tsmc-intel-samsung
[16] See Hollinger and Abboud (2021)

EU soil or instead contribute to rejuvenating the capability of EU-headquartered companies to be global players in higher technology chips remains to be seen.

Expanding EU semiconductor production would surely decrease EU semiconductor imports, but would this amount to gaining strategic autonomy? Answering this question requires first understanding what strategic autonomy means.

The concept of strategic autonomy has gained salience among EU politicians and analysts in the late 2010s in response to growing concern about the economic and political implications for Europe of greater nationalism in, and confrontation between, the US and China. It has gained prominence during the COVID crisis and the concern about global supply chains.

According to the Commission's 2020 New Industrial Strategy for Europe[17], 'Europe's strategic autonomy is about reducing dependence on others for things we need the most: critical materials and technologies, food, infrastructure, security and other strategic areas.'

But what does 'reducing dependence on others' really mean? Does it simply mean increasing production on EU soil or also production by EU-headquartered companies? The bar is obviously higher if the objective is to encourage production by EU-headquartered companies, which in the case of semiconductors would mainly mean increasing the EU's capability in terms of R&D and innovation, rather than simply attracting (i.e. subsidising?) foreign firms to produce chips on EU soil.

Although both options would lead to a reduction of semiconductor imports by the EU, one can have legitimate doubts that policies targeting imports rather than the real source of the EU problem, namely insufficient R&D and innovation in semiconductors for more than a generation, would confer real, sustained strategic autonomy to the EU in this domain.

Finally, there is the big question about what this all means for globalisation and global supply chains. Will there be a before and after COVID-19?

To try to answer this question, we need to begin by examining the situation before COVID-19.

Starting in the early 1990s, the world entered an era of hyper-globalisation (Subramanian and Kessler, 2013), in which world trade rose much more rapidly than world GDP. Historically, the ratio of world merchandise trade to world GDP had never exceeded 18%, but during the period 1990-2008 it rose steadily from 15 to 25%. This was the result of two main factors: the ICT revolution, which allowed firms to organise and coordinate production processes across the world in real time, and economic liberalisation in previously semi-autarkic countries like China, India and Russia, which hugely increased the share of world population actively participating in the process of international division of labour.

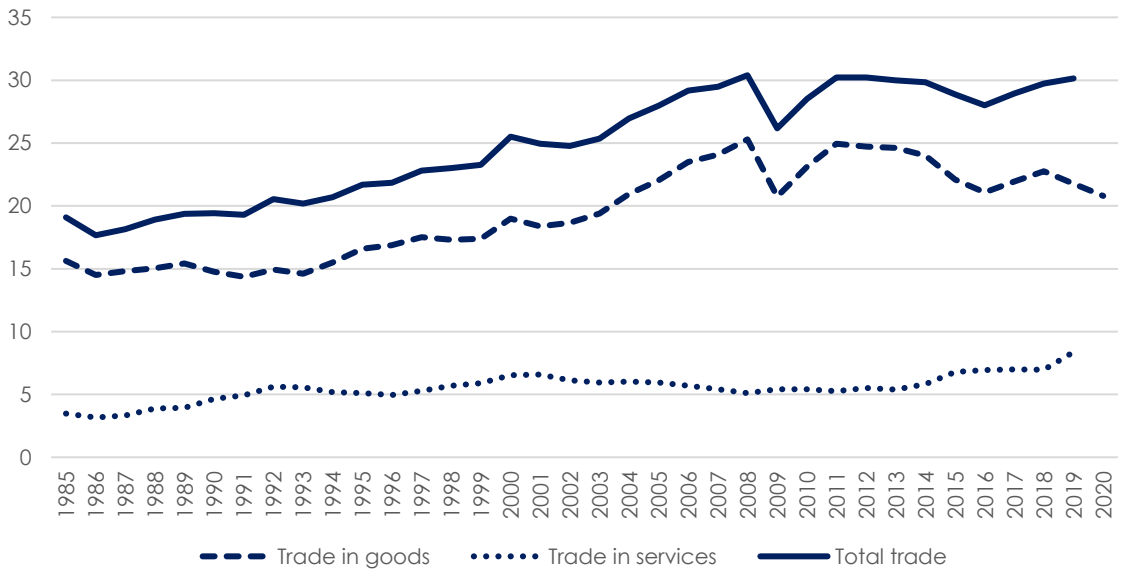
Together, these two factors enabled manufacturing firms based in advanced countries to source labour-intensive products or components from locations with relatively cheap labour. Global supply-chain trade between advanced and developing or emerging economies was the main driver of the process of hyper-globalisation, accounting in 2008 for more than half of world merchandise trade according to Borin and Mancini (2019). In turn, deeper trade specialisation associated with complex global supply chains has proven to enhance productivity and income growth, which helped convergence between emerging and advanced economies. See, for instance, Baldwin and Robert-Nicoud (2014) and World Bank (2020).

[17] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1593086905382&uri=CELEX:52020DC0102

After the great recession, hyper-globalisation stalled. It was followed by a phase that can be described either as de-globalisation or 'slowbalisation' (the slowing down of globalisation) depending on the indicator one uses. Looking at world trade in goods and services, Antras (2020) and Giovanetti et al. (2021) argue that what we have been witnessing since 2011 is not de-globalisation but slowbalisation, since the ratio of world trade to world GDP has remained around the level it had reached at its peak in 2008. See the top line in Graph 17.

However, looking separately at trade in goods and trade in services shows a different picture. De-globalisation seems to have already started for merchandise trade, with the ratio of world trade to world GDP falling substantially from its peak in 2008. By contrast, for trade in services there seems to be neither de-globalisation nor slowbalisation, but rather an increase in globalisation, with the ratio of world trade to world GDP continuing to increase after 2008.

Graph 17 **World trade over world GDP, 1985-2020 (%)**



Source: own computation based on IMF and WTO data for trade in goods, and on World Bank data for trade in goods and services

What caused the break after the great financial crisis, and why has the situation been different for trade in goods and trade in services?

Antras (2021) argues that it is hard to imagine that technological developments are responsible for slowbalisation. It must have been caused by policy developments, in particular a reversal of economic liberalisation. However, the reversal is not occurring primarily in developing and emerging countries, which often liberalised their economies in the 1980s, but in advanced countries, where there has been a political backlash against globalisation.

I do not fully share Antras' view that digital technologies have the potential to give hyper-globalisation a second wind over the coming decades. My reservation is based on the distinction between manufacturing and services.

In manufacturing, if, as Baldwin and Forslid (2019) predict, parts of the production process become jobless due to new digital technologies, then the decisions taken by firms on where to locate production will no longer depend on relative labour costs. This could mean that some production

activities will become localised closer to where they are consumed than is currently the case, which may reduce rather than increase trade in manufactured products.

By contrast, in services, new digital technologies are rendering tradable many activities that were hitherto non-tradable. What happened in manufacturing 20-25 years ago is now happening in services, which probably explains why world trade in services increased faster than world GDP after the great recession. Because services tend to be highly labour-intensive and the services that are becoming digitally tradable are typically intensive in medium- to high-skilled labour, artificial intelligence combined with digital technologies will vastly increase the potential to shift service delivery from advanced countries to countries with relatively cheap skilled labour. This would increase trade flows.

New digital technologies may therefore decrease trade in manufacturing but increase trade in services. Since COVID-19 has clearly accelerated the adoption of digital technologies, these trends are likely to accelerate post-COVID compared to the pre-COVID situation.

But I completely agree with Antras (2021) that the political backlash against globalisation in advanced countries has already had and is likely to continue to have a negative impact on trade flows between advanced and developing or emerging countries. Before COVID-19, the main factors responsible for this backlash were rising inequality in advanced economies (often attributed to rising trade with lower-income countries, though technological change is probably as much if not more the culprit) and the increasing economic and political power of the biggest emerging country, China. China is now labelled as a 'strategic rival' by the US and as a 'systemic rival' by the EU.

At the same time, the relatively poor performance of the EU and the US during the great financial crisis and the COVID pandemic have clearly reduced the attractiveness of the western model to authoritarian countries like China. This further complicates cooperative solutions to deal with the backlash of globalisation, in particular in institutions such as the WTO. See Mavroidis and Sapir (2021) for more details.

How does COVID-19 affect policies that have an impact on globalisation? Besides potentially increasing political tensions, in particular between China and the US, the COVID crisis has clearly led some firms to adopt 'just-in-case' strategies and to diversify their global supply chains, including in favour of domestic production, in order to be more resilient.

However, the evidence available so far indicates that reshoring in the wake of the COVID crisis has been very limited and that it is rarely the result of purely business decisions. See Baldwin and Freeman (2021), for a discussion of the trade-offs between costs and resilience associated with global supply chains between from a business and a public policy perspective. Instead, it is mainly prompted by government intervention in the form of subsidies or trade protection measures (see Evenett, 2020, and Evenett and Fritz, 2021).

In general, therefore, reshoring risks carrying costs for efficiency, which would undermine productivity growth if extended beyond a very limited number of activities judged as essential on security grounds, such as essential medical supplies and semiconductors. Reshoring by advanced economies on a massive scale would also impair the convergence by developing or emerging economies who rely on participation in global supply chains and exports to advanced economies to fuel their growth.

At the end of the day, the main danger is that COVID-19 has further exacerbated not just the economic but also the geopolitical divide and tensions between the West and China, which may end up in a new cold war that would be very different than the cold war with the Soviet Union. The previous cold war was frightening at times because the huge military arsenals of atomic bombs maintained by both sides could destroy several times over the entire planet. But economically that cold war had almost no

consequences, at least for the West, because the Soviet Union was not part of the global economic system.

Today, the situation is almost the opposite. A military conflict between China and the West would probably have relatively few consequences for lives outside the South China Sea, but a cold war would have huge global economic repercussions if it meant decoupling, since China is already the second largest economic power and the biggest producer and trader of manufactured goods in the world.

CONCLUSION

Inevitably, the COVID-19 crisis has increased disparities within and between EU countries. However, 'Team Europe', i.e. the EU and its Member States, has proved remarkably resilient thanks to institutions that took the action needed to show solidarity. Within EU countries, through national welfare states and between EU countries, through EU policies, especially NGEU and the EU's joint vaccine procurement strategy, two policies were designed and implemented for the first time during the COVID crisis.

Europe's resilience during the COVID-19 crisis was by no means a foregone conclusion at the start of the crisis given its poor handling of the euro area sovereign debt crisis barely a decade earlier and the scars it had left, including in terms of the loss of trust towards political leaders. During the COVID crisis, most EU countries rallied around their leaders and leaders were able to agree at EU level on bold decisions, such as the Next Generation EU plan and joint vaccine procurement that have paid out. This is certainly good news. But it does not determine which of the three scenarios outlined at the start is most likely to unfold post-COVID 19.

The handling of the COVID-19 certainly does not preclude a scenario of 'business as usual', at least as far as Europe is concerned. True this scenario seemed already unsustainable before the COVID-19 crisis partly because of the disparities that it implies, and seems even more unsustainable now since disparities increased during the COVID-19 crisis. At the same time, the relatively good management of the crisis and the resilience of Europe's economy and society seem to indicate that 'business as usual' may have a longer shelf life than some would fear or hope.

While those inclined to short-termism would be happy with a 'business as usual' scenario, especially in advanced countries where living standards are high, those concerned about sustainability recognise that countries need to change course by taking bold action to prevent (or at least seriously mitigate) climate change and reduce social disparities. But changing course is never easy in democracies that characterise most advanced countries. Change typically produces winners and losers, and changing course in a big way (like moving away from fossil fuels) tends to produce big gains and big losses.

Because crises typically change the political calculus in countries, they may produce changes that would not have been possible otherwise, and these changes may be 'good' or 'bad'. An example of a bad change would be what happened in Germany after World War One, while an example of a good change would be what happened in Europe after World War Two, when institutions were created that generated 30 years of fairly harmonious growth in Europe.

If you buy into this premise, then the questions become:

1) can the COVID-19 crisis be compared to World War One or Two in terms of the societal shock and the opportunity for change that they represent, and
2) are our political forces able to put together a transformational post-COVID-19 societal project, like the European Green Deal plus a programme of greater economic justice (for instance by investing wisely in quality education for all children), that can win the votes of most European citizens by promising them a better future?

If the answer is 'yes', then the 'new deal' scenario is possible.

If the answer is 'no', then there are two options: either we get stuck in the 'business as usual scenario' until it proves unsustainable, by which time it turns into a 'conflict' scenario, or the 'new deal' scenario is put in place but fails and also turns into a 'conflict' scenario. In both instances, 'conflict' refers to the strong disagreement between internal economic and political forces within Europe about the distribution of gains and losses associated with the 'new deal' scenario that prevent its implementation or its robustness.

But the 'conflict' scenario may also result from strong disagreements outside Europe. For instance, it could stem from a conflict between China and the United States over Taiwan or a conflict between rich and poor over climate policies, which has become more likely due to the COVID-19 pandemic.

As Mario Draghi, the Italian Prime Minister, noted in his opening address to the G20 Rome summit, the COVID pandemic and climate change have lots in common: both are global challenges for which 'multilateralism is the best answer… In many ways, it is the only possible answer.'[18] But the pandemic has not been a great example of multilateral cooperation. If anything, it has increased tensions between the United States and China. It has also created rifts between rich countries, where more than 70% of the population is fully or partially vaccinated, and poor countries, where fewer than 5% have been vaccinated. Low levels of trust between countries during and after the pandemic do not bode well for the capacity of the international community to cooperate to fight climate change, no doubt a far more difficult and divisive challenge than the pandemic.

In the decade between the global financial crisis and the COVID-19 crisis, the European Union seems to have succeeded in greatly improving its capacity to respond to crises. Unfortunately, during the same period, the capacity of global institutions to meet global challenges seems to have decreased, partly due to increasing rivalry between the United States and China, the two biggest economies in the world.

As an avowed champion of multilateralism, the European Union can and must work more closely with other countries to promote greater international cooperation to tackle global challenges, such as pandemics and climate change.

[18] Draghi (2021).

3. THE FUTURE OF EMPLOYMENT IN A POST-COVID EUROPE: BUILDING RESILIENCE THROUGH A FAIR DIGITAL AND GREEN ECONOMY[19]

Melinda C. Mills
Nuffield Professor of Sociology and Director,
Leverhulme Centre for Demographic Science, University of Oxford

EXECUTIVE SUMMARY

The COVID-19 pandemic has been an exceptional exogenous shock, accelerating digitalisation, forcing a re-evaluation of ways of working and living, but also exposing inequalities, gaps in skills, the vulnerability of certain industries and economies, and dependence on supply chains. The current study evaluates how the pandemic transformed employment and examines the heterogeneity of policy responses across Europe, following this up with a vision of opportunities brought about by the green, digital and social transition for a fair post-pandemic recovery sensitive to climate risks and emphasising higher productivity. COVID-19 has exacerbated inequalities, with young people, migrant workers, self-employed, temporary workers and the lower-skilled being hardest hit, albeit with variation by type of firm and industrial sector. The acceleration of new forms of digital and flexible employment relationships demands policies that tackle work-life balance and account for employees' health, legal and financial implications and the question of how firms have to revaluate security, productivity and office space. Building a resilient digital economy demands infrastructure investment, digitalisation of data and public services, IT, fintech, computing and microelectronics, but also an acknowledgement of diverse starting points across the EU. A shift to the green economy will generate new jobs in carbon capture storage, renewables and clean energy, land-based ecosystem innovation, new infrastructure and retrofitting of buildings. It must also be a fair social transition, with the digital and green economy only palatable if linked to education and job creation, recognition of different starting points and regional and group inequalities, with an urgent need for upskilling and reskilling and the development of agile educational training. Europe has fallen behind on R&D investment and is dependent on components and supply chains that fuel new digital and green technologies. Beyond investment in infrastructure and skills, recovery plans should not underestimate barriers and bottlenecks related to legislative, planning, supply chain and capital investment needs.

***

[19] The author is thankful to Dragos Adascalitei, Julia le Blanc, Tim van Rie and Anneleen Vandeplas for useful comments to a draft of this manuscript.

INTRODUCTION

The COVID-19 pandemic brought an unprecedented economic and public health shock, casting a long shadow across Europe and the world. Yet simultaneously it accelerated digitalisation and forced a re-evaluation of ways of working and living, while exposing inequalities and weaknesses in research innovation and supply chains. During 2020-2021, public health measures such as lockdowns and travel restrictions limited daily lives and employment, while disrupting global supply chains (Ivanov, 2020) and organisations' business models (Ritter & Pedersen, 2020). As individuals developed new habits and ways of living, consumer behaviour likewise changed, with shopping and products moving online, digital innovations rapidly emerging across multiple private and public sectors, and greater focus on the climate and transformations in travel (Sheth, 2020).

The impact of the pandemic, however, was unequal and heterogeneous across socio- demographic groups, between different regions of the same country, by type of firm and across employment sectors. Certain industries endured deep changes, forcing businesses to close, reduce work hours, furlough or fire employees. Others continued to carry out essential in-person services under unprecedented pressure, or expanded and evolved to online transactions and deliveries, with a large group of employees and businesses shifting to digital ways of working through online employment and services. Some of these changes may fade as the virus retreats, whereas others have fast-tracked transformations and the future of work.

On 10 February 2021, the European Commission announced a EUR 672.5 billion recovery and resilience initiative under NextGenerationEU to support post-pandemic recovery in EU Member States (European Commission, 2021f). To build resilience, the priorities focus on the twin transitions of a greener and digital Europe. The aim of the current study is to evaluate how the COVID-19 pandemic transformed employment and labour markets, examine the heterogeneous policy responses to the new situation, and outline a vision for post-pandemic recovery that embraces the twin transitions of a digital and green economy, but also introduces a third element of a fair social transition.

As Europe moves towards the new recovery and resilience plan a fair social transition that includes employment, reskilling and upskilling, acknowledgement of different starting points and regional and group inequalities will be a core consideration. Digitalisation also has infrastructure, skills and public acceptance challenges. It demands not only high-quality broadband services, but often the reskilling of workers in settings ranging from the digitalisation of public administration to use in small and medium-sized enterprises, as well as consideration of the public's ability to embrace new technologies such as fintech (e.g. digital banking). The pandemic accelerated digital technology, with communications rapidly shifting online, virtual health and public service visits, and online learning and meetings. Europe can build on this momentum but must also recognise and work to alleviate digital inequalities within and between countries to maintain a fair transition.

The recognition of the climate crisis and need to protect future generations has likewise come to the fore. But, as nations emerge from a period of deep economic crisis, there will be strong pressures to channel money to urgent causes such as healthcare waiting lists or job recovery, ignoring green initiatives. A green recovery will only be politically palatable if it is also attractive to the nation and public's immediate needs, focusing on fairness, job creation and reskilling. Investments in research and development comparable to some Asian and non-EU countries will be vital to build renewables, new approaches to existing industries such as agriculture or steel production, and to create resilient ecosystems or jobs in construction to retrofit and renovate buildings or overhaul new green transportation and power infrastructures. Crucially, meeting the challenge of the social, digital and green transitions demands rethinking education to focus on reskilling and upskilling to support new skills, innovative ways of learning and lifelong learning.

The chapter answers the aim and sets out a vision in the following manner. In the second section, this paper evaluates national policy responses to the pandemic, noting differences in the population and labour market composition and post-pandemic starting points across Europe. The third section reveals the heterogeneity in impact of the pandemic and inequality across socio-demographic groups, firm sizes and sectors. A fourth section illustrates how COVID-19 accelerated new forms of employment and the future of work, with attention to remote working and related policy requirements. The paper then goes on to outline a vision of how the shift to a digital economy could work, with the focus on the digitalisation of data, IT services, computing and microelectronics, while acknowledging the heterogeneous starting points of the digital economy across Europe. The sixth section concentrates on a vision to build a resilient green economy, outlining key opportunities as well as challenges for the labour market, economy and skills, once again highlighting heterogeneity in attitudes and starting points across Europe. This is followed by an acknowledgement that a transition to the digital and green economy in Europe will only be feasible by investment in research, development and innovation, but that it is also a social and fair transition focussing on new skills, upskilling and reskilling, and adaptability to manage the shortage, surplus and reallocation of workers. The chapter concludes with a brief summary of the main points, risk management and future directions.

3.1. THE COVID-19 PANDEMIC IN EUROPE AND NATIONAL POLICY RESPONSES

3.1.1 Socio-demographic and epidemiological composition of population

The intensity of the impact and the subsequent post-COVID recovery are inherently linked to pre-pandemic national population composition, social and economic conditions, labour market and industrial structure, as well as the ongoing government response. Within and across nations, we have witnessed different levels of hospitalisation and mortality. This varying picture is the result of population composition, including age and ethnicity, but also social deprivation, population density, intergenerational households and related comorbidities associated with the virus – such as levels of obesity and Type 2 diabetes (Aburto et al. 2021; Verhagen et al., 2020). A higher incidence of COVID-19 infections, hospitalisations and deaths in countries such as Italy or the UK was driven by multiple factors including an older population, spread within intergenerational households (Dowd et al., 2020a), but also lack of protection of care home residents (Ciminelli & Garcia-Mandicó, 2020). The intensity and persistence of the pandemic prevalence displayed regional patterns within countries rather than purely by national borders, often overlapping with existing pockets of social deprivation (Gaugitsch et al. 2020; Verhagen et al., 2020). Across Europe, there was considerable regional variation in the Netherlands (Hoekman et al., 2020), Germany (Ehlert, 2021) and Italy (Ciminelli & Garcia-Mandicó, 2020), often for complex health and demographic reasons.

3.1.2 National policy responses and relationship to the labour market

The national policy response to COVID-19 across Europe differed due to the severity of the crisis, but also patterned along pre-existing path-dependent social, cultural, institutional and political lines and systems. Scientists provided evidence in this rapidly changing situation, which then needed to be strategically interpreted by policy-makers and politicians for implementation. At the global, EU and national levels, a variety of business, employment, income and debt support measures were initiated in different sectors, aimed particularly at the hardest-hit sectors such as transport, tourism, hospitality and trade.

The pandemic affected the labour market via several mechanisms. First, more directly as a result of imposed lockdowns in 2020 and 2021, which affected employment, unemployment, payment of furlough, production and supply chains. The impacts of these changes were also uneven, as explored in the next section. A second mechanism was the indirect influence of falling consumer confidence and a change in behaviour due to fear of infection, remaining in lockdown and inability to assess risk (Mills, 2021). This had the effect of reducing mobility and lowering consumer spending, in turn

affecting certain sectors, and was particularly driven by high-income households (Chetty et al., 2020). Changes in purchasing behaviour resulted in an accelerated shift to virtual shopping, food delivery and large online general retailers such as Amazon (Mason et al., 2020). A third considerable revolution was the rapid shift to remote working for many professional white-collar employees, with communications and processes moving online across multiple sectors.

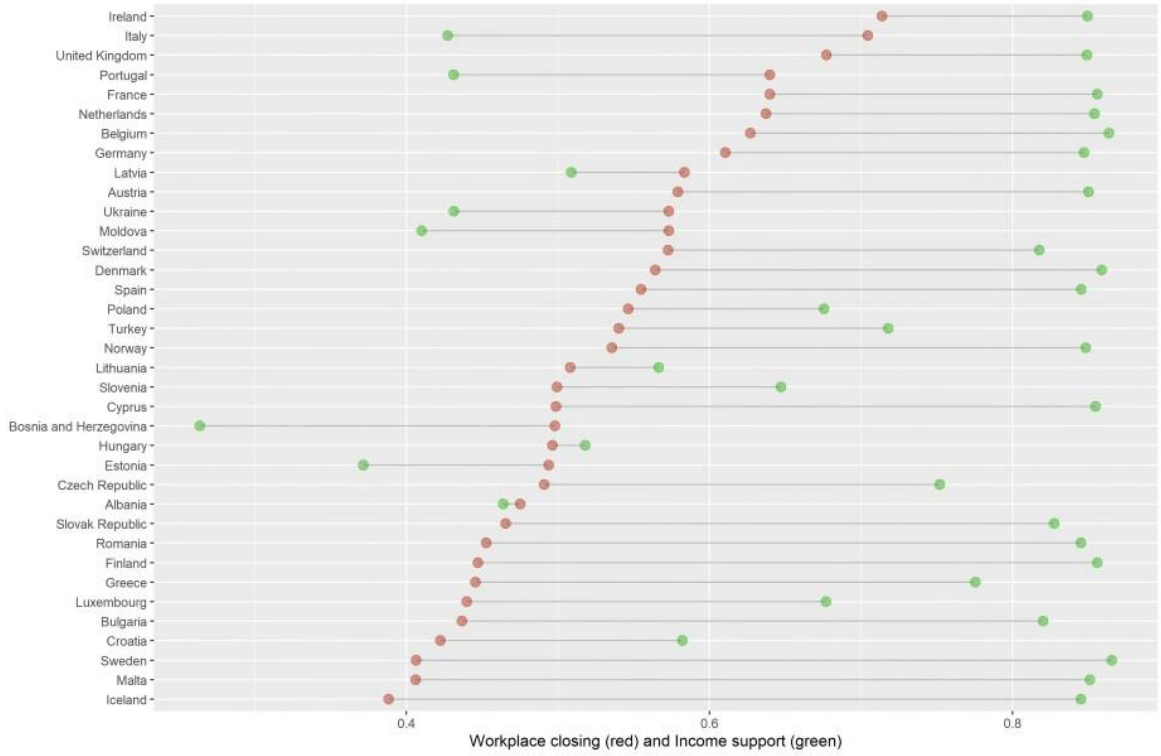
National governments introduced different policies to protect their populations against the economic fall-out of lockdowns and disruption, and to shield the health sector, their population and economies. These ranged from containment and closure policies such as restrictions in movement, lockdowns and school closures, to public health responses such as introducing testing regimes, vaccine investment and emergency investments in healthcare. Economic policies including income support or debt relief were also introduced.

Drawing on the Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale et al., 2021) and EUROMOD simulations (European Commission Employment, Social Affairs & Inclusion, 2020a) the policy reaction of European countries can be compared across several relevant domains. The OxCGRT tracker measures policy changes daily from 1 January 2020, with the descriptions shown taking an average of policy response up to 5 June 2021.

Graph 18 illustrates the average measures of workplace closing (red) and income support (green) across selected European countries. For comparability, the measures shown in the figure are standardised along a scale ranging from 0 to 1. The original scale measures the closing of workplaces as: no measures (0); recommended closing or work from home or all businesses open with significant alterations (1); required closing or work from home for some sectors or categories of workers (2); required closing or work from home for all but essential services (e.g. grocery stores, doctors) (3). Although not captured in this graph, other measures such as school closures had deep and gender-specific impacts beyond direct employment or economic measures. The measure of level of income support gauges whether the government provided direct cash payments to those who lost their jobs or could not work. The original measure varies from 0 (no income support), 1 (replacement of less than 50% of lost salary if a flat sum or less than 50% of median salary) to 2 (replacement of 50% or more of lost salary if a flat sum or greater than 50% of median salary).

Graph 18 reveals several key differences in the policy responses across Europe, which may place a shadow on short- and medium-term recovery. First, examining workplace closure (in red) we see that countries varied in the severity of their measures. We also see more stringent closures in nations that had some of the highest hospitalisation and mortality levels, namely Ireland, Italy, the UK, Portugal, France and the Netherlands, with often complete lockdowns of all but essential services for multiple and longer periods of time. This had deep impacts on the labour market, businesses, economy and the public. A second observation is the variation in the level of income support (in green) across Europe and bifurcation of countries, juxtaposing those with comparatively high levels of income support (e.g. Belgium, Denmark, Finland, Ireland, UK, France, Germany and Austria) against others with lower support (Bosnia and Herzegovina, Estonia, Moldova, Ukraine, Italy, Portugal, Latvia). It is notable, however, that EUROMOD simulations actually place Italy and Portugal as being closer to the EU average for support, suggesting that further comparison across data sources is warranted (European Commission Employment, Social Affairs & Inclusion, 2020a). Italy was in fact one of the countries that had the highest coverage of workers by short-time work schemes, which is not adequately reflected by the aggregated measure in Graph 18 (Eurostat, 2021b). A final striking observation is the constellation of eight countries that had both stringent workplace closures coupled with limited income support, a trend which was entirely the reverse of what was found in other countries. This occurred in Latvia, Ukraine, Moldova, Bosnia and Herzegovina, Estonia and to some extent Albania.

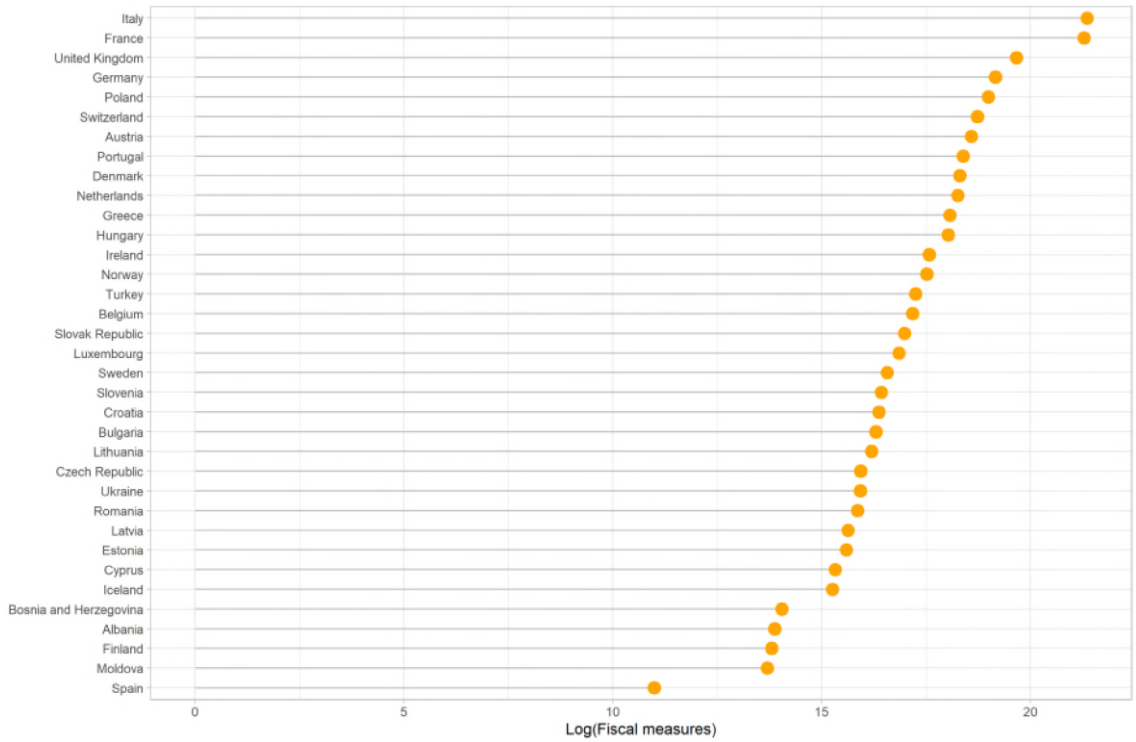
Graph 18 **Measure of workplace closing (red) and income support (green) national policies, average of January 1 2020 to June 5 2021, European countries**



Source: Graph produced by author using Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale et al., 2021)
Notes: Measures are standardised to the range of 0-1 for comparability, taking the average from January 1 2020 to June 5 2021.

Economic stimulus spending also varied widely across countries as shown in Graph 19. This refers to the recorded monetary value in US dollars of fiscal stimuli including spending or tax cuts beyond health-related spending. Here we see that particularly countries such as Italy, France, the UK and Germany had high levels, while Spain had the lowest economic stimulus spending of all countries. Economic measures in Spain and other countries, however, may have been offset by spending in other areas, captured in Graph 20 in relation to indices that include multiple economic measures.

Graph 19 **Economic stimulus spending of fiscal stimuli including spending or tax cuts beyond health-related spending, log of US dollars, average January 1 2020 to June 5 2021**

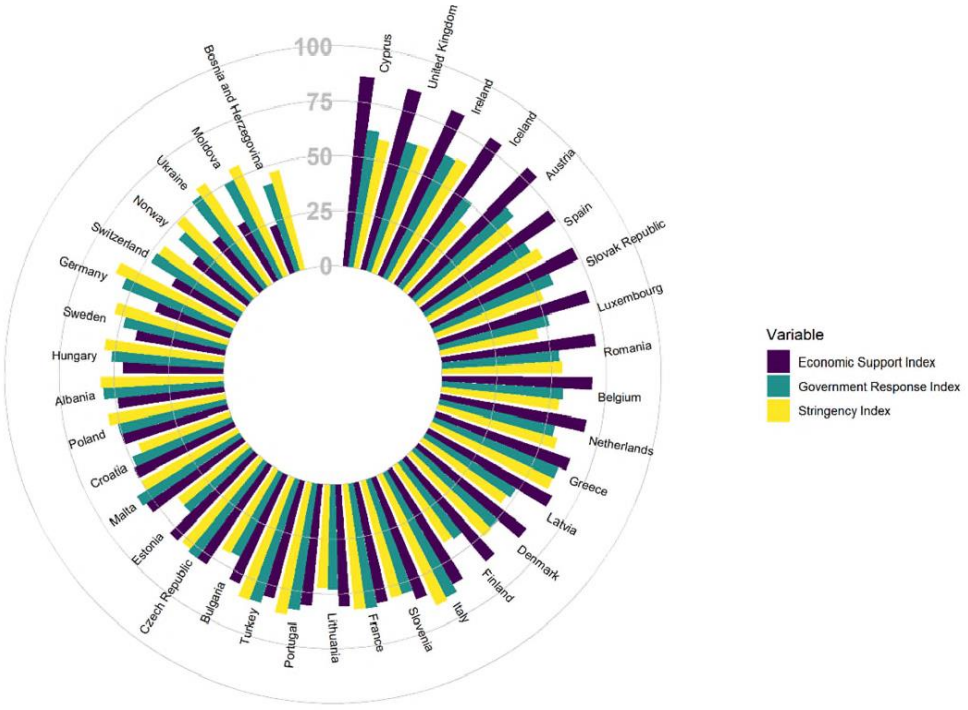


Source: Graph produced by author using Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale et al. 2021)
Notes: Measure shown in a log scale, which fits the distribution of the fiscal measure but is a general indication that does account for the size of the country and economy.

To provide a relative comparison of the degree of national government policy responses in Europe, Graph 20 plots the aggregated indices of several policy measures, which range from zero to 100.

Graph 20 is a circular bar plot ordered by economic support index, followed by government response and stringency indices, with methodology described elsewhere (Hale et al. 2021). The economic response index combines measures of income support, debt/contract relief, fiscal measures and international support. It shows that when diverse economic measures are included, countries such as Cyprus, Iceland, Austria, Spain and Slovakia emerge as having higher support, illustrating that European countries varied in the economic policy levers they applied to counter the economic crisis during the pandemic. The general government response index includes all policy indicators (containment and closure, economic, and health system policies), with the general stringency index evaluating the severity and depth of the governmental response.

Graph 20 **COVID-19 economic, government and stringency response indices, selected European countries, average January 1 2020 to June 5 2021**



Source: Graph produced by author using Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale et al., 2021)
Notes: Measures are standardised to the range of 0-1 for comparability, taking the average from January 1 2020 to June 5 2021.

A more detailed policy comparison goes beyond the auspices of this chapter, but as of mid-May 2021 EUROFOUND's COVID-19 EU PolicyWatch database (EUROFOUND, 2020a) provides a useful nuance, indicating around 1 286 policy measures introduced by national governments and related stakeholders to mitigate the social and economic effects of COVID-19 on businesses, workers and the public. The database shows that the majority of policies were introduced to support businesses to stay afloat (29.5%, i.e. 379 of 1 286 policy measures), followed by protecting workers and adaption of the workplace (14.5%) and thirdly, income protection beyond short periods of work (11.7%). As of early 2021, new policies promoted economic, labour market and social recovery (10.1%). Other protective policy reactions included a constellation of policies aimed at employment protection and retention (9.3%), ensuring business continuity and support for essential services (8.8%) and measures to prevent social hardship (7.2%). 2021 policies in particular focused on the reorientation of business activities (5.6%) and support for businesses to recover and get back to normal (3.4%).

The ability for EU Member States to drive recovery varies in relation to their demographic and industrial composition, financial strength, COVID-19 policy legacy and capacity to innovate. Given these different starting points and available levers, EU recovery and resilience needs to be tailored to different economies to match local economies and population and educational skills composition.

3.2. HETEROGENEITY IN IMPACT: SECTOR AND SOCIO-DEMOGRAPHIC GROUPS

As the pandemic progressed, it became increasingly apparent that the SARS-CoV-2 virus spread primarily not from surfaces but via aerosol transmission, particularly in poorly ventilated conditions

(Somsen et al. 2020). Due to the nature of transmission and spread and comorbidities associated with the virus, COVID-19 disproportionately hit different socio-demographic groups, firms and sectors in an unequal and distinct manner, often reinforcing and exacerbating existing inequalities and poor working conditions, and highlighting the need for refitting buildings and workplaces.

3.2.1 Sector and firm-size disparities of the COVID-19 impact

Previous exogenous shocks have often hit employment sectors differently. During the 2008 global financial crisis, the capital-intensive sectors of construction and manufacturing were the hardest hit, in some cases reducing employment by 10-20% in the EU (EUROFOUND, 2020a). Given the nature of the pandemic, non-pharmaceutical interventions were introduced that restricted physical contact and closed spaces, with significant drops in personal services that required in- person interaction (International Labour Organization, 2021). There were severe job losses and furloughing in the service sectors, including arts and culture, hotels and restaurants, sports, leisure, retail trade, transport and tourism-related industries, often more damaging to small and medium-size enterprises (European Commission, 2020d; International Labour Organization, 2021). Across Europe, non-essential services were closed or offering restricted services such as takeaway services. This was across the board in most countries such as the United States (Chetty et al., 2020), Spain (Farre et al., 2020) and South Korea (Aum et al., 2021).

Conversely, there was an intensified workload for essential services with frontline workers, such as healthcare, some forms of retail such as supermarkets and online retail and delivery. Other disrupted sectors included transport, vehicle repair and the automotive industries, which were disrupted by partial factory closures and supply chain disruption, compounded by falling consumer demand.

The result was that different segments of the population and nations were affected more deeply than others. Employment in essential services or non-essential employment that was possible via tele- or remote working accounted for over half of aggregate EU employment. Employment ceased due to the closure of many non-essential sectors accounted for around 10% of EU employment and was even higher at around 13%, in countries with large tourist industries such as Spain, Greece and Ireland (European Commission, 2020d). Regions where economies were dependent upon certain sectors such as tourism were deeply affected, whereas those with more diversified economies coped more easily. The pandemic also revealed how sensitive production, exports and labour are to international value chains, cross-border workers and international trade.

3.2.2 COVID-19 impact across socio-demographic traits and intersectionality of inequalities

A comprehensive overview of the impact of the pandemic on employment in the EU has been summarised within the Employment and Social Developments in Europe Annual Review 2021 (ESDE, 2021) and the Labour Market and Wage Developments of Europe 2020 (European Commission Employment, Social Affairs & Inclusion, 2020b). Although Europe experienced a deep economic shock in the first half of 2020, unemployment remained relatively modest at around 7.6%. This was partially attributed to the widespread use of short-time working schemes, described previously. A major feature of the employment impact, however, was a reduction in the hours worked as opposed to the numbers employed. While unemployment increased only slightly, there was a significant increase in inactivity (i.e., people available for work but not seeking work), likely related to mobility constraints coupled with health concerns.

The majority of COVID-19 related job losses were among low-skilled and low-wage workers (Cajner et al., 2020), the youngest workers (Bui et al., 2020) and in some countries, women (Farre et al., 2020). In the US, 35% of workers in the bottom quintile of the wage distribution lost employment, vs

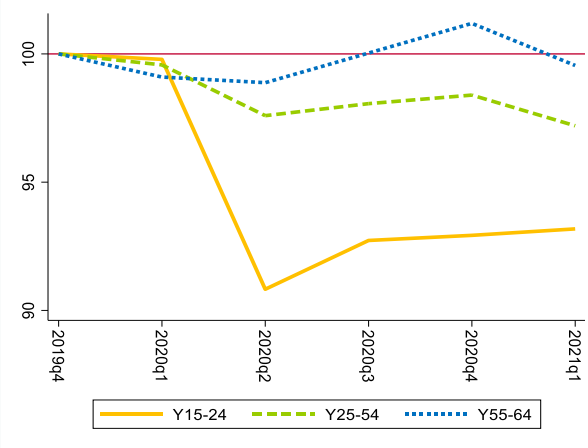
9% in the top quintile (Cajner et al. 2020). Within Europe, unemployment occurred mainly in southern Europe, often linked with tourism, which had already been hit by the economic crisis of 2008-2009.

Disproportionate impact by social group

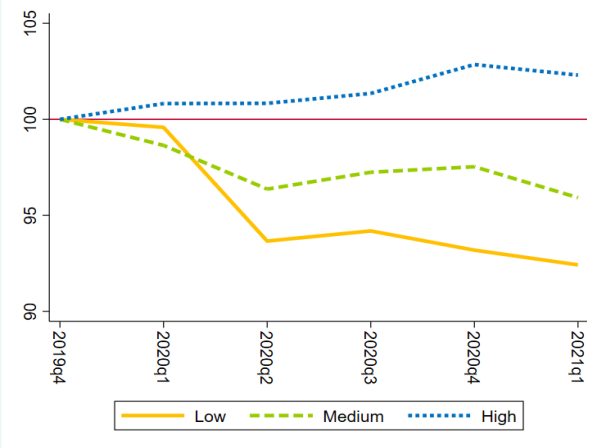
Particularly during the early phases of the pandemic, inequalities in job loss and furloughing were unevenly distributed across the population. While the direct health and mortality effects were more severe for older adults, the economic impacts were more profound for younger workers and the lower educated (Dowd et al., 2020b). Graph 21 shows the disproportionate impact on employment for youth (Graph 21a), the lower-skilled (Graph 21b), women (Graph 21c) and those in temporary contracts and self-employed (Graph 21d). There is some evidence that the self-employed disproportionately suffered given that their status offers fewer rights and limited access to sick pay or paid leave (Adams-Prassl et al., 2020). Although not shown in Figure 4, other analyses report that migrant workers also experienced deeper impacts (Fasani and Mazza 2020; European Commission, 2021b).

Graph 21 **Employment dynamics across different groups (by age, skills, gender, and contract type) in the EU**

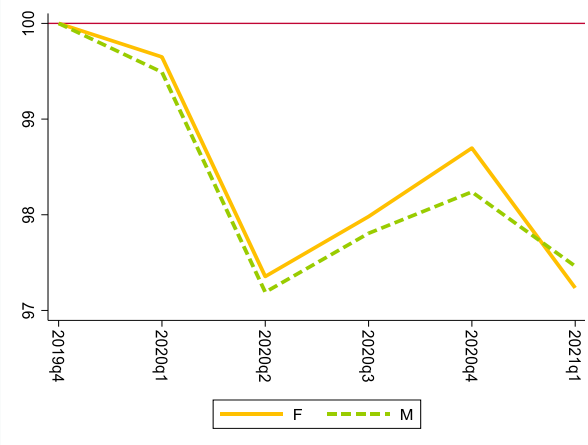
(a) By age



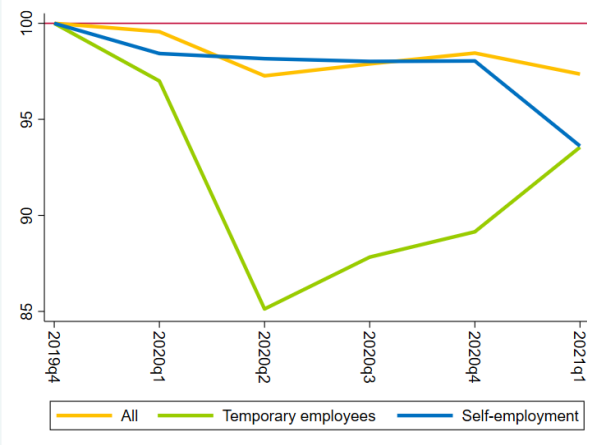
(b) By skills level



(c) By gender



(d) By contract status



Note: Employment is measured in persons. Data are seasonally (but not calendar) adjusted and presented as an index, with 2019Q4 = 100.
Source: ECFIN calculations based on LFS.

Intergenerational inequalities also grew during the pandemic, with young people having their education, training and employment prospects disrupted. Although those close to retirement initially lost their jobs in the early stages of the pandemic, job loss persisted for young people. Younger workers were more likely to lose their job, experience a reduction in earnings and had the highest redundancy and unemployment rates (Susskind and Vines, 2020). Interruptions in education have resulted in learning loss, particularly for the most disadvantaged young people (Engzell et al., 2021), meaning that they may need to accept employment that does not exploit their full human capital potential. Some countries such as Spain and Italy that already had high levels of school dropouts (Eurostat, 2020) were even harder hit by school closures, suggesting urgent attention is needed for reskilling and attention to youth training. Disruption particularly at the young critical life phase of transition from school to work has been shown to produce longer-term scarring that will affect multiple areas of people's lives beyond employment, including mental and physical health, housing, partnership and family formation (Mills et al., 2005a).

Work-life reconciliation and COVID-19

Work-life reconciliation was another central feature of COVID-19, particularly for women and parents. This occurs when the demands of work interfere with personal and family time and commitments, a phenomenon particularly prevalent with shifts to remote or teleworking. Previous research demonstrated that parental status is one of the primary drivers of gender inequality in employment, often related to wage disparities (Glauber, 2018). Many businesses were forced to close, while others reconfigured ways of working. As businesses reacted and often scaled down, cut costs or working hours, women and specifically mothers experienced a 'motherhood penalty' and fathers often a 'fatherhood premium' (Dias et al., 2020). These effects have previously been observed in research related to downsizing or layoffs, which is attributed mainly to cultural norms of perceiving mothers as caregivers and fathers as primarily the breadwinners (Kalev, 2014).

During COVID-19, women were also disproportionately hit by school closures and difficulties in combing work with family responsibilities. Examining 32 countries across Europe, a recent study demonstrated that more protective labour regulations and industrial relations diminished the negative impacts of working non-standard hours or days on work-life conflict (Taiji & Mills, 2020). The strongest factor that shaped the work-life conflict of non-standard schedules was the degree to which workers were covered under collective bargaining agreements in a country, explaining as much as 17% of the variation between European countries. Some argue that COVID-19 eroded collective bargaining agreements (Fay & Ghadimi, 2020), with recent work examining social dialogue and collective bargaining across Europe finding more mixed impacts (Alinger and Adam, 2021). In the early stages of the pandemic until mid-2020, in countries with pre-existing social dialogue traditions, collective bargaining recovered quickly often involving social partners designing and implementing crisis measures such as income support. However, fewer wage agreements were concluded during the pandemic than under normal circumstances (Koester, Benatti and Vlad, 2020).

Work-life conflict can also have deeper and longer-term consequences for the European population when individuals are unable to combine employment with having children. There is evidence that job strain and work-family conflict across Europe can lead to lower women's fertility intentions, particularly when they have low autonomy at work (Begall & Mills, 2011) or live in low gender-equity household environments with high levels of domestic and care labour in addition to employment (Mills et al., 2008). One concern is that although economies will rapidly recover, mothers (and parents) with young children will struggle to return to the labour market. In the short term, this may be related to a later return of many schools and to day care facilities not yet returning to pre-COVID operational levels. Childcare may be limited in the number of placements, hours in the day or days per week and some may offer alternating days when they open. This makes it difficult to plan for and return to a full-time or a job with more hours. Policy directives are important to enhance public

spending on children and the focus on the cost, affordability and quality of childcare, which varies considerably across Europe (Mills et al., 2014).

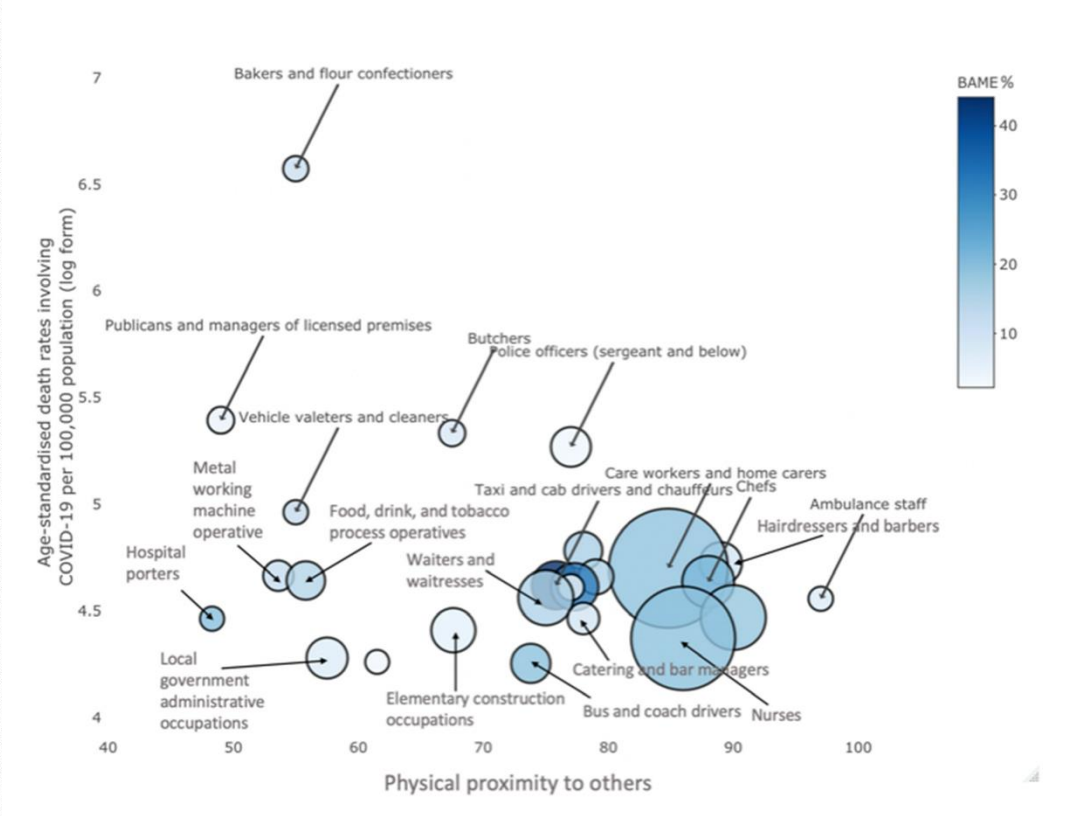
Intersectionality of inequalities

Intersectionality – overlapping systems of discrimination through traits such as gender, ethnicity, migration status, education or occupation – was exposed during the pandemic. The economic impact and changing flexible work patterns were uneven. Although considerable attention has been placed on the shift to digital or remote working, generally only those with higher education, working in high-income white-collar jobs or professionals were able to introduce flexibility by working at home and relying on delivery services. This resulted in a bifurcation and new type of dual labour market segmentation, with blue-collar and frontline workers, often with lower levels of education and concentrated in certain sectors, regions and ethnicities, experiencing employment and economic strains and high levels of uncertainty. Some jobs also lacked COVID-19 income or sick pay coverage, creating financial difficulties. In the short term as of early 2022, it appears that these positions are returning quickly with high demand as economies open up. In the short term, many countries are actually experiencing strain due to shortages of certain types of workers, supply chain disruptions and scarcity of certain goods.

The pandemic exposed disparities in working conditions, with a large proportion of employees across many countries continuing to work in physical settings in high contact services during the pandemic. These workers were employed in often close contact, high proximity environments where they could not work from home, interacted in close proximity to customers or patients, and often had limited personal and protective equipment in the early stages of the pandemic. In Europe, high-contact occupations not amenable to working from home consisted of around 45% of total employment, often in low-paying sectors (European Commission Employment, Social Affairs & Inclusion, 2020b). These jobs were not only more vulnerable to wage losses due to social distancing and lockdown measures, but also had higher mortality rates due to close contact.

Examining 7,961 COVID-19 deaths registered in England and Wales from 9 March to 28 December 2020, Graph 22 reveals the lethal impact of these stark inequalities in employment conditions, shown here for men and by ethnic minority (Mills et al., 2021). The figure illustrates that the highest death rates were for those in leisure, service occupations and elementary occupations such as security guards, transportation, retail assistants and lower-skilled workers in construction and processing plants. It became increasingly clear that those working in particular locations that lacked physical distancing, hygiene, such as those in meat and poultry processing facilities, and living in crowded households and transportation conditions were more exposed (CDC, 2020). Those employed in social care occupations had a statistically significantly higher rate of COVID-19 attributed deaths compared to those of the same age and sex, with 75% of COVID-19 deaths in this period in England and Wales among care workers and home carers. These deaths were related to greater exposure to the virus, inability to work from home and were often occupations that had a high concentration of workers from ethnic minority groups.

Graph 22 **COVID-19 death rates per 100 000 population by occupation, size and percentage of ethnic minorities (BAME) in occupation by physical proximity to others during employment, men ages 20-64 years, England and Wales, 9 March – 28 December 2020**



Source: Mills et al. (2021) based on combining three data sources reported in study.
Notes: Bubble size represents number of workers in employment, BAME refers to black and ethnic minority ethnicity.

A related study of over 100 000 individuals in 73 000 households found that those who had a limited ability or autonomy to abide by non-pharmaceutical interventions during the pandemic such as working at home, reduction of contact or who needed to take public transportation to work were more likely become infected with COVID-19 (Ding et al., 2021). The effects on frontline workers and particularly health professionals through high levels of physical and emotional stress during COVID-19 has the potential risk of post-traumatic stress disorder and fatigue in the post-pandemic period or adverse health effects such as substance use (Ornell et al., 2020). The higher risk of exposure and death to essential and frontline workers during the pandemic also raises the importance of future planning for better protection and occupational health safety measures for this group, as well as better ventilation and working conditions as buildings are retrofitted to meet the demands of the green economy and digitalisation removes certain close-contact interactions.

3.3. COVID-19 AND THE ACCELERATION OF NEW FORMS OF EMPLOYMENT

Although the impact of COVID-19 on employment was diverse, many experienced unprecedented changes. Transformations that were already taking place, such as the digitalisation of services and remote or teleworking, were accelerated, with new innovations that will persist beyond the pandemic. Work regulations and flexibility likewise grew as many white-collar workers worked at home and businesses did not note marked drops in productivity. Other types of work arrangements such as platform employment and freelancers expanded in some countries.

3.3.1 The rise of new forms of employment

COVID-19 was linked to a proliferation of new forms of employment, which blur formal employer-employee relations, transform working patterns and times, organisation, the location of work and the use of ICT. The COVID-19 pandemic widely restricted mobility, moving many workers to mobile or remote working where possible. As many workers stayed at home, other sectors such as hospitality, retail and transport, often in large city centres, faced wide job cuts. As defined previously (EUROFOUND, 2015), new forms of employment that were already beginning to emerge in Europe are characterised by changes in:

(1) employer-employee relationship (e.g., employee with multiple employers, temporary agency work);
(2) intermittent or discontinuous work for limited periods without a regular basis;
(3) networking and cooperation between the self-employed (e.g. freelancers);
(4) location of work other than employer premises; and
(5) prevalence of ICT (e.g., computers, mobile phones).

COVID-19 accelerated the digitalisation of many processes, from education to employment, medical advice, social gatherings and public administration. For white-collar professionals able to work at home, many shifted their work location, with suggestions that this will bring a new wave of home working or at least hybrid situations (Belzunegui-Eraso & Erro-Garcés, 2020). Other major employers such banks and those in financial services have likewise suggested that a large proportion of workers can remain working from home or engage in hybrid working (NL Times, 2020). The current definition of telework – interchangeably here referred to as remote working – from the ILO is the use of ICT such as smartphones, tablets, laptops or desktop computers to perform work outside of the employer's premises (EUROFOUND and the International Labour Office, 2017).

Remote working accelerated around 2007 when the first smartphone was released (Oakman et al., 2020). A recent review found that internationally around one in five jobs can be performed from home, but that this ratio drops in low income countries to one in 26 jobs (Garrote Sanchez et al., 2021). In the EU in 2020, 11% of occupations did not need physical interactions and could be performed from home (European Commission Employment, Social Affairs & Inclusion, 2020b). A considerable barrier is internet access, which is lagging behind in many regions in Europe and globally, a topic we will turn to shortly. The ability for remote work among only higher paid workers and those with reliable internet access has the risk of exacerbating inequalities.

New forms of employment include multiple types of arrangements, including platform work where supply and demand is matched on online platforms where workers using the apps are mostly freelancers. The pandemic brought some increase in platform workers, with demand for delivery services growing during the lockdown and many platforms expanding their scope. This included the delivery of groceries, prepared meals, and medicine and retail goods. Restaurants shifted to starting or increasing delivery of their food through large companies such as Deliveroo, Thuisbezorgd (Netherlands), Liftago (Czechia) or Wolt (Estonia) (EUROFOUND, 2020b). The most recent data on the scale of platform work in Europe from the COLLEEM II survey found that around 1.4% of workers are engaged in platforms as a primary source of income and around 9.8% of workers have performed through platforms (Urzi Brancati, Pescole and Fernandez Macias, 2020). A recent study by the European Centre for Expertise shows that while some activities such as food and parcel deliveries strongly expanded during the pandemic, others declined such as household work, care and personal transportation (ECE, 2021). In recent years legal initiatives, collective bargaining agreements, the establishment of trade unions, as well as voluntary initiatives undertaken by platforms in the areas of accident insurance and tax evasion have been implemented in view of improving working conditions for platform workers. The EUROFOUND Platform Economy Repository provides a good overview of the scale of such initiatives in the European Union.

There has also been a growth in portfolio work of freelancers or small self-employed workers with a large number of clients. As of 2020, ICT-based mobile work, platform work and solo self-employed workers and freelancers and co-working in collaborative employment were prevalent across Europe (EUROFOUND, 2020b). Collaborative employment refers to self- employed people working beyond traditional supply chains and involves cooperation and networking. Other types of new employment relationships include employee sharing between firms or interim management (e.g. a company 'leases out' workers for a specific purpose), job sharing between employees and the rise of unstable and on-demand casual work. Casual and particularly intermittent work had already emerged across two thirds of European countries (EUROFOUND, 2015). As nations across Europe face skill shortages or the need to reskill, these new types of job relationships across companies and borders could offer potential to alleviate short-term skill shortages during the transition to the digital and green economy.

An advantage of new ways of working is that new forms of more efficient communication occurred, with eGovernment and eHealth services also emerging. Although there were many positive aspects for flexibility and innovation, the situation revealed varying disadvantages for certain social groups and regions. Some regions lack high-speed broadband infrastructure or have concentrations of an older population that are less able to make the digital transition. New working conditions also demand a re-evaluation of policies from employment relationships to health and wellbeing, work-life conflict and impact on industrial relations, social insurance systems and working conditions.

3.3.2 Remote working: security, health, balance and productivity

Given the general shift that occurred for many employees and firms, it is important to assess the consequences of home working, including health, work-life balance, digital development, security and productivity. New digital technologies enabled many workers to work from different locations prior to the pandemic, a phenomenon that has accelerated during COVID-19.

Mental and physical strain of remote working

A systematic review of the mental and physical health effects of remote working from 2007 to 2020 (Oakman et al. 2020) identified several key effects. The factors most often mentioned were stress and fatigue. Many included effects related to wellbeing, happiness and quality of life. A study in a financial company, which included a control and intervention group, found that, for instance, there was a statistically significant decrease in self-reported health problems for those who worked at home part-time, in spite of job demands being the same (Nijp et al., 2016). The majority of studies have examined the deleterious effects of working at home on mental health, which are dependent on multiple factors including family, housing and home environment, organisational support and social connections outside of work (Oakman et al., 2020). A central theme is 'technostress' (Suh and Lee, 2017), which is the work overload, invasion of privacy and role ambiguity experienced by employees who are often online for their work (Eddleston & Mulki, 2017). Long or irregular working hours have been show to result in higher conflicts with family members (Mills & Täht, 2010).

Benefits of remote working and new policies

The shift to larger populations engaging in remote and telework has also revealed multiple benefits, such as reducing commuting time, enhancing work-life balance and increased or equal productivity. Another trend accelerated by COVID is a change in the location and scheduling of employment. An increasing number of employees shifted their work to home and many meetings that had previously taken place in person were shifted to online forums. Some large companies have also started to rethink work within offices and are taking this as an opportunity to introduce more flexibility. Large companies such as Google began experiments in May 2021 with new types of office configurations and hybrid working options of virtual and in-person options. As Google notes in Google's vision of the new office, the goal is for a happier and more productive workplace (Ovide, 2021). One issue

workers had in the company, for instance, was spending a lot of time moving from one building to another. Many of these early tech innovators also used open and shared office spaces, with workplaces very close together. Others often commuted long distances from home to work and in light of a proven ability to work remotely, now question this need.

Although prior to the pandemic many companies were often averse to allowing at-home working due to perceived lower productivity and lack of monitoring, during the pandemic some found productivity increased and staff were more satisfied. In the post-pandemic environment, it may be difficult for firms to justify and argue that staff will be required to be physically present to carry out their work duties given evidence to the contrary, where work suitable for remote working resulted in even higher levels of productivity (Etheridge et al., 2020). A large proportion of workers reported the benefits of working at home and plan to remain working for several days a week where possible (Taneja, Mizen, Bloom, 2021). An emerging issue may therefore be the growth of personalised or tailored working, since some may prefer to work full-time in the office and others in a hybrid set-up or fully from home. Here there is potential for a gender divide since non-standard and flexible working has previously often been disproportionally concentrated among women and young people.

In response to work-life reconciliation concerns, an important policy development in the EU in recent years with respect to working time is the introduction of the right to disconnect. Evidence suggests that the implementation of the right to disconnect at the company level brings positive changes for work-life balance (EUROFOUND, 2021). EUROFOUND's COVID-19 PolicyWatch database curated 154 company practices most often related to health and safety, work organisation and remote working (EUROFOUND, 2020a). The policies reveal that remote working requires rethinking and drawing up new policy regulations taking account of multiple aspects ranging from the geographical location of work and work visas, benefits and insurance, to the timing of work hours and data security. With growing threats in cybercrime, for instance, organisations need to develop new systems, software, policies, tools and training to guard against ransomware, while protecting business data and enabling workers to use safe and secure networks (Malecki, 2020).

Some companies are staggering work shifts, a practice recommended to reduce the spread of COVID by creating homogeneous work bubbles (Block et al., 2020). This can increase productivity and reduce illness not only in relation to COVID-19, but also during typical flu seasons and to buffer against future pandemics. If physical distancing remains in place, all employers, from offices to manufacturing, need to rethink space and employee configuration. The current pandemic likewise exposed poor ventilation in many working spaces, which could be rectified with the shift to retrofitting buildings in the transition to the green economy. Shifts in the location of work and reduction in workspace will also have potentially deep consequences for real estate and property planning, transportation and city planning. Although some large city centres may be transformed due to there being fewer commuters, there may be environmental advantages from remote working, such as lowering commuting levels and reinvigorating local economies that were previously 'bedroom' or commuting areas.

3.3.3 Policy requirements for new ways of working

Given the wide range of new ways of working, from remote working to platform employees, job sharing and casual and precarious work forms, the policy requirements noted here are not exhaustive. Different types of work forms during COVID-19 raise questions about the employment status of these different types of workers and often their lack of employment protection. This includes a lack of clarity on working conditions, notice periods, vacation or sick pay, minimum wage, health and safety standards, as well as on organised representation or protection. Non-standard and unfavourable working times or long or sporadic hours can in turn limit workers' flexibility and autonomy. Other drawbacks are lack of transparency for platform workers on algorithm automating tasks or unpaid work while waiting for bids or tasks.

Although these more flexible forms of work offer potentially more flexibility and autonomy, and more direct access to the labour market, they could have the potential to reinforce dual labour market segmentation along new lines. It is likewise unclear if and how these fragmented employment arrangements will translate into undeclared and untaxed work, or the longer-term implications, not only for national taxation income, but also for individual social protection such as unemployment insurance and longer-term pension arrangements. Due their fragmented employment relationships and precarious positions, these workers often lack a collective and organised voice. Recent European policy initiatives are growing in this area, including legal initiatives, collective bargaining agreements, establishment of trade unions and voluntary initiatives of platforms such as accidence insurance to improve working conditions (Urzi Brancati et al., 2020). Other nations have experienced policy change via legal routes such as the Supreme Court of the United Kingdom concluding that Uber drivers are not self-employed in 2021 (Russon, 2021).

Organisational support will also be required in the form of regulating time pressure, reducing role conflict and providing greater worker autonomy, which have been shown to result in lower levels of exhaustion among employees (Oakman et al., 2020; Sardeshmukh et al., 2012). This may also include providing adequate safety equipment and support in the short term (protective equipment, testing). Another important role organisations can play is to facilitate boundary management and provide clarity on expectations of working hours, developing boundaries between work and family and relieving stress around the feeling of needing to be available 24/7 (Kim et al., 2020). In this respect, the landmark European policy of the 'right to disconnect' is a positive step in this direction. A systematic review of the impact of teleworking found that stress levels in employees could be decreased when they worked at home on a hybrid or part- time basis (Oakman et al., 2020). However, working at home has also been shown to increase feelings of stress, depression and isolation due to the feeling of being disconnected. Co-worker support can enhance worker wellbeing by building teams around tasks that require interaction (Bentley et al. 2016), regular face-to-face online contact and hybrid days in the office to maintain vital networks of support (Nijp et al., 2016; Sardeshmukh et al., 2012).

3.4. TOWARDS THE DIGITAL ECONOMY

3.4.1 Digitalisation of data, IT services, cloud and edge computing and microelectronics

A foundation of the Recovery and Resilience Facility to support recovery in EU Member States under the NextGenerationEU instrument is building the digital and data economy (European Commission, 2020f). The digitalisation of data demands a skilled workforce, but in many cases necessitates building new infrastructure and support for innovative R&D. Over the next decade, digital services and data will be integrated widely across most industries and businesses in Europe and globally. To facilitate this and the shift to remote and digital working, nations will require reliable and secure IT infrastructure and services. The explosion of data and networks of connected devices, however, has often outstripped local and national data infrastructures and overwhelmed systems. The emergence of 5G cellular network technologies generates a greater bandwidth and power with more room for innovation.

Remote servers in the form of cloud computing also need to be in place to network, manage and process data, and they must be not only sustainable and highly secure but also globally competitive and innovative. As of 2021, cloud computing is dominated by only a few global companies in a highly concentrated oligopoly (Bakogiannis et al., 2020). Europe will benefit from developing cloud computing, but can also leapfrog to blockchain technology or edge computing, where computing capabilities are distributed or performed at local points of a network for greater performance and lower costs. This distributed approach of edge computing brings computation and data storage closer to the location where it is generated, which has the potential to save bandwidth and also allow for embedding

across a wider diversity of local areas and employment opportunities. Here there is a real opportunity to upgrade and in some cases build new infrastructure across the public and private sectors, with the potential to generate new employment opportunities.

Beyond computing and data innovations, Europe has for decades depended on a handful of non-EU suppliers for core components that drive the digitalisation process, such as microprocessors and accelerators (Macharzina, 1986). There is therefore potential to grow this sector and create jobs related to technologies such as semiconductor processing and manufacturing technologies and microelectronics, the miniature 'chips' built using semiconductor technologies. This could shelter many industries from shortages and the supply chain disruption currently experienced in 2021. The post-pandemic chip shortage is expected to last until 2022 or 2023, which in 2021 disrupted multiple industries from car manufacturing to medical devices and consumer electronics. Many are forced to scale back production and furlough workers while some US-based companies such as Tesla have looked into buying entire chip plants (Dempsey, 2021).

The shift to the digital economy will also bring growth in the IT services market, demanding new types of skills and new opportunities. This has the potential for considerable job creation in the realm of cloud expertise and data infrastructure and management. Together these shifts will increase demand for skilled workers in microelectronics, computing, software and data analytics. These innovations have the potential to spread across multiple levels and sectors from SMEs to public administration to build an innovative, secure, resilient and unified European cloud and data ecosystem from production to storage and processing.

Another related change has been the use of artificial intelligence applications such as robotics, intelligent assistance and machine learning across a wide array of industries, with widespread applications in personalised advertising, real-time pricing and scheduling, and predictive maintenance in manufacturing and in healthcare for optimisation and disease diagnosis. Certain sectors with routine predictable processes are more amenable to automation than others. This includes certain types of manufacturing, transportation and warehousing, online retail and some accommodation and food services. With the exception of a few occupations, such as assembly line manufacturing, few occupations could be entirely automated, but rather processes within them have the potential to be automated. It is, however, often the lower-wage and lower-skilled jobs such as administrative duties or manufacturing that may be lost to automation. AI can lead, however, not only to job loss, but also to a better work-life balance and creation of more meaningful work by taking away monotonous tasks. AI and automation may also boost productivity, with the potential to reduce previously mundane administrative or routine monitoring jobs (Franken & Wattenberg, 2019). Others have shown that automation technologies will have distinct impacts on labour markets, with robots reducing some employment, while AI, machine learning, new communication and manufacturing technologies having the potential to create jobs and raise wages (Acemoglu & Restrepo, 2020).

3.4.2 Heterogeneity in the digital economy starting point across Europe

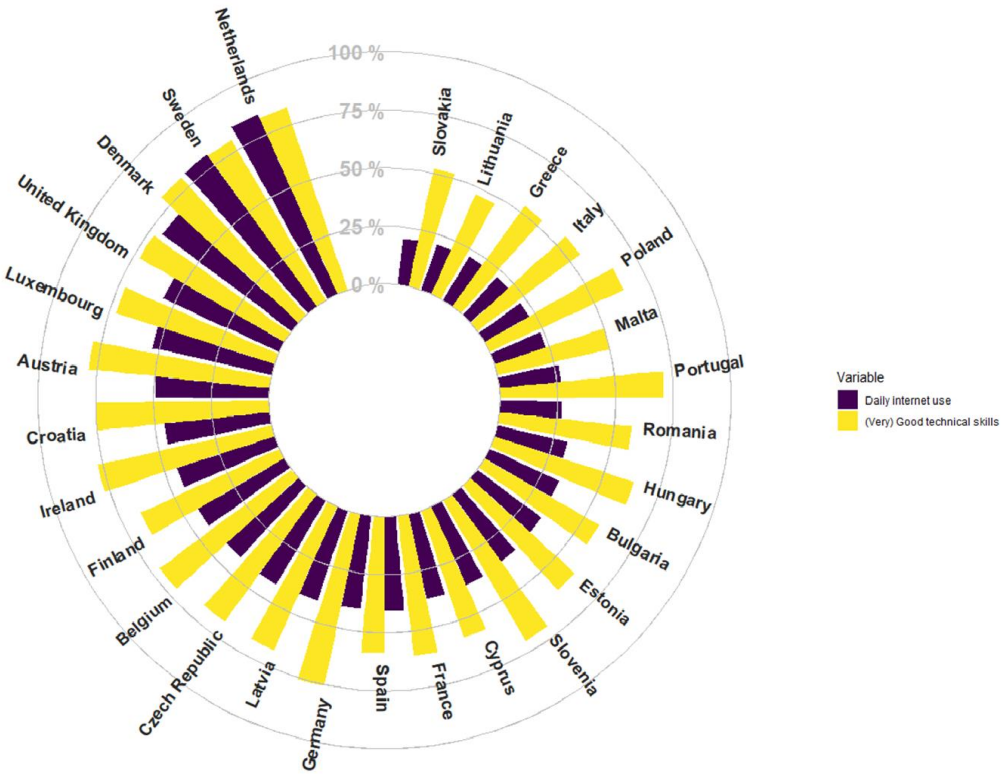
The EU's digital ambitions and transformations to 2030 call for a shift to a digitally skilled population coupled with digital professions, secure and sustainable digital infrastructures, digital transformation of businesses and public services (DESI, 2021). The EU Digital Economy and Society Index (DESI) summarises digital performance and tracks progress of EU countries since 2014. It is built around the four aspects noted above in relation to human capital (internet user skills and advanced digital skills), connectivity (fixed broad-band and mobile take-up, 5G coverage, prices), integration of digital technology (business digitalisation, e-commerce, AI, Cloud services) and digital public services (e-Government).

Human capital: the move to a digitally skilled population

Given the lag in R&D spending discussed shortly, and the skills across multiple sectors an immediate challenge will be to match supply and demand for the new digital economy and build a better match for current and future skills as labour market requirements evolve. This means strengthening and realising the full potential of human capital across Europe and raising fair opportunities. The 2030 EU target of the Digital Compass is that at least 80% of citizens have basic digital skills (DESI, 2021). For a realistic shift to a digital Europe, it is essential to acknowledge variation in the starting points, digital and technical skills and regularity of internet use by the public. We see, for instance, considerable variation in Europe in the use of fintech, which are firms that incorporate innovative business models and technology to enhance the financial services market, such as digital-only banking or peer-to-peer payments and non-bank money transfers. A survey in 2019 of 27 103 digitally active adults across 27 nations found that particularly in the Netherlands, Ireland and the UK, around 75% of those who were digitally active had adopted some form of fintech product that year (EY, 2019). Adoption of digitally active fintech users was relatively high in Germany, Sweden and Switzerland (64%), and lower in countries such as Italy (51%), USA (46%), France (35%), Belgium and Luxembourg (42%) (EY, 2019).

Graph 23 plots the percentage of individuals who report very good digital and technical skills and daily internet use in Europe. Here we see that countries such as the Netherlands, Sweden, Denmark and the UK have very high levels, with considerably lower levels in eastern and southern European countries. This suggests that the policy focus should not only invest in building infrastructure and reskilling workers, but also in more general skills training, so that the general population uses and embraces basic digital, computer and information skills. DESI reports that that 56% of Europeans possessed at least basic digital skills in 2019, with a yearly growth rate of 0.9% since 2015, even though most jobs now require such skills (DESI, 2021). This suggests that considerable measures must be taken to increase the growth rate to meet the 80% target by 2030.

Graph 23 **Percentage of individuals reporting very good digital and technical skills (yellow) and daily internet use (purple), European countries**



Source: Produced by author from Eurobarometer 92.4 (2019)

For businesses to expand in the digital and green economy, they require workers with specialised skills. The digitalisation of data from healthcare to fintech, and from online shopping to public administration, demands a skilled workforce poised to invent, manage and maintain this system and necessitates innovative R&D. Broader digitalisation increases demand for skilled workers in computing, software, data analytics and wider critical thinking and problem solving (Morandini, Thum-Thysen, Vandeplas, 2020). Beyond the public, there is also a severe shortage of ICT and knowledge workers in the labour market, with 55% of companies trying to recruit ICT specialists in the EU in 2020 reporting difficulties filling vacancies, and over 70% noting that this is an obstacle to investment (DESI, 2021).

If Europe makes the shift to manufacturing its own microelectronics and chips, workers in these areas will be required as well. The EU's focus on digitalisation could also mean that jobs previously offshored to lower-wage conditions may return to bolster particular regions in the EU. The rise of data infrastructures, automation and use of AI will demand new skills ranging from more technical and data skills to creativity and team working. It is increasingly clear that not only numeracy, literacy, computing and digital skills are important, but also non-cognitive skills such as adaptability, communication and collaboration skills, critical thinking, creativity, entrepreneurship and readiness to learn (Morandini, Thum-Thysen, Vandeplas, 2020).

Secure and sustainable digital infrastructures

The Digital Compass target of the EU strives for all populated areas to have 5G coverage by 2030, yet coverage is currently very uneven (DESI, 2021). Across Europe, as of the end of June 2019 around

97.1% of households had access to at least one of the broadband technologies (European Commission DG Communications Networks, 2020). The availability of next generation services was 85.5% in the EU, while 44% of EU households had very high capacity networks currently capable of supporting sufficient gigabyte speeds. Numbers were lower across Europe for those from rural areas, where 89.7% had at least one fixed broadband technology and 59.3% had high-speed next generation services. There is also variation in broadband coverage across the EU Member States: some countries, such as France, the Netherlands, Luxembourg and Malta, have complete coverage, whereas others (Poland, Lithuania, Romania, Slovakia) have levels below 90% of households. In contrast, in Greece less than 1 in 5 households has very high capacity network connectivity that has the potential to offer gigabit connectivity (DESI, 2021). Infrastructure investments will be required to strengthen broadband access and the availability of high-speed internet access if a transition is to be made to digitalisation of services and remote working. If access to internet and digital devices is not treated as a basic service, there will also be a risk of widening economic and social divides, not only between regions and countries, but also social groups.

Digital transformation of businesses and public services

The digital transformation of businesses and public services involves both a basic level of digital intensity but also the workforce able to embrace it and innovate further. The EU Digital Compass 2030 target strives for at least 90% of SMEs and all key public services for citizens and businesses to be online by 2030 (DESI, 2021). As with digital infrastructure, we once again see a large gap between EU countries. Although Denmark and Finland are already close to the 90% EU target, countries such as Bulgaria and Romania are at 33% (DESI, 2021). Another substantial gap is in the very low adoption of use of AI or cloud computing (around 25%) and big data (14%), which is well below the 75% 2030 EU targets (DESI 2021). The digitalisation of public services has grown from 58% in 2015 to 64% in 2020, accelerated by the COVID-19 pandemic, with countries such as Estonia, Denmark, Finland and Malta moving quickly and Romania and Greece with the lowest levels of digital public services (DESI, 2021). To meet the challenge of 100% digital public services, investment and strategies are still required.

3.4.3 The digital transformation requires a re-evaluation of skills and fair, attractive employment

The shift to a digital and green economy also has several key challenges to match labour market supply and demand. The first bottleneck is the need for a serious re-evaluation of educational and employment training, from upskilling and retraining teachers that provide the training, to rethinking the mode and flexibility of educational delivery. Second is the reskilling of what may be an older labour force displaced by classic manufacturing jobs in the automotive sector or in jobs related to fossil fuels or old energy systems. A third challenge is attracting students and workers to these new types of training and jobs, which will need to have attractive working conditions, employment relations and rewarding career trajectories. Governments and employers will need to rethink what is attractive to employees in a post- pandemic age. Working in large factories in the past was often linked to lower levels of education, but offered a stable and comfortable life or benefits. When car factories first boomed, workers were offered affordable living around plants. In the current climate, benefits may come from hybrid and flexible working or allowing someone to carry out work from another country, offering the EU a unique advantage to tap workers across many countries. A final challenge will be to monitor and forecast the future skills that will be required in order to anticipate a resilient future labour force to avoid labour shortages and keep training flexible and agile to meet evolving needs.

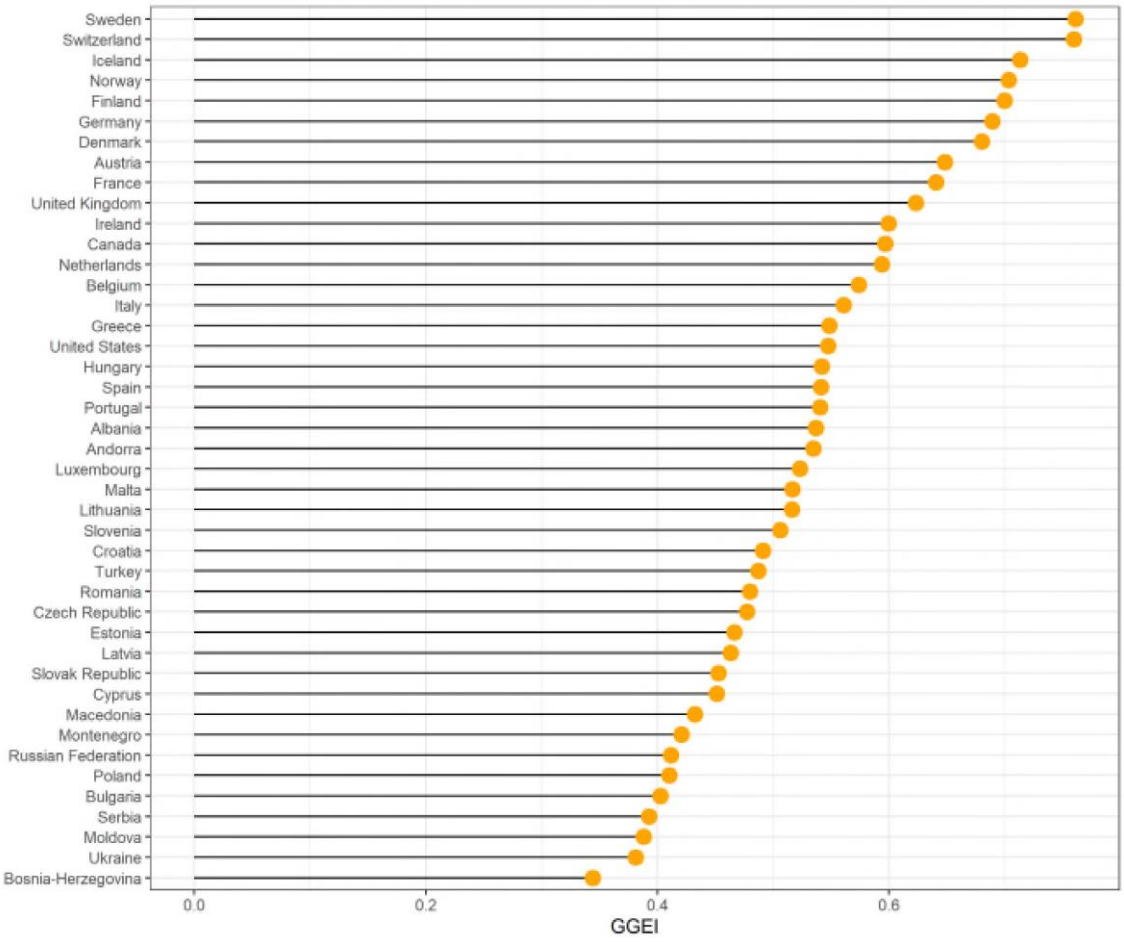
3.5. BUILDING A RESILIENT GREEN ECONOMY

As the European Union and nations across the world shift to green investments and a green economy, there is potential for skills and labour market disruption including job losses, but also new employment opportunities. Carbon emissions have plummeted over time and during the pandemic, but the question is how a low-carbon path can be plotted to avoid the common increases in emissions that have occurred in the past after exogenous shocks, such as after the oil shock of the 1970s. The European Green Deal, with its substantial EUR 1 trillion long-term investment over a decade, provides an opportunity to increase employment efficiency and growth while also engaging in serious reductions in emissions, decarbonisation and climate-friendly change. Carbon emissions have been historically linked to economic growth, but we are increasingly aware that climate change is one of the largest threats to the global economy. Given the deep impact of COVID, national governments are struggling with challenges related to public health, employment and their own domestic economies. In this context, they may turn inward instead of thinking globally and about the longer-term climate emergency.

3.5.1 Heterogeneity in the green economy starting point across Europe

Just as different European nations vary in their socio-demographic, skills and educational composition, reaction to COVID and readiness for digitalisation, there is variation in starting points towards a green economy. The Global Green Economy Index (GGEI) is mapped in Graph 24, measuring 20 underlying indicators across the four dimensions of leadership and climate change, efficiency sectors, markets and investment and the environment from zero (low) to 1 (high) performance (Dual Citizen, 2018).

Graph 24 **Global Green Economy Index (GGEI), 2018, Europe and selected countries (cont.)**

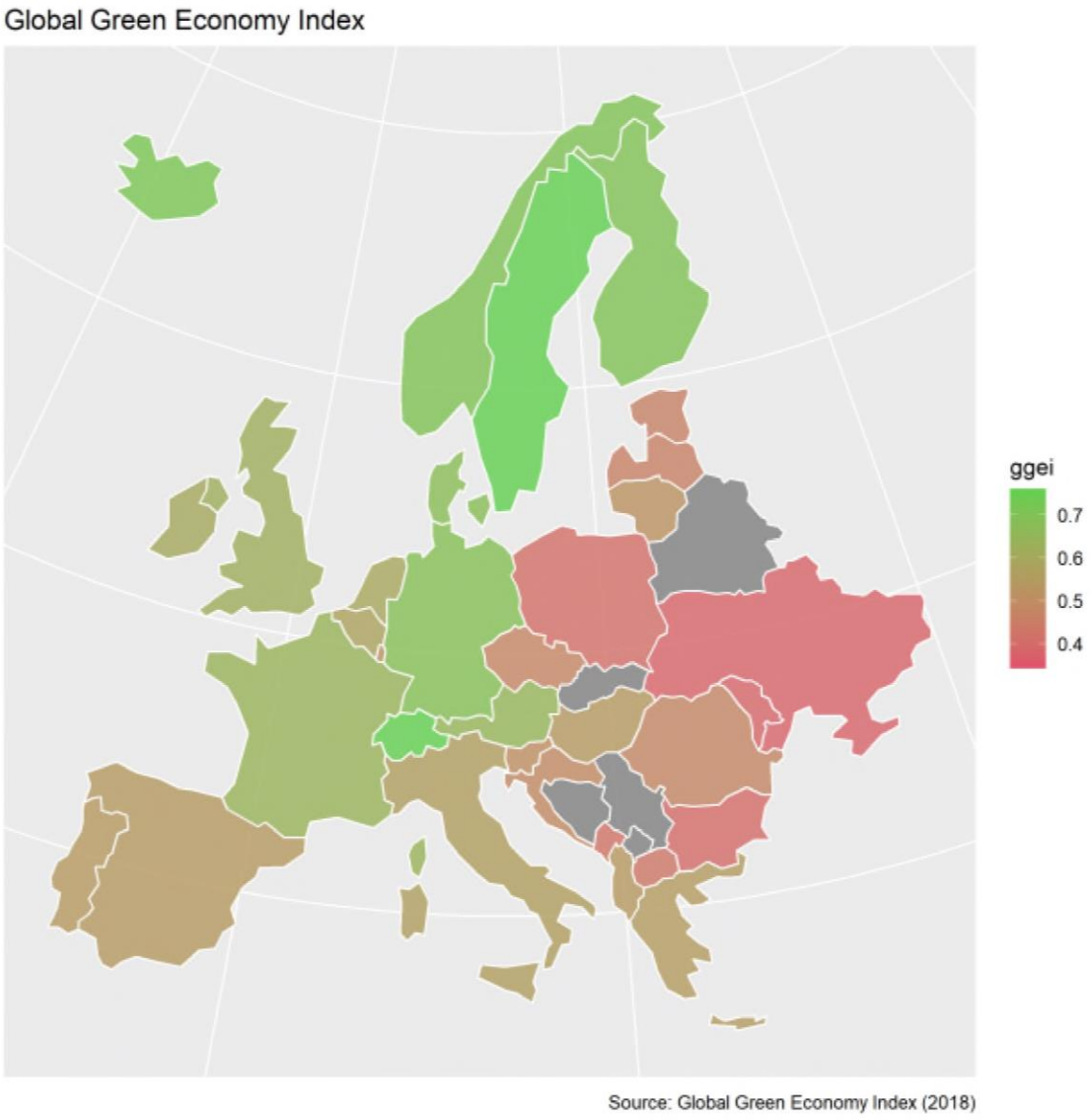


Measures include aspects such as climate change performance, buildings, transport, energy, renewable energy investment, cleantech innovation, green investment and environmental aspects (e.g. air quality, water, biodiversity, fisheries and forest). The graph reveals considerable variation across Europe, with the Nordic countries, Switzerland and Germany scoring high, southern European countries and the US in the middle, and Eastern European countries and the Russian Federation with the lowest green economy performance. Some countries will therefore have considerably longer and divergent paths to follow than others.

Public support for different climate and green economy policies likewise needs to be taken into account. A recent global survey found that in high-income countries, the strongest support among climate policies was for conserving forest and land (71%). This was followed by keeping the ocean and waterways healthy (68%), use of solar, wind and renewable power (68%), reducing food waste (64%), building infrastructure and conserve nature to protect lives and livelihood (63%), climate-friendly farming techniques (63%), investing in green businesses and jobs (60%) and using more clean electric cars, buses or bicycles (58%) (UNDP & University of Oxford, 2021).

Across Europe there are also varying levels of awareness of the urgency of making the transition to the green economy. Graph 24 maps the percentage of individuals who are extremely or somewhat worried about climate change in Europe, with green indicating less worry and darker red showing the highest levels of concern. Once again, we see variation across Europe in levels of concern or urgency to support the green economy.

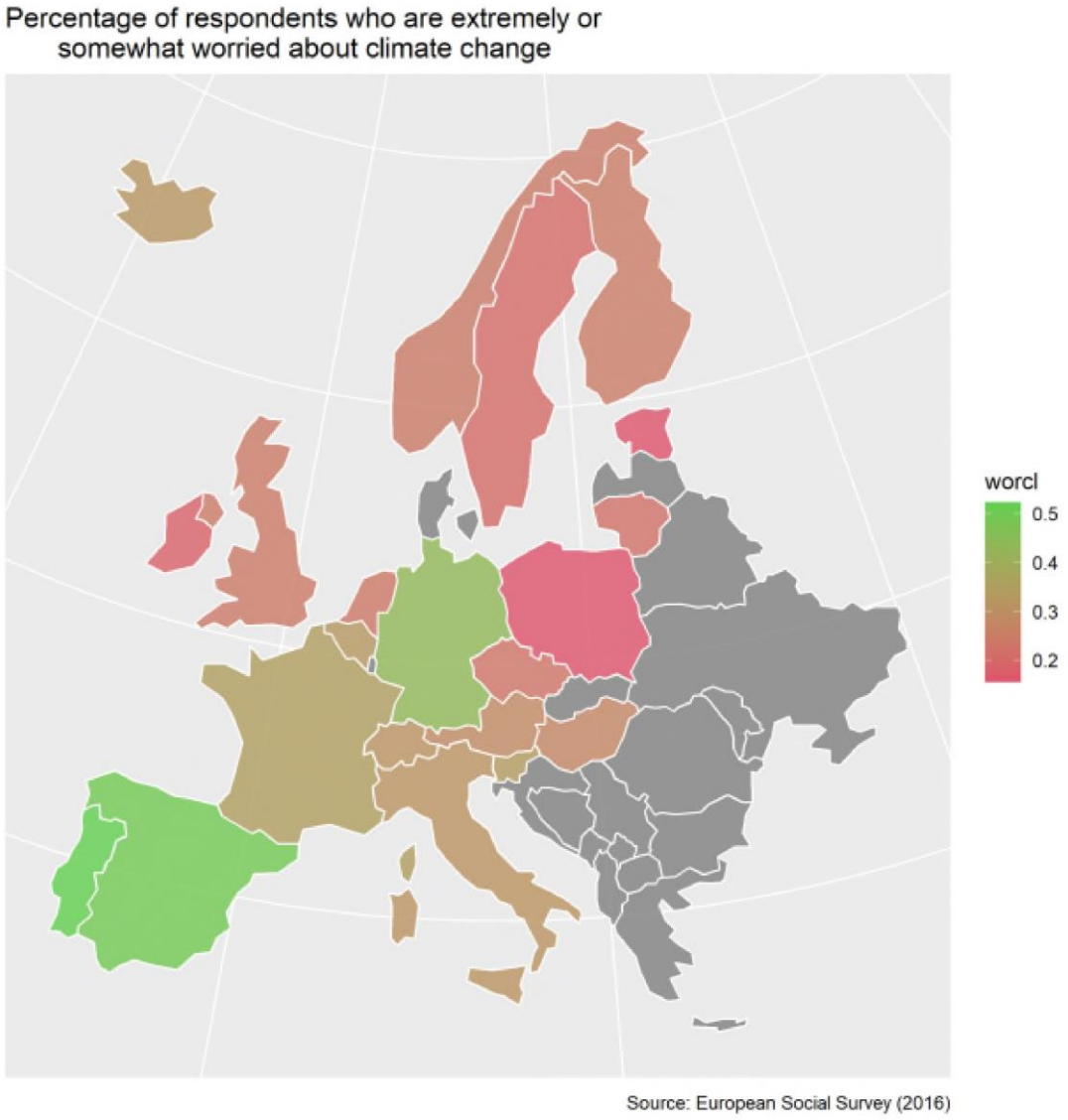
Graph 24 **Global Green Economy Index (GGEI), 2018, Europe and Selected Countries (cont.)**



Source: Graphs produced by author using data from (Dual Citizen 2018)

Across Europe there are also varying levels of awareness of the urgency of making the transition to the green economy. Graph 25 maps the percentage of individuals who are extremely or somewhat worried about climate change in Europe, with green indicating less worry and darker red showing the highest levels of concern. Once again, we see variation across Europe in levels of concern or urgency to support the green economy.

Graph 25 **Percentage of individuals who are extremely or somewhat worried about climate change, selected European Countries, 2016**



Source: Produced by author from European Social Survey (2016)

3.5.2 Green economy initiatives need to be linked to education and job creation

Just as with digitalisation, the Green Deal also needs to be coupled with attention to reskilling and job creation to maintain public support and enable a fair social transition in the post-pandemic period. Green recovery is only palatable if it is attractive to a nation and public's immediate needs such as education and job creation. In a period of deep economic crisis and recovery, there will be pressures to channel money to competing causes, with longer-term threats such as climate ignored. The problem must therefore be grasped with political realism, accepting that the green shift will only be deemed acceptable when coupled with advantages for the public (Hanna et al., 2020).

Green policies can also have advantages, such as being more attractive for short-term, and primarily long-term, investments. In the short term, they will generate new jobs that have either been scaled back or removed during the pandemic crisis, which in turn can boost spending. Contrary to the shift of globalisation and the offshoring of manufacturing or digital services, green construction and energy

projects have the potential to create many new jobs, particularly in the early stages. This is, however, only possible when the correct skills or reskilling has been introduced. A comparative analysis found that every USD 1 million in spending generates 2.65 full-time jobs in fossil fuels, compared to 7.49 in renewables infrastructure and 7.72 in energy efficiency (Garrett-Peltier, 2017). Green investments, however, require less maintenance or operator jobs to maintain the system in the end (Blyth et al., 2014), meaning that after the initial surge, employment must be generated elsewhere.

For post-COVID-19 rescue packages to make an immediate effect, speed is paramount. In the short term, this means building upon or using 'shovel-ready' green investments. This includes initiatives that will create employment in areas such as residential and business energy efficiency, but also in construction, with retrofits and renovations that improve insulation, heating and energy storage and upgrade public transportation. The recent pandemic revealed many workplace and ventilation problems, which could also be taken into account during these renovations (CDC, 2020; Somsen et al., 2020). To gain political support, employment must be central to replace jobs wiped out by the pandemic, with green projects that rapidly deliver both quality jobs and revenue (Hanna et al., 2020).

As infrastructure is developed or renewed, attention likewise needs to be placed on energy storage, grid modernisation, renewables, zero-emission nuclear power plants and hydrogen power, or carbon capture technology (Hepburn et al., 2020). Sectors could be strengthened across renewable energy such as clean hydrogen. Industry and jobs in renewable areas such as wind and solar are possibilities, but investment incentives will also need to be in place. It may also be that governments focus on maintaining clean energy such as nuclear reactors, which would maintain existing often highly paid jobs. Job growth can also occur in the area of natural capital spending to create more resilient ecosystems such as expanding parkland, forests and rural ecosystems or restoration of habitats (Houser et al., 2009).

Others have examined the types of changes and opportunities required across different sectors (Victor et al., 2019). Whereas certain sectors such as energy have mature technologies, others such as basic production in steel and cement will mostly likely demand new approaches. New approaches and potential employment are possible in the design and deployment of zero-emission mills and plants for the future. Agriculture and farming in many countries will also be required to shift to more climate-friendly techniques.

There will also be challenges to the green transition that are not technological. Europe's energy systems, for instance, are often highly fragmented, demanding new EU-wide thinking, legal regulations, and certification and planning about how clean energy sources and technologies could be coordinated and integrated. Entire systems – from energy to transportation – have been built on fossil fuels, demanding changes across multiple realms, with many reforms required across multiple employment and economic domains. There is a risk that new technologies such as those driven by sun and wind are built, but the grid infrastructure to store or deliver them lags behind. Other requirements could range from a reduction of taxes for renewable energy to general green taxation, changing building codes and heating installations and grids, to compensation and incentives for households and businesses to take up new green options.

The green transition likewise demands involvement and employment mobilisation at the local, city and regional level for planners to consider how energy and heating systems could be transformed and efficiently deployed. As low-carbon hydrogen solutions are developed, there may be a considerable lag in take-up of these innovations due to the need to renew the infrastructure or engage in new certification systems. In terms of job creation, beyond the R&D required to build renewables and clean hydrogen, new jobs and skills will be required to plan, organise, model, install and communicate with the public about regulations, developing incentives and retrofitting or installing new heating and other green economy solutions.

Developing measures and accountability for new policies will also need to enforce that green policies are taken into account. A study of 300 post-COVID rescue policies of G20 nations and including EU Member States examined fiscal measures, which were largely rescue measures consisting of worker and business compensation schemes. They concluded that 92% of these policies maintained the status quo, 4% would likely increase emissions and 4% were green policies that would reduce emissions in the long run (Hepburn et al., 2020). As described previously, although most COVID measures covered furloughed workers' wages and supported basic health, rescue policies also supported emission-intensive firms such as US airlines via the CARES Act (Courtney, 2020). Nations might also anticipate that fossil fuel- and emission-intensive firms may have been hit deeply by the pandemic so be likely to grant requests from them for government support. A green approach would need to make bailouts conditional on how such firms will transition to net-zero emissions and would make this measurable (Hepburn et al., 2020).

3.6. DEMAND FOR R&D INVESTMENT, NEW SKILLS, UPSKILLING AND RE-SKILLING

The shift to the digital, green and fair economy demands new skills, upskilling and reskilling. Attention needs to be placed not only on young people, but also on the reskilling and upskilling of adults, on lifelong learning and on those who have fallen outside the labour market and are inactive due to COVID-19 or industrial changes. These efforts can be embedded in national skills and educational strategies and strengthened if linked to Europe's initiatives for digital education and the industrial and green economy strategies.

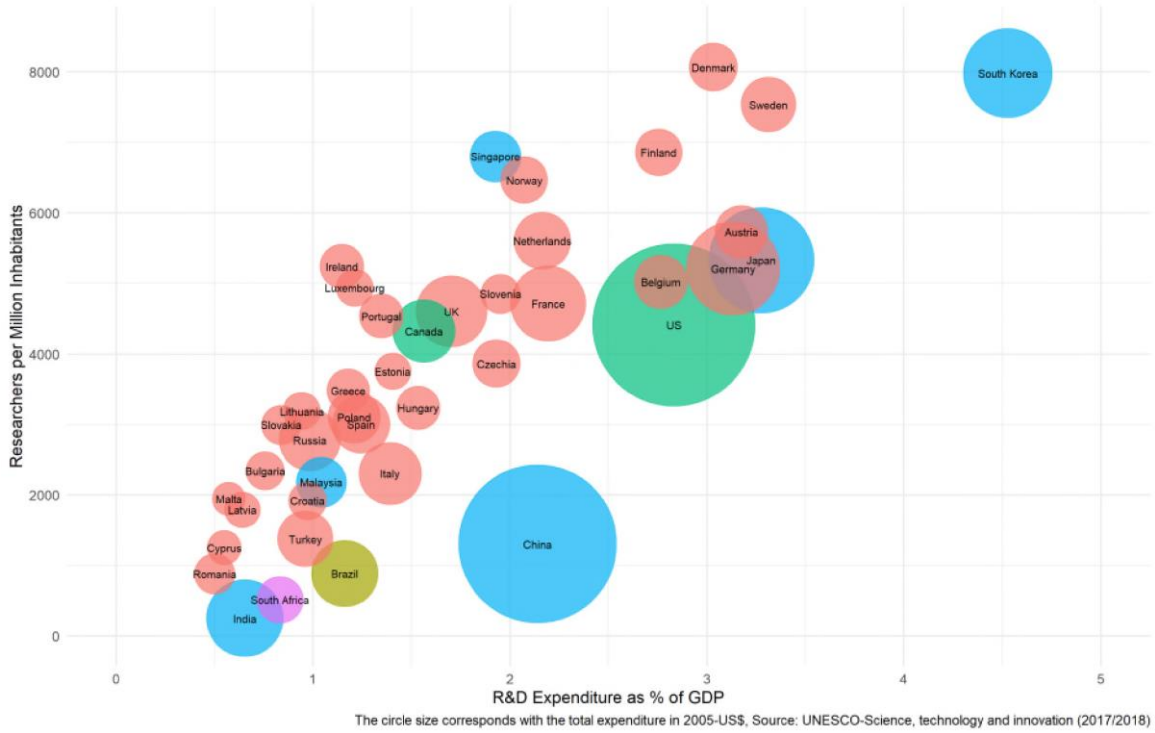
3.6.1 Europe requires competitive levels of R&D investment

The pandemic revealed the value of science in helping the world emerge from the crisis, from the development of vaccines to the social and behaviourally informed interventions of social distancing and lockdowns. A recent UNESCO report on global science found that global R&D spending rose sharply by 19% between 2014 and 2018, largely driven by investments in the US and China (UNESCO, 2021). Graph 26 plots R&D expenditure as a percentage of GDP by the number of researchers per million inhabitants. South Korea steadily increased investments of its GDP to 4.53 in 2018, accompanied by a growth in researchers. Countries such as Japan and China have had continuously higher levels of spending, with China increasing sharply more recently. China accounts for 44% of global growth in research expenditure, while the US accounts for 19.4% and Europe 11% (UNESCO, 2021). The US has pivoted to very high levels of R&D spending per capita in a plan to rebuild infrastructure, generate employment and enhance innovation. Upon taking office, President Biden announced USD 250 billion, of which USD 180 billion was to focus on future technologies and USD 70 billion to raise innovation in rural areas and combat pandemics (Mervis, 2021). The plans included USD 35 billion targeted at the development of clean energy technology and clean energy jobs and USD 15 billion for climate-related projects.

The figure also shows variation in R&D spending and researchers across Europe, with high levels in Nordic countries and also Germany, Austria and Belgium. The European countries falling behind in R&D spending and subsequent highly skilled researchers are in southern and Eastern Europe, but also Ireland and the UK. Figures on global R&D spending during and after the pandemic are likely even higher, particularly in biomedical, health and technology research.

In tandem with the EU goals, UNESCO calls for greater R&D investment in digital and green economies. Greater investment in R&D translates into higher skilled jobs, with estimates that there has been a 14% worldwide increase in scientists from 2014 to 2018, the equivalent of 8.8 million people. However, only one third of these jobs in science were occupied by women, suggesting attention will be required in training and hiring (UNESCO, 2021). Historically, coding and data science was dominated by women, in fields ranging from software engineering for early computers in the 1940s to programmers at NASA (Thompson, 2019).

Graph 26 **R&D expenditure as percentage of GDP by researchers per million inhabitants, Europe and selected countries, 2017/18**



Source: Produced by author using data from UNESCO (2021)
Notes: R&D: Research and Development, GDP: Gross Domestic Product, Circle size corresponds to the total expenditure in 2005 US dollars. Figures for 2018 are used with the exception of several countries where only 2017 figures are available.

3.6.2 Developing agile educational training

To avoid long periods of unemployment and growing numbers of NEETS (not in education, employment or training) among young people, learning and educational training may need to be reformulated in new ways. This could involve transformations in higher education and vocational educational training (VET). Vocational and on-the-job training can likewise facilitate a smoother transition for young people moving from school to work, while also reducing gender digital divides (Mills and Blossfeld, 2005; Mills and Präg, 2014).

Due to the closure of schools and higher education institutions during COVID-19, learning experienced a rapid digital transformation. Educational providers and students learned and developed new ways to learn online and there was an increase in tools and companies offering online education. Research into digital employment shows that independent IT professionals develop new skills in an incremental fashion, complementing their existing skills portfolio, but they often lack certification schemes, organisation and regulatory strategies (Graham et al., 2017). As Europe digitalises, upskilling and reskilling can include partnering with existing educational providers or offering new full and part-time virtual options for students, or incremental skills training with certification.

But these developments should be evaluated and tailored over time. Although there may be a move towards remote learning compared to in-person courses, online courses have traditionally had a lower graduation rate of 50% compared to 84% for in-person educational programmes (Molnar et al., 2019). They also lack social networking opportunities, and result in limited instruction time with teachers and

screen fatigue. An option to counter these issues would be hybrid approaches, with some of the teaching also occurring in person.

Others argue that there will be a new flexible and fluid taxonomy of occupational skills required for new jobs and that traditional reskilling and national educational policies may be too slow to react to rapidly changing skill requirements (Stephany, 2021). Regardless, it will be essential to build education and skills in a new framework that tailors education to what the new and growing digital and green economy requires, making qualifications highly relevant for the labour market. National educational ministries and higher educational institutions will need to work collaboratively with industry to remain agile and avoid the skills mismatch. Programmes that involve apprenticeships in SMEs can aid in this exchange, as can public employers and large organisations.

CONCLUSION AND DISCUSSION

Europe has experienced major exogenous economic shocks in recent history, such as the 1973 oil crisis, the recession following the breakup of the Soviet Union in the early 1990s, the 1998 Asian financial crisis and the global financial crash of 2008-2009. These shocks served as political, industrial and employment turning points. What these exogenous shocks have in common is the rise of uncertainty, shedding of workers, curtailed consumer spending and uncertainty for businesses. The COVID-19 pandemic caused extreme disruption and revealed inequalities, weaknesses in economies and interdependence of the globalised world we live in.

The aim of the current study was to evaluate how COVID-19 has transformed employment, to understand the heterogeneous response to the pandemic across Europe in relation to employment and to develop a vision of post-pandemic recovery that embraces the transitions towards a digital, green and socially fair economy. A first finding was that the pandemic's social and economic impacts clearly varied across and within EU Member States due to their demographic composition, different employment sectors, composition of workers, economic conditions and overall support for workers and businesses during and after the pandemic. The pandemic affected employment immediately during the crisis through job loss, furloughing and disruption of supply chains, but also caused a change in consumer behaviour, which accelerated the growth of certain online industries and, for professionals, a shift to digital working. Although some countries experienced prolonged workplace closure and lockdowns, this was not always matched with direct income support. The levels of economic stimulus spending during the pandemic likewise varied widely across Europe, with some of the hardest hit, such as Italy, France, the UK and Germany, responding strongly. Nations also varied in their level of stringency and economic response, which undoubtedly resulted in differing impacts and inequalities within and between societies and situated countries at different post-pandemic starting points.

Small and medium-sized businesses were more deeply hit, as were the service sectors, including arts and culture, hotels and restaurants, sports, leisure, retail trade, transport and tourism-related industries. Nations that had less diversified economies, such as those reliant on the tourist trade, were particularly hard hit. There was also a disproportionate negative impact on the lower-skilled, young people, those in temporary contracts, self-employed, migrant workers, women and parents, while intersectionality of inequalities produced a cumulative negative impact across gender, education, ethnicity, contract type and occupation.

COVID-19 also resulted in the fast-tracking of new forms of employment, with a growth in new types of flexible employer-employee relationships, intermittent work, changing locations of work and higher prevalence of ICT. These changes demand new policies, but also protection of workers to clarify key aspects and thus avoid a new type of dual labour market segmentation on the basis of working conditions, notice periods, vacation or sick pay, minimum wages and health and safety standards. Promising EU policies such as the right to disconnect move in this direction.

Although European countries engaged in national and supra-national risk management to plan for calamities such as a pandemic, the majority were underprepared. This included lack of basic medical protective equipment, market shortages or interrupted import chains for certain goods (e.g. medical goods, computer chips, vaccine-related ingredients). Future

European industrial policy needs to focus on key sectors for the functioning of daily life, but also ensure that they are less vulnerable from the lack of production of key resources.

As part of the NextGenerationEU Recovery and Resilience Facility, many European nations, or regions within nations, require reliable and secure IT infrastructure services. A key priority will be focusing on cutting-edge computing technology, and on manufacturing the microelectronics required for this shift. Skills development and innovation in computing, software and data analytics but also non-cognitive skills such as critical thinking and creativity. Skills development will likewise need to acknowledge the variation in starting points across Europe. Some countries, and particularly many rural areas, lack the sufficient high- speed next generation services with sufficient gigabyte speeds to enable fair access.

A shift to a green economy also has deep challenges and needs for changes across production, transportation and consumption patterns, and for developing and maintaining renewable energy and hydrogen. Investments are required in R&D in green research and development and manufacturing technologies related to emission reduction such as carbon capture storage, innovation in batteries, renewables and land-based biological innovation, as well as infrastructure and retrofitting. Incentives will be in place given that many new technologies have strong potential for commercialisation. But it is important not to forget the importance of focusing also on education, with a view to adapting behaviour to include changing patterns of transportation and commuting, food consumption and travel.

As with the digital economy, nations in Europe differ in their advancement towards a green economy, with the Nordic countries, Germany and Switzerland already more advanced, and southern and particularly eastern European countries having a longer path to follow. Green and digital economy initiatives will only be deemed acceptable by the public if they are deemed as fair such as being coupled with opportunities such as education and jobs. In the short term, nations can build on shovel-ready investments and will create employment from highly skilled jobs in areas ranging from renewables, hydrogen power and carbon capture technology, to others in areas such as transportation and construction, to retrofit and upgrade buildings. Other areas will need new types of thinking and processing such as climate-friendly agriculture or steel production. However, challenges to the green economy are not only technological. Many will require a re-evaluation of building codes, legislation, planning, reduction in taxation or green taxation, transforming and compensating households.

To match supply and demand in the new post-COVID green and digital labour market, Europe requires competitive levels of R&D investment to compete with leading innovative nations such as South Korea, Japan and the US. Upskilling and reskilling will be a considerable task that demands a re-evaluation of educational training, reskilling of the unemployed as industries shift, building attractive employment conditions and being able to forecast and build flexible and agile training to meet evolving needs. As nations move from policies that shape the current and future lives and deaths of their populations from the pandemic, they must reckon with not only immediate decisions, but also with decisions that will affect the generations that follow.

4. MACROECONOMIC COSTS AND FINANCIAL NEEDS OF THE EU POST-COVID TRANSITION TO CARBON NEUTRALITY

Carlo Carraro
President Emeritus,
Professor of Environmental Economics
at Ca' Foscari University of Venice

EXECUTIVE SUMMARY

The European Union has clearly stated its climate targets in the EU Climate Law. The policies and measures to achieve them have been proposed in the Fitfor55 package. Furthermore, the NextGenerationEU plan made it clear that the huge investments necessary to reduce greenhouse gas (GHG) emissions can also be very useful in helping stimulate post-COVID-19 economic recovery. This twofold objective is at the core of NextGenerationEU. Given the importance of the two objectives, it becomes crucial to address a few questions.

- Are the planned investments and measures sufficient to tackle the climate change challenge?
- What are the macroeconomic implications and the transition risks of policies designed to fight climate change?
- What kind of policy mix is best suited to achieve the two objectives: post-COVID-19 recovery and GHG mitigation?
- How relevant are equity and distributional considerations when designing this policy mix?

First of all, this chapter addresses the investment and financial aspect of the problem. Using different sources and different approaches, the annual additional investments needed to achieve the -55% 2030 EU target (and net zero emissions in 2050) are estimated at around EUR 90-100 billion for the whole EU. It is hoped that half of these investments will come from private sources. The remaining half is provided, for the initial 6 years at least, by the NextGenerationEU plan. Most additional investments are expected to come from the energy suppliers, and involve:

- the development and strengthening of energy infrastructure;
- the building of renewable energy power plants and facilities for storing energy; and
- the production of carbon-free hydrogen and synthetic fuels.

Therefore, the main objective target of future policies would not be to increase the amount of public funding, even though the timeframe of EU public efforts to

reduce GHG emissions should be extended to 2030. Instead, it would be to redirect existing private investments from fossil fuel sources to renewables, green hydrogen, bio-fuels and other zero-carbon energy sources. Redirecting private investments can be achieved through suitable adequate carbon pricing, well-targeted subsidies (in particular removing subsidies to fossil fuels), insurance schemes, incentives to R&D, other kinds of economic incentives as well as sector-specific standards and norms.

Innovative financing instruments, including de-risking instruments, robust 'green' labelling and disclosure schemes, and regulatory focus on transparency could help achieve the required funding level. Green bond markets and markets for sustainable finance products have already increased significantly.

From a political economy viewpoint, what matters for policymakers, even more than investments, is the macroeconomic cost of a decarbonisation strategy, particularly in the short-term (the transition cost). This is particularly important, because the short-term cost of reducing GHG emissions, if significant, would be an additional macroeconomic cost in an already difficult situation. The second part of this chapter therefore addresses the following questions.

- Are investments and policies to achieve climate targets going to reduce the short-term positive macroeconomic impact of recovery packages?
- What is the macroeconomic cost of the EU transition to carbon neutrality?
- What are the transition risks, and their economic impact, induced by an ambitious climate policy in the EU?

Large investments necessary to decarbonise the EU economy may have a limited, even negative macroeconomic impact This is particularly the case if policies are implemented in and coordinated across all countries, and if an economic mechanism (e.g. emissions trading or others consistent with Art. 6 of the Paris Agreement) is implemented to equalise marginal abatement costs. However, this conclusion on the macroeconomic cost of climate policy, as it is mostly based on quantitative assessments coming from integrated assessment models and general equilibrium models, is likely to underestimate transition costs. The (small) equilibrium costs a decade from now may hide substantial costs along the pathway to achieve the GHG emission reduction target.

Transition risk refers to the negative impact that the introduction of climate policies to reduce CO2 emissions could have on i) high-emitting firms and industries, or ii) income distribution and inequality, or iii) the social and political acceptance of climate policy (and therefore on social and political instability). For example, industries that rely heavily on non-renewable or highly polluting resources, such as mining or fossil fuel extraction, could face a sharp fall in profits and higher production costs, possibly with temporary large unemployment effects. Alternatively, policies may be perceived as unfair, as the burden is unequally distributed and losing sectors are not adequately compensated, resulting in social unrest. The first of these effects is underestimated by equilibrium models, where the reallocation of resources among sectors minimises the macroeconomic costs.

The second effect has generally not been quantified. As recently stressed by the European Central Bank, transition risks may also affect the financial sector. First, the probability of default of carbon-intensive firms may increase, thus worsening the non-performing loan ratios of commercial banks and putting banks themselves at risk. Second, a sudden downward revision of expected profits from such firms triggers a devaluation of their outstanding financial assets (e.g. bonds and stocks), thereby negatively affecting the portfolios of financial investors holding the assets.

The transition risk in Europe in the case of an orderly transition (the 'green deal' scenario in this report) would be practically zero. In the case of a disorderly transition (the 'conflictual' scenario in this report), it would be about 1-2% per year from 2030 to 2050. The economic loss would mostly affect energy-intensive sectors and the financial sector. Nevertheless, the size of the transition risks remains smaller than the size of the physical impacts of climate change that could be avoided by fast and ambitious climate policies. Economic losses from decarbonisation are largely compensated not only by the long-term benefits from climate change control but, above all, by short-terms benefits of reduced pollution, particularly in cities (fewer annual deaths and illnesses related to air pollution and lower costs for healthcare).

The importance of transition risks and related social and economic costs calls for policies and measures to be carefully designed. Well-designed policies can reduce both transition risks and damage from climate change. For example, carbon pricing can be combined with an initial green fiscal stimulus, consisting of green public investment, specifically focused on pre-empting climate damage, and subsidies to renewables production. The initial stimulus package allows the financial costs of the carbon tax to be offset. Aside from the initial lift to aggregate demand, it would boost productivity in low-carbon sectors, increasing profitability and triggering more significant private investment in these sectors. This policy package could also create more employment in low-carbon sectors, supporting the employment transition out of high-carbon sectors. However, this would not be sufficient. Measures to increase the political acceptability of climate policy should be a crucial component of the policy package. As said, high transition costs may characterise the labour market, particularly in countries/regions where fossil fuels are still largely produced and used, high energy-intensive sectors, and the financial sector. Therefore, climate policy packages should therefore include job insurance schemes, retraining programmes, safety nets, and income redistribution measures targeting those mostly damaged by climate policy measures.

Among the crucial components of a climate policy package, energy and climate-related R&D is particularly important. We still need some technology development to achieve net zero carbon by 2050 and, above all, to remove portions of GHGs emitted in the past and those that will be emitted over the next three decades. This crucial component is still partially neglected by both public and private funding. Data on publicly funded energy-related R&D show there has been stability over the last 5 years, even though we would expect a large increase.

As for damage from climate change, this chapter highlights the importance of pre-emptive measures. Damage that results from climate change is already high and will progressively increase. Impacts will affect mostly the poorest, thus increasing inequality and social exclusion. Mitigation policies will reduce this damage in the second half of the century. However, over the next three decades the negative impacts of climate change will increase, in particular there will be climate-related extreme events. In this case, similar to COVID-19, prevention is the appropriate measure. Both Member States and the EU should envisage more pre-emptive adaptation investments.

Lastly, measures to foster international cooperation and ambitious GHG emission reductions in the largest countries outside the EU are crucial. The EU effort would be ineffective without participation of G20 countries at the very least. What policy measures can the EU adopt to broaden the climate coalition and encourage developed and developing countries to move more quickly towards a zero carbon pathway? Below are some proposals:

- financial and technological support to developing economies;
- a global carbon price floor (at least among the G20 countries);
- a border carbon adjustment to protect the competiveness of EU energy intensive industries – this would also be a strong economic incentive for countries with insufficient climate change goals to improve their policies;
- rapid implementation of the economic mechanism approved in Glasgow (in line with Art. 6 of the Paris Agreement) to help equalise marginal abatement costs and make climate policy more cost-effective.

***

INTRODUCTION

Climate change poses a long-term threat to human societies with huge impacts expected for health, economies and welfare. It is somewhat similar to a pandemic, but with more persistent and irreversible consequences. Even more so than the fight against COVID-19, controlling climate change is a difficult and complex task, requiring well-designed policies and significant financial resources.

The similarity between the pandemic and climate change should not be overstressed, although many lessons from the battle against COVID-19 can be applied to climate change. Nevertheless, the opportunities provided by the recovery plans designed to stimulate economic growth after the pandemic are also crucial to fight climate change. Many national plans, particularly in the EU, contain measures to reduce greenhouse gas (GHG) emissions and increase climate resilience, while aiming to stimulate economic growth after the pandemic recession. Are these plans sufficient to address the challenge of climate change? The relevance of the climate objective and the related benefits are undoubted and precede the pandemic crisis: however, what are the macroeconomic implications and the transition risks of policies designed to fight climate change? What kind of policy mix is best suited to achieve the two objectives: post-COVID-19 recovery and GHG mitigation?

Therefore, this chapter has a twofold objective: first, it aims to quantify the investment needed to control climate change both in the short (2030) and medium run (2050) (see Section 4.2). These two time periods are linked to the EU targets for reducing GHG emissions by -55% by 2030 and for reaching net zero emissions by 2050. Section 4.2 will also focus on the various ways to finance the necessary investments.

The second objective is to quantify the macroeconomic costs of the energy transition, taking into account both transition risks and impacts of decarbonisation on inequality (see Section 4.3). Section 4.4 and 4.5 will discuss the policy measures adopted in the EU to achieve the -55% target and the issue of international policy coordination, respectively. Section 4.1 will provide a short overview of the direct damage-related costs of climate change. It is important to provide motivation for the subsequent policy discussion, by emphasising the relevance of climate change and the danger it poses to humanity.

4.1. IMPACTS AND DAMAGES FROM CLIMATE CHANGE

The impacts of the pandemic have been huge and will last for years. The impacts of climate change are already huge, at least in some regions around the world, and will progressively increase over time and last longer. In particular, similarly to a pandemic, their exponential dynamics need to be controlled and curbed down to avoid catastrophic outcomes.

By having an impact on economic performance, anthropogenic climate change is estimated to have already reduced GDP growth over the last 50 years, with substantially larger negative effects on low-income than middle- to high- income countries and, in some cases, positive effects on high-latitude high-income countries. Similar to COVID-19, warming temperatures, water scarcity, drought, and extreme events have affected almost all economic sectors across all regions, with particular challenges for agriculture, energy production, natural resource extraction, tourism, trade, and finance, even in Europe.

Between 1980 and 2019, weather and climate-related extremes accounted for around 81% of total economic losses caused by natural hazards in EU countries, totalling EUR 446 billion (European Environment Agency, 2021). This is equivalent to EUR 11.1 billion per year.

However, because a relatively small number (3%) of single events were responsible for a large proportion (> 60%) of the economic losses, resulting in high variability from year to year, it is difficult to identify trends. The average annual (inflation-corrected) losses from weather and climate-related extremes were around:

- EUR 6.6 billion in 1980-1989;
- EUR 12.3 billion in 1990-1999;
- EUR 13.2 billion in 2000-2009; and
- EUR 12.5 billion in 2010-2019.

Nevertheless, the loss remains around 0.1% of total GDP (GDP annual growth rate in the EU averaged 1.54% from 1996 until 2021) but only takes into account losses from extreme events.

In the US, recent wider estimates (see Carleton and Hsiang, 2016) show that once temperatures are higher than the optimum, an increase in temperature by 1°C (what we have experienced over the last 100 years) lowers economic production by roughly 1-1.7%. This estimate was recently refined in Duffy et al. (2019), which for the US suggests costs equivalent to 1.2% of GDP for 1°C of warming, with poorer US counties experiencing an economic burden roughly five times that of wealthier counties.

At the global level, Carleton and Hsiang (2016) calculate that current temperature increase (about 1 degree above pre-industrial levels) slowed global economic growth by roughly 0.25 percentage points per year (around USD 200 billion yearly).

The future economic impacts of climate change depend, among many other factors, on the scenario that is adopted as regards future temperature increase. The above analyses are based on previous effects of climate change or on simulations of a temperature increase of one degree, which we have experienced over the last 100 years. However, what would be the cost of a temperature increase of 2°C or 3°C?

In line with both the vision outlined in André Sapir's chapter in this volume and the recent report from the European Central Bank (ECB) on the 'Economy-wide climate stress test', let us consider the following three scenarios.

- A '**business as usual scenario' (BAU)** – in the ECB's words a 'hot house world scenario' – in which little regulation or policy aimed at limiting climate change is introduced, thus leading to extremely high physical risks. This is similar to the IPCC's RCP7.0 or RCP8.5 scenarios, with a predicted temperature increase of about 4°C by the end of the century compared with pre-industrial levels.
- A '**new deal'** scenario, combining the Green Deal already envisaged in the European Union with policies to substantially reduce disparities within and across societies. The ECB describe this as an '**orderly transition'** scenario, where temperature increase by the end of the century would be stabilised at 1.5-2°C. For the IPCC, this would be the RCP1.9 or RCP2.6 scenarios.
- In between these two scenarios, there could be a '**conflictual'** or '**disorderly transition scenario'** that assumes the implementing of ambitious and effective climate policy measures will be delayed and uncoordinated. Therefore, transition risks, conflicts and their associated costs become significant. Physical risks would also be higher than in the previous 'new deal' scenario. This scenario, where ambitious policies are delayed, is close to the IPCC's RCP4.5, where temperature increase at the end of the century would be about 3°C.

So, we have three scenarios (and three temperature levels as the main climate indicator for each scenario: 4°C, 2°C and 3°C respectively), which correspond to a high, low and medium economic impact of climate change. Scenarios can be also characterised by the level of transition risk:

- Scenario 1 (BAU) by high impact and low transition risk (there would be no transition);
- Scenario 2 (new deal) by low impact and medium transition risk;
- Scenario 3 (disorderly transition) by medium impact and high transition risk.

On the basis of this qualitative description, no scenario dominates (or is dominated by) the others, even though Scenario 1 is very unlikely (a high impact/low probability scenario) because current policies are already consistent with a 3°C scenario (RCP 4.5 or 'disorderly transition'). Therefore, the analysis of this chapter will mostly focus on and compare Scenarios 2 (the target scenario) and 3 (the expected trend)[20]. This is a crucial assumption, because the size of the required GHG emission reduction – and the related costs – is smaller than in the case in which the comparison is between Scenario 2 and Scenario 1.

As regards damage from climate change, the ECB modelling assessment finds that annual total damage would be equivalent to about 2-3.5% of EU GDP in the case of the 'new deal' scenario (because damages are relevant even in the 2°C case, adaptation measures will be needed). Total damage would be about 4-6% of EU GDP from 2030 onwards in the 'disorderly transition scenario'. In the unlikely Scenario 1, total damage would reach 10% of EU GDP.

Therefore, the message is clear: damage from climate change is already substantial now and is likely to be greater in the near future, particularly if policies are delayed and/or are not sufficiently ambitious over the next decade (in Scenario 3 and, even worse, in Scenario 1). Therefore, policies to mitigate GHG emissions and reduce impacts of climate change need to be urgently implemented and be well-designed. **Time is crucial**. It will take many years to stop or reverse the current trend in temperature increase. To limit future damages, it is economically efficient to start reducing GHG emissions as soon as possible and at a faster rate than before. **The post-pandemic recovery provides a major opportunity if policies to address the current pandemic are and continue to be designed to achieve stronger, sustainable, and low-emission economic growth**.

4.2. INVESTMENTS AND FINANCE TO REDUCE GHG EMISSIONS

Sustainable growth is the goal of most post-pandemic recovery plans, particularly the EU recovery plan. A strong alignment of COVID-19 recovery packages with climate targets has the potential to address financing needs efficiently, and to reduce lock-in effects. So, the first question to be addressed is: are financial resources earmarked for recovery plans, in particular NextGenerationEU, sufficient to achieve the climate targets?

The European Commission has allocated resources worth roughly EUR 750 billion to support post-pandemic recovery. NextGenerationEU is designed to repair the immediate economic and social damage caused by the COVID-19 pandemic. The Recovery and Resilience Facility is the centrepiece of NextGenerationEU, with EUR 672.5 billion in loans and grants available to support reforms and investments undertaken by EU countries. NextGenerationEU also includes EUR 47.5 billion for the

[20] As Hausfather and Peters (2020) write in a recent paper: 'Overstating the likelihood of extreme climate impacts can make mitigation seem harder than it actually is. This could lead to defeatism, because the problem is perceived as being out of control and unsolvable. Pressingly, it might result in poor planning, whereas a more realistic range of baseline scenarios will strengthen the assessment of climate risk'.

REACT-EU programme (recovery assistance for cohesion and the territories of Europe). **About one third of the EU funds (EUR 240 billion over 6 years) will be devoted to fighting climate change (about EUR 40 billion per year).**

Is this sum sufficient to finance the investments (in all economic sectors) required to reduce GHG emissions in a way consistent with EU targets (-55% of GHG emission in 2030 and net zero emissions in 2050)?

Recent estimates of annual global investment needs from now until 2030 to keep the temperature increase below 2°C (with respect to pre-industrial levels) are summarised Table 6 below:

Table 6 **Estimates of annual financial needs to stabilise GHG emissions at levels consistent with temperature increase below 2°C**

Year	Source	Investment Needs (USD bn)
2014	IPCC AR5	1000*
2018	UNFCCC Biennial Assessment	1700
2018	IPCC 1.5 Report	2400
2021	IEA NetZeroby 2050	2500
2021	IPCC AR6	2600**

* In 2018 USD

** Preliminary to be confirmed when AR6 will be approved in March 2022

Note: The USD 2300bn from the NetZeroby2050 report by the International Environment Agency (IEA) is computed as the difference between the required investments in clean energy and infrastructure, estimated at USD 3 100 bn and current investments (about USD 800 bn).

Early estimates (e.g. those in the IPCC AR5) of total investment needs were probably optimistic and were largely revised in recent reports. This revision takes into account the investment needs in all sectors and countries, and focuses mainly on new energy infrastructure and solutions for energy efficiency. For example, the yearly global investment needs, approximately USD 2 500-2 700 billion, can be disaggregated as follows:

- USD 145 billion for agriculture and forests (this estimate is based on The Food and Land Use Coalition adjusted for higher afforestation needs based on New Forest Declaration Progress Reports);
- USD 1 099 billion for energy efficiency needs (this estimate is based on IRENA (2020);
- USD 974 billion for electricity sector needs, including transmission and distribution (T&D) and storage (this figure is derived from the IPCC AR6 scenario database; these investments are estimated as the incremental investment needs for pathways which limit warming to 1.75°C–2.25°C compared with the average of those consistent with warming of 4.0°C;
- USD 425 billion for transport needs (based on estimates for new rail infrastructure from the G20 Infrastructure Initiative).

The total investment figure of USD 2 500-2 700 billion per year – roughly USD 320-400 billion for the EU – is huge, 8-10 times the resources coming from the NextGenerationEU Plan. However, again it is crucial to compute investment needs by explicitly clarifying the benchmark scenario. The above numbers are all estimated by comparing investment needs in Scenario 1 in this report (the 'BAU' or 'hot house' scenario) and Scenario 2 (the 'new deal' scenario). This comparison is not correct because current policies and investments (both private and public) are closer to Scenario 3 ('disorderly transition') than to Scenario 1. Comparing investment needs in Scenario 2 to those in Scenario 1 would just overemphasise the investments required to control climate change. Therefore, the

additional financial needs to achieve a 2°C target (Scenario 2) should be computed in relation to Scenario 3, a trajectory in which some investments are already planned and likely to be implemented.

In other words, rather than estimating the incremental investment needs in relation to the average of those consistent with warming of 4.0°C, let us use as a benchmark investment needs consistent with a 2.75°C–3.25°C warming. Namely, let us compare investment needed to stabilise the temperature increase to about 2°C with respect to pre-industrial levels and the current trend of climate-related investments, which is consistent, if all countries comply with the Nationally Determined Contributions (NDCs) submitted in Paris, with a temperature increase of about 3°C (Scenario 3). To make this comparison, let us use the AR6 scenario database again.[21]

Using the results of a wide range of integrated assessment models, the global average yearly investments[22] from 2023 to 2032 for electricity supply and its subcomponents, and for fossil fuel extraction (in USD billion 2015) to achieve 2°C stabilisation (1.75-2.25) are:

- **Electricity supply: USD 1 663, of which: USD 100 using fossil fuels, USD 118 using nuclear, USD 760 using renewables, USD 97 for storage, and USD 491 for transmission and distribution;**
- **Fossil fuel extraction: USD 353;**
- **Energy efficiency: USD 245;**
- **Total: USD 2 261**[23]

If the goal is to stabilise the temperature increase to between 2.75°C and 3.25°C (the trajectory implicit in the Paris Agreement's NDCs or in our Scenario 3), then global average yearly energy investments from 2023 to 2032 would be:

- **Electricity supply: USD 1 065, of which: USD 105 using fossil fuels, USD 59 using nuclear, USD 488 using renewables, USD 5 for storage, and USD 335 for transmission and distribution;**
- **Fossil fuel extraction: USD 422;**
- **Energy efficiency: USD 228;**
- **Total: USD 1 715**

By comparing the 2°C scenario (Scenario 2) with the 3°C scenario (Scenario 3), we are likely to take into account that large investments in renewables and energy efficiency are already taking place and

[21] Let us stress that the AR6 scenario database contains results from a large number of models and not from a single model, as in many other assessments of investment needs.

[22] According to the IEA, investment is measured as the ongoing capital spending in energy supply capacity and, in the case of energy efficiency, the incremental spending on more equipment that is more efficient and goods. Fuel supply includes all investments associated with producing, transforming and providing solid, liquid and gaseous fuels to consumers. These mainly consist of investments in oil, gas and coal supply, but also include biofuels and other low-carbon fuels.

[23] Total investments may be much larger if the goal is to achieve a 1.5C temperature increase with respect to pre-industrial levels.

will continue up to 2030 in order to achieve the Paris Agreement's targets. These investments are mostly driven by the falling prices of renewables[24].

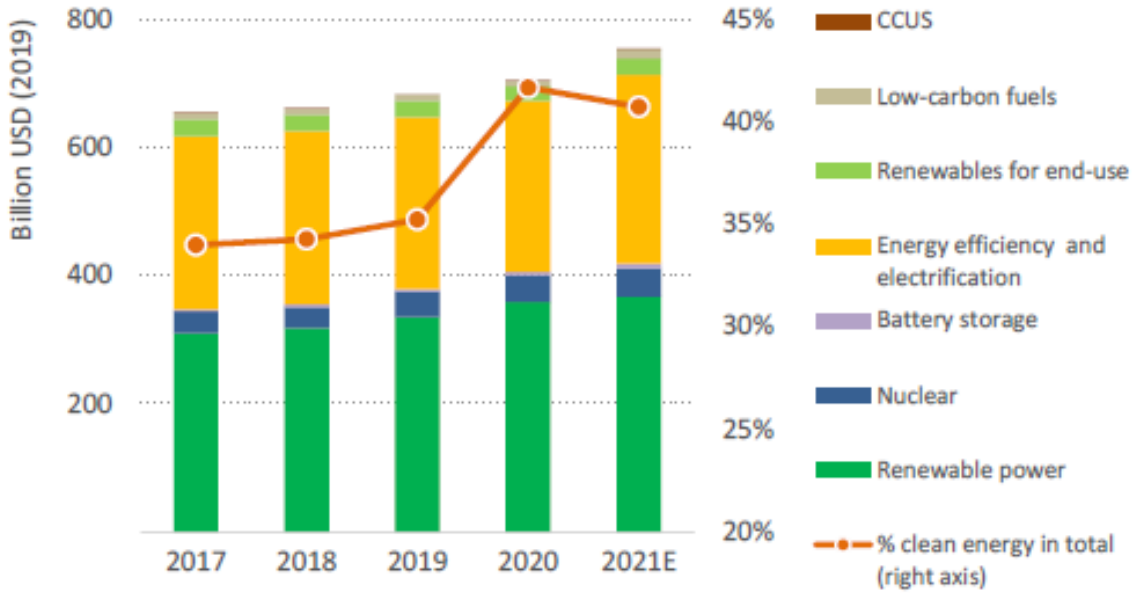
This is confirmed by a recent Bloomberg report (see Marcu et al., 2021) where the estimated current level of global investments in energy transition is around USD 500 billion annually. This figure includes investment in projects, such as renewable power, energy storage, electric vehicle charging infrastructure, hydrogen production and carbon capture and storage projects. It also includes end user purchases of low-carbon energy devices, such as small-scale solar systems, heat pumps and zero-emission vehicles. It does not include energy efficiency investments (estimated at around USD 300 billion). Taking into account energy efficiency investments the total would be about USD 800 billion. The largest sector in 2020 was renewable energy, which attracted USD 303.5 billion for new projects and small-scale systems. The second largest was electric transport, which saw USD 139 billion in outlays on new vehicles and charging infrastructure.

The recent World Energy Investment report (IEA 2021a), provides a similar assessment (Graph 27). Renewables investments in new power generation is expected to be around USD 390 billion in 2021, with an extra USD 300 billion spent in investment in grids and storage (around 690 USD billion annually). In 2021, spending on energy efficiency improvements was expected to have increased by nearly 10%, to achieve USD 320 billion in response to renewed economic growth and the initial effects of recovery programmes (see Graph 27 again). Total energy investments are slightly below USD 800 billion.

This figure, which is very similar to Bloomberg's one, is not yet fully consistent with a 3°C trajectory (Scenario 3). However, investments have been quickly increasing over time and will increase further due to the expected rise in CO2 prices and the expected drop in renewable energy prices, battery prices and, more generally, clean technology prices.

[24] This is consistent with the following statement in Hausfather and Peters (2020): "The marginal investments required to move from 3 °C of warming to well below 2 °C (the main Paris goal) will be much less than moving from 5 °C to well below 2 °C. A narrative of progress and opportunity can make the Paris targets seem feasible, rather than seemingly impossible".

Graph 27 **Global investments in clean energy and energy efficiency, 2017-2021**



Source: IEA (2021a)

By taking into account the current trend of climate-related investments (the Scenario 3 trajectory) – investments mostly driven by technological innovation and the consequent fall of market prices for renewables and efficient energy solutions – the estimate for future total incremental investment needs becomes lower. Indeed, using the previously shown estimates from IPCC AR6's integrated assessment models, **the global additional investment needs would be USD 550 billion (about USD 80-110 billion in the EU)**, with a large fraction of this increase going to renewables, electricity storage and transmission and distribution. The largest reduction would be in investments for fossil fuel extraction. This estimate (USD 550 billion) does not take into account the agriculture and transport sectors, but is nevertheless much lower than other estimates shown in in Table 6.

Some readers may think this is too optimistic. However, even if current total investments are yet to be considered at a level consistent with the IPCC models' estimates in the 3°C scenario, resulting in USD 600-800 billion being added to the total amount, the total investment missing to achieve the 2°C target would be USD 1 100-1 300 billion, lower than other recent estimates (about 1.5% of total GDP rather than 2%)[25].

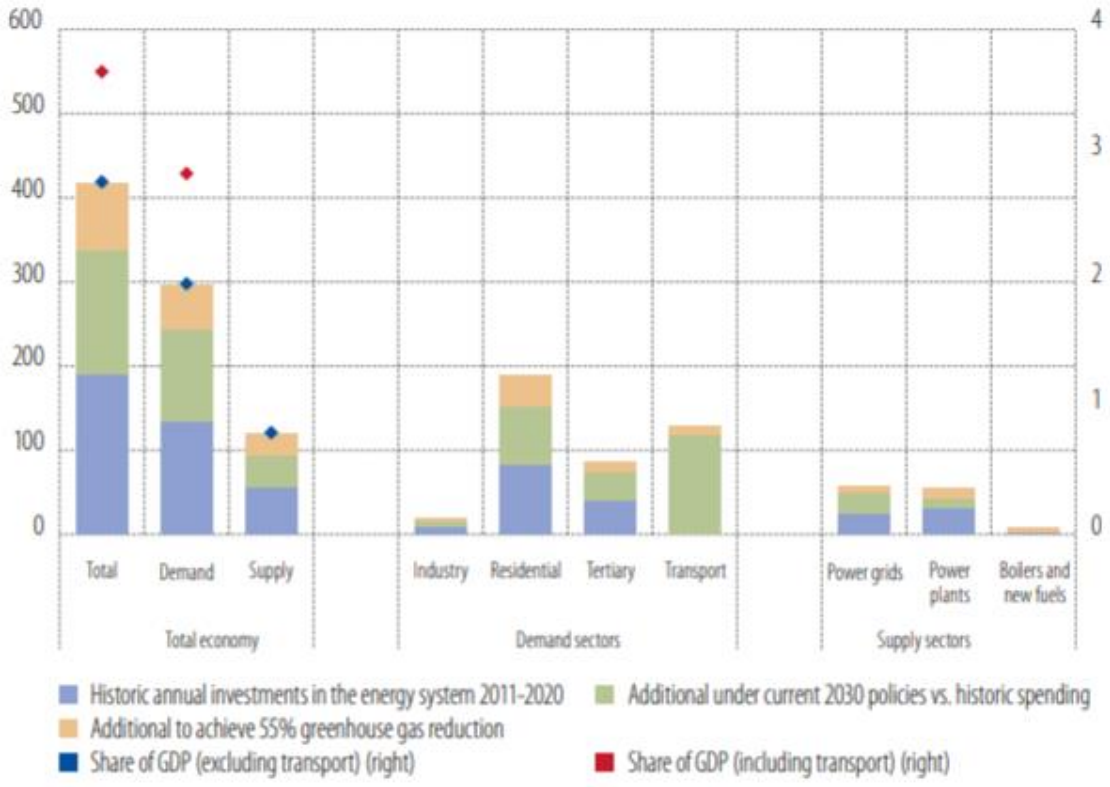
For the European Union, Graph 28 shows the European Investment Bank's estimates of additional investment needs to achieve the 2°C stabilisation target (EIB, 2021). The proposed GHG emission reduction target of -55% by 2030, consistent with the 2°C target, increases the annual additional investment needs by about EUR 260 billion (excluding agriculture) compared to historic trends. This

[25] According to the IMF report on "Reaching Net Zero Emissions" (see International Monetary Fund, 2021c), aligning infrastructure with net zero emissions requires additional public investments in the range of 0.5 to 4.5 percent of GDP cumulatively over the next decade, with most estimates clustered around 2 percent of world GDP. This amounts to about 1,600 USD (using GDP in 2020 at current prices). In McCollum et al. (2018) the conclusion goes as follows: "As a share of global GDP, the total energy investments projected by the models do not rise significantly from today in any of the scenarios, hovering just over 2% (model range: 1.5–2.6%) in the "current policies" scenario and growing to 2.5% (1.6–3.4%) and 2.8% (1.8– 3.9%) in the 2C and 1.5C pathways, respectively".

figure has been slightly increased in a recent European Commission Communication (2021h) where the estimate becomes EUR 312 billion (60% of EUR 512 billions) and it also includes the energy and transport needs of an expanding economy, whereas the other estimates includes only decarbonisation investments. However, these estimates use historic trends (Scenario 1) as a benchmark rather than the Scenario 3 trajectory.

By comparing the investment needs with the Scenario 3 trajectory, this number would be less than EUR 100 billion (see the orange bars in Graph 28). Similar figures can be found in McCollum et al. (2018). The set of integrated assessment models used in this paper predict investment needs for the EU to equal EUR 300 billion in the 1.5°C scenario, whereas they would be EUR 220 billion in the current policies scenario. Therefore, the required additional investments in the EU would be EUR 80 billion.[26]

Graph 28 **Annual energy related investment expenditures in the EU. 2021-2030 vs 2011-2020**



Source: EIB (2021)

Summing up, estimates of investment needs based on historic trends, namely using the business as usual scenario (Scenario 1) as a benchmark, are about EUR 260-300 billion (using a 1.1 EUR - USD exchange rate). Estimates using present trends (Scenario 3) as a benchmark are about EUR 80-100 billion. An intermediate precautionary estimate that takes into account that present trends are not yet fully consistent with the Paris Agreement commitments would be EUR 140-150 billion.

[26] Our estimates and McCollum et al. (2018) estimates are both based on a large set of models rather than on a single model.

Let me also underline that the IPCC and Commission estimates of incremental investment needs include both private and public funding. In 2019, total annual climate finance resources rose to USD 608-622 billion, representing a 6-8% increase from 2017-2018 averages, around half of them coming from private sources (CPI, 2018). **Therefore, if NextGenerationEU resources are matched by private funding, total available funds would be around EUR 80 billion. The distance between the estimated EUR 90-100 billion additional investments needs and the resources allocated in NextGenerationEU would not be very large**.

Most additional investments are expected to come from the energy suppliers, and involve:

- the development and strengthening of energy infrastructure;
- the building of renewable energy power plants and facilities for storing energy; and
- the production of carbon-free hydrogen and synthetic fuels.

Summing up, using different sources and approaches, additional investment needs to achieve the -55% 2030 EU target (and net zero in 2050) are likely to be estimated at EUR 80-100 billion, with half hopefully coming from private sources. The remaining half is provided, for the 6 initial years at least, by the NextGenerationEU plan.

Therefore, the main target would not be to increase the amount of public funding, even though the timeframe for EU public efforts to reduce GHG emissions should be extended to 2030, but rather **to redirect existing private investments** from fossil fuel sources to renewables, green hydrogen, bio-fuels and other zero-carbon energy sources. Redirecting private investments can be achieved through suitable carbon pricing, well targeted subsidies (in particular by removing subsidies to fossil fuels), insurance schemes, incentives to R&D, other kinds of economic incentives as well as sector specific standards and norms.

As for public resources, the Commission plans to raise funds to support the NextGenerationEU plan through five main new measures:

- the plastics own resource, a contribution based on the non-recycled plastic packaging waste, which has been in place as a new revenue source for the 2021-2027 EU budget since January 2021;
- a carbon border adjustment mechanism, which entails a tax on any product imported from a non-EU country that does not have a system to price carbon;
- a digital levy, which would stem from digital business activities;
- an extension of the EU Emissions Trading System (ETS) to the maritime and aviation sectors coupled with a reduction of grandfathered permits in all sectors;
- a possible financial transaction tax, a financial contribution linked to the corporate sector or a new common corporate tax base.

Among these proposals, **extending the EU ETS**, jointly with the price increase of EU ETS allowances induced by the 2019 Market Stability Reform and the increased share of auctioned permits[27], seems to

[27] In 2020, auction revenues increased from EUR 14.6 billion in 2019 to EUR 19.16 billion. This increase is mainly attributable to the UK, which auctioned its combined 2019 and 2020 volumes last year. However, revenues of EU-27 Member States also increased by 13% compared to 2019. In total, cumulative auctioning revenues amount to EUR 69 billion over phase 3 of EU ETS.

be the most promising, at least in the short run, as regards increasing the resources available to co-finance investments in low-carbon solutions and processes. Furthermore, the EU ETS carbon price, in addition to raising financial resources, modifies relative energy prices, providing a strong signal to private investors to shift away from fossil fuels and invest in renewables, renewable-based solutions (from electrification to hydrogen) and energy efficiency.

The carbon price in the ETS market has recently increased to about EUR 70-75 per tonne of carbon (reaching an all-time high of EUR 89.37 on 8 Dec 2021). This increase has been pushed by:

- higher gas prices, making coal power plants more profitable than gas;
- increased energy demand induced by post-COVID recovery; and
- expectations of further restrictions on GHG emissions following the new pledges presented at COP 26.

There is a strong consensus that the price will continue to trend upwards. The magnitude of that increase varies amongst the forecasts, but all of them reach at least €80-90 per ton before 2030, with a significant increase of total revenue (from about 20 billion euros in 2020 to about 50 billion in 2030, taking into account the increased auctioning and the reduced GHG emissions)[28].

Another important policy measure would be **the removal of subsidies to fossil fuels in all EU countries**. In 2018, according to a Commission report, EU countries spent EUR 159 billion (USD 188 billion) on energy subsidies. Nearly a third of that – around EUR 50 billion per year – went on fossil fuels. Fossil fuel subsidies among the EU-27 increased by 6% from 2015-2018, though some, including Austria, Denmark, Estonia and Hungary, bucked the trend. The handouts include support from governments and public bodies to coal, gas and oil, in the form of grants, loans, tax incentives or price support. Overall, the transport sector received 44% of the total government support identified.

These two measures – extensions and upgrade of EU ETS, and removal of fossil fuel subsidies – **would deliver around EUR 100 billion per year to finance decarbonisation**, more than the NextGenerationEU funding earmarked to fight climate change. Nevertheless, both measures may face strong opposition by some EU countries.

As for the private sector, funds may come from the rapid rise of green bonds and from the increased attractiveness of ESG (Environment-Society-Governance) assets for private and institutional investors. In 2020, issuance of sustainable finance bonds reached an all-time record of USD 554.3bn. Within that, the social and sustainability bond categories each surpassed USD 100bn for the first time, as sovereigns, multi-laterals and banks financed relief efforts related to COVID-19's economic disruption. Remarkably, social bonds surged nearly tenfold to reach USD 164.2bn globally. This accounted for 30% of the total amount that was raised by the sustainable finance bond market during 2020, compared with a 5% share in 2019. Meanwhile, sustainability bonds reached USD 127.6bn. Green bond issuance increased by more than a quarter, to EUR 222.6bn, marking a new annual record. Equity issuance from sustainable companies in 2020 increased by 65% to a record USD 14bn.

Private and institutional investor preference for ESG assets may also become the other most important driver of green and climate-friendly investments – funded with own resources – in the private sector.

[28] Today, the ETS Directive provides that Member States should use at least 50% of auctioning revenues for climate and energy-related purposes. Options on the table include both increasing this threshold and requiring that all revenues are spent in a way that is compatible with the climate neutrality objectives and/or the 'do no significant harm' principle.

An analysis of more than 3 000 US mutual funds and exchange-traded funds shows that sustainable equity funds outperformed their traditional peer funds by a median total return of 4.3 percentage points in 2020. During the same period, sustainable taxable bond funds beat their non-ESG counterparts by a median total return of 0.9 percentage points.

Therefore, climate finance is moving rapidly and it is increasingly supporting low-carbon investments. The size of mobilised resources, both in the private and public sectors, even though not yet aligned with the financial needs, is progressively increasing.

Summing up, estimates of incremental investment needs are crucial to inform public and private investors about the size of the investments and related financial resources needed to achieve net zero emissions in 2050 and thus stabilise GHG concentrations by the end of the century. Innovative financing instruments, including de-risking instruments, robust 'green' labelling and disclosure schemes, and regulatory focus on transparency could help achieve the required funding level. Green bond markets and markets for sustainable finance products have increased significantly. This underpins investor preference for scalable and highly standardised investment opportunities, standardised financial products and new, convening asset classes that will help enable a smooth integration into existing asset allocation models.

4.3. THE MACROECONOMIC COST OF DECARBONISATION

From a political economy viewpoint, what matters for policymakers, even more than investments, is the macroeconomic cost of a decarbonisation strategy, particularly in the short term (the transition cost). This is particularly important, because the short-term cost of reducing GHG emissions, if significant, would be an additional macroeconomic cost in an already difficult situation. The COVID-19 pandemic has triggered the deepest global economic contraction since World War II. While most economies are expected to rebound in 2021-2022, the impact of the pandemic on many parts of the economy may last far longer. Therefore, COVID-19 recovery packages are mainly designed to provide a macroeconomic stimulus to increase well-being (not GDP only) and employment. Nevertheless, as seen in Section 2, action to reduce GHG emissions can no longer be postponed. The time for action is now. After 30 years of delays and insufficient actions, the priority is now curbing temperature increase while protecting the economy, rather than stimulating economic growth while protecting the environment.

It is therefore crucial to understand whether there is a trade-off between economic recovery and climate change control, or whether the two targets can be achieved simultaneously. In other words, are investments and policies to achieve climate targets going to reduce the short-term positive macroeconomic impact of recovery packages? What is the macroeconomic cost of the EU transition to carbon neutrality? What are the transition risks, and their economic impact, induced by an ambitious climate policy in the European Union?

4.3.1 Equilibrium macro-economic costs

The macroeconomic cost of de-carbonisation (mitigation cost) can be computed by using, once again, integrated assessment models. The mitigation cost estimates are dependent on several key socio-economic assumptions, including those on inter- and intra-generational distribution, innovation, technologies, international cooperation, and global burden sharing. Scenarios with lower energy demand and lifestyle changes tend to result in lower costs. Furthermore, if climate policies are implemented in such a way to reduce or eliminate pre-existing distortions in the economy, losses can be reduced or even turned into gains. By removing imperfections, smart climate policy packages can increase activity in an economy that is not operating to its full potential. Mitigation costs also depend on both the timing and strength of action. Delaying mitigation action typically leads to higher overall costs because: i) of the steep reductions required to compensate for the lack of action early on, and ii)

carbon-intensive investments made during that time may become at high risk of locking in future GHG emissions (Scenario 3).

Let us start by analysing the macroeconomic cost of achieving the 2°C target (or lower) in an orderly manner (Scenario 2), using the most recent IPCC reports to provide an assessment of mitigation costs. These mitigation costs do not consider the benefits of avoided climate change impacts nor co-benefits or co-harms of mitigation action. Although preliminary, the annual GDP losses from GHG mitigation in the forthcoming IPCC AR6 correspond to an annualised reduction in consumption growth by:

- 0.02-0.07 percentage points (interquartile range) over the century in pathways that limit global average temperature change to below 2°C; and
- 0.03-0.09 percentage points (interquartile range) in pathways that limit global average temperature change to below 1.5°C.

Macroeconomic losses are even smaller in the short term; the range is an annual GDP loss between 0.01% and 0.03% from now to 2030.

These estimates are similar to the assessment of mitigation costs provided in IPCC AR5 (see Table 7). Probably, they are even lower. In AR5, annual GDP losses from GHG mitigation in pathways that limit global average temperature change to below 2°C correspond to an annualised reduction of consumption growth by 0.04-0.14 percentage points over the century. Losses by 2030 are estimated to be 1-3.7 percentage point(s) with an annual average of 0.12 percentage points[29].

In AR5, there was also an assessment of mitigation costs in both Scenario 2 and Scenario 3 (see Table 7). The average annual cost in Scenario 3 is about two thirds of the cost in Scenario 2, because Scenario 3 is less ambitious and emissions are higher (damages from climate change are also higher but not taken into account). Namely, the cost of reducing emissions is lower when the effort is lower (the forecast in Scenario 3 is a 3°C temperature increase). However, the AR5 IPCC assessment does not properly consider the economic and social costs of a disorderly transition that would lead to a temperature increase of 3°C.

[29] Losses are estimated in cost-effective scenarios that assume immediate mitigation in all countries and a single global carbon price, with no additional limitations on technology relative to the models' default technology assumptions. Cost estimates do not consider the benefits of reduced climate change as well as co-benefits and adverse side effects of mitigation.

Table 7 **Global mitigation costs under two scenarios that roughly corresponds to Scenario 2 (430-480 ppm) and Scenario 3 (530-580 ppm) in this paper**

	% reduction in consumption relative to baseline			Percentage point reduction in annualised consumption growth rate
2100 Concentration [ppm CO_2-eq]	2030	2050	2100	2010-2100
450 (430-480)	1.7 (1.0-3.7)	3.4 (2.1-6.2)	4.8 (2.9-11.4)	0.06 (0.04-0.14)
550 (530-580)	0.6 (0.2-1.3)	1.7 (1.2-3.3)	3.8 (1.2-7.3)	0.04 (0.01-0.09)

Source: IPCC AR5

The aggregate economic costs of mitigation pathways likely to limit warming to 2°C (Scenario 2) are smaller in AR6 (0.03-0.09) than in AR5 (0.04-0.14). This is mainly due to the potential of new least-cost options that became available for all sectors in recent years. Low-cost options could reduce emissions by around 50% by 2030 compared with 2018 levels. The increased availability of low-cost options is also coupled with a large decrease in the cost of low-carbon technologies[30].

Other recent estimates of macroeconomic mitigation costs have been provided by the Energy Modelling Forum (EMF) (see Böhringer et al., 2021). Under a scenario equivalent to Scenario 3, the 15 models used in EMF 36 find a range of 0.07% up to 0.8%, and a mean of 0.43% for the global economic adjustment costs compared to the BAU. Costs are measured as welfare losses. Under more restrictive emission caps that are in line with a 2°C path in 2030 (our Scenario 2), global adjustment costs in most models more than double, ranging from 0.16% to 1.84%, **with a mean of 0.94%.**

Costs depend on several assumptions, one of the most important being the possibility to equalise marginal abatement costs across countries. Comprehensive international emissions trading (global) provides substantial global cost savings of 50-90% in most models, which is in line with earlier studies on emissions trading in the context of the Paris Agreement. **The mean global welfare loss would be 0.15% in Scenario 2 with global emissions trading and 0.47% in Scenario 3 with global emissions trading** (namely, equalisation of marginal abatement costs across countries). Welfare gains through global emissions trading thereby increase with the stringency of the reduction targets.

Summing up, both the IPCC and EMF assessments of mitigation costs show that **the large investments necessary to decarbonise the EU economy may have a limited negative macroeconomic impact**, in both Scenario 2 and 3. This is particularly the case if policies are implemented and coordinated across all countries, and if an economic mechanism (e.g. emissions trading or others consistent with Art. 6 of the Paris Agreement) is implemented to equalise marginal abatement costs. Anyway, these economic losses are largely compensated, not only by the long-term benefits from climate change control but, above all, by **short-terms benefits of reduced pollution**, particularly in cities (fewer annual deaths and illnesses related to air pollution and lower costs for healthcare). There then seems to be no trade-off, or a very limited trade-off, between economic growth and climate change control.

[30] This clearly stressed in the forthcoming IPCC AR6.

There are two main reasons behind this conclusion. The first is the adjustment effects, both nationally through sectoral reallocations, and internationally through international trade and emissions trading, that equilibrium models are able to capture. The second is the effect of the investments discussed in the previous section. If the **investment multiplier is around or above one**, the economic stimulus and related implications on all sectors and markets may generate benefits larger than costs, namely the total increase in GDP is greater than the original increase in green spending. A recent study by the IMF compute these multipliers (see Batini et al., 2021). It is probably the first study to directly estimate the effect on GDP of money spent to foster the transition to a zero-carbon society for a variety of green expenditure typologies. In particular, in the case of renewable versus fossil fuel energy investments, where country and time samples are homogeneous and allow for a formal statistical comparison, the difference between the associated multipliers emerge as non-zero with very high probability. The point estimates of the **multipliers are 1.1-1.5 for renewable energy investment and 0.5-0.6 for fossil fuel energy investment**.

However, the above results on the macroeconomic cost of climate policy are likely to underestimate transition costs. This is because they are mostly based on quantitative assessments coming from integrated assessment models and general equilibrium models. Integrated assessment and general equilibrium models used to quantify the macroeconomic cost of GHG emission reductions – albeit the only tools that account for spatial, temporal and sectoral interactions – are equilibrium models and cannot properly capture the cost of the transition from one equilibrium to another. In particular, they cannot capture i) unemployment costs and all costs related to imperfect labour markets and/or ii) costs related to stranded assets and the transition from fossil fuels to renewables (models assume equilibrium in the labour market as well in all other markets). **The (small) equilibrium costs a decade from now may hide substantial costs along the pathway to achieve the GHG emission reduction target**. These transition risks (and costs) need to be assessed.

4.3.2 Transition risks and related costs

Transition risk refers to the negative impact that the introduction of climate policies to reduce CO2 emissions could have on i) high-emitting firms and industries, or ii) income distribution and inequality, or iii) the social and political acceptance of climate policy, and therefore on social and political instability. For example, industries that rely heavily on non-renewable or highly polluting resources, such as mining or fossil fuel extraction, could face a sharp fall in profits and higher production costs, possibly with temporary large unemployment effects. Alternatively, policies may be perceived as unfair, as the burden is unequally distributed and losing sectors are not adequately compensated, resulting in social unrest. The first of these effects is underestimated by equilibrium models, where the reallocation of resources among sectors minimises the macroeconomic costs. The second has generally not been quantified. Therefore, let us provide some partial equilibrium analyses of transition risks.

a) **The first – and probably most important of these transition risks – is related to the employment implications of a green recovery**. Let us analyse the likely effects of a post-pandemic green stimulus on employment, particularly on the distance in worker skill sets between occupations displaced by the shift from fossil fuels, COVID-19 and other structural shocks and the subset of green-manual occupations expected to be in high-demand as a consequence of a green stimulus. In particular, the effectiveness of recovery plans depends on the extent to which inputs displaced by the transformations induced, both directly and indirectly, by the COVID-19 crisis can be reallocated into green activities, such as i) renewable energy technologies, ii) building retrofitting, iii) recycling and iv) new infrastructure for the energy and transport sectors. Labour reallocation towards greener sectors is particularly important in order to reabsorb workers whose demand will be permanently displaced by decarbonisation policies and divestments.

A recent paper by Vona et al. (2021) reveals that the average green-manual occupation requires on average 14 months of on-the-job training compared to 7 months for the average occupation affected by COVID-19. However, the skill gap between green and generic low-skilled occupations is similar. In other words, the transition from a generic low-skilled occupation to a green low-skilled occupation is as difficult as the transition from a COVID-19 exposed low-skilled occupation to a green low-skilled occupation. While both green and COVID-19 exposed occupations exhibit similar levels of spatial concentration, a potential barrier to a green job reallocation relates to occupational preferences: notably that the former occupations are much more male-oriented than the latter. Furthermore, the last category of origin occupations, i.e. those mostly employed in polluting sectors (brown), exhibit a skill set similar to those of green occupations, but have modestly lower training requirements and a significantly higher spatial concentration.

Therefore, unemployment is likely to increase in the transition towards a decarbonised economy and green stimulus policies may exacerbate this, unless retraining programmes become a significant component of recovery and decarbonisation policies[31]. This is consistent with findings from general equilibrium models with search frictions, which show that climate policies have small aggregated effects on the economy, but trigger a substantial reallocation of labour from brown to green sectors (Hafstead and Williams III, 2018).

At the same time, a well-designed low-carbon response can create more longer lasting jobs that are better aligned to sustainable development in future-oriented growth sectors. A recent study by McKinsey (2020) focusing on a typical European country with 50 to 70 million people found that every EUR 1 spent in clean energy could generate some EUR 2 to EUR 3 of gross value added. This research also indicates that **the employment boost from this stimulus package would also be substantial: 1.1 million to 3.0 million new "job years" of employment in Europe**. Similarly, the IEA report on NetZeroby2050 (IEA, 2021) by 2030 argues that 14 million jobs will be created worldwide thanks to new activities and investment in clean energy. A further 16 million workers would be required for building retrofits, for energy-efficient construction, for more efficient appliances and to work on electric and fuel cell vehicles.

However, these opportunities are likely to require different skill sets and be in different locations, and sectors from those where the jobs will be lost as fossil fuels decline. The IEA report argues that around five million jobs will be lost. Most of these are located close to fossil fuel resources, and many are well paid, meaning structural changes could cause shocks for communities with the effects persisting over time. Careful attention needs to be paid to policy to address the employment losses. It will be vital to minimise hardships associated with these disruptions by, e.g. retraining workers, locating new clean energy facilities in heavily affected areas wherever possible, and providing regional aid.

Job insurance schemes, retraining and compensation mechanisms are also likely to favour the adoption of more ambitious climate policies. Clearly, higher carbon-intensive employment makes legislators less likely to vote for carbon restrictions (e.g. in Poland), but this effect is weaker where unemployment benefits are high. As shown in Kono (2020), effective unemployment benefits make legislators more likely to vote for carbon restrictions where

[31] Vona et al. (2021) provide evidence about how the supply of green-training on a local level is a possible enabling factor in creating jobs by means of green fiscal stimulus by taking into account the green component of the American Recovery and Reinvestment Act of 2009. Their results point to the relevance of providing green training locally to create jobs from green fiscal stimulus and to the strong positive influence of local green training on wages of green-manual jobs.

carbon-intensive employment is high. A robust social safety net can both protect workers and help control climate.

Furthermore, Furceri et al. (2021) also find that climate change policies are not necessarily politically costly. So, policy design matters. First, in their econometric analysis, only market-based climate change policies (such as emission taxes) seem to generate negative effects on popular support. Second, the effects are muted in countries where non-green energy is a relatively small input into production. Third, political costs are not significant when climate change policies are implemented during periods of low oil prices, generous social insurance and low inequality. Therefore, a scenario where oil prices and income inequality are expected to increase is likely to make difficult to adopt ambitious carbon pricing.

b) **A second transition risk (and cost) is related to the impacts on economic activity and income distribution of higher energy prices induced by more stringent carbon policies**. These costs can be assessed by looking at the consequences of past energy price increases. Marin and Vona (2021) show that increases in energy prices substantially reduce energy consumption and CO2 emissions, modestly reduce employment and productivity, and have no effects on wages. Energy price impacts are larger in the long run than in the short run, except for productivity, as capital deepening exacerbates job destruction but mitigates efficiency losses, and is slightly biased towards technicians and against manual workers. The main impacts occur in trade-exposed, energy-intensive sectors. However, long-term trade-offs remain limited even for large historical price variation, with a 10% reduction in CO2 emissions costing only 0.9% of jobs. While employment effects are bigger in large establishments, negative wage effects emerge for small companies pointing to different labour market adjustments.

   More generally, geographical and sectoral impacts of a post-pandemic green recovery – and related policy measures – are likely to be unevenly distributed. Even though on aggregate, the costs of these impacts are significantly smaller than the benefits, in terms of health, environment and, probably, labour market outcomes, the losses are concentrated in specific areas, sectors and social groups. Climate policies can be perceived as negative for employment, especially in areas where energy-intensive fossil-fuel based industries represent a large share of employment and in occupations and sectors already damaged by globalisation and automation. Negative effects of climate policies are going to be particularly felt in Eastern EU countries, as they will have to increase their efforts to reduce carbon intensity significantly relative to past trends (see Székely, 2021). Compensating for the effects of climate policies on 'left-behind' workers, energy-intensive sectors and eastern EU countries appears to be the key priority in order to increase the political acceptability of such policies. An appropriate combination of revenue recycling schemes, industrial and retraining policies as well as compensation packages to increase the support for such policies needs to be implemented[32].

   More specifically, the analysis of Carattini et al. (2018) is a good synthesis of what can be done to increase the acceptability of climate policies, particularly carbon taxes. They identify four steps.

   . *Phasing in carbon taxes over time*: a slow ramp-up, or even a trial period, allows individuals to gauge the costs and benefits of the tax. Taxes can then be raised progressively until they reach the level required to meet the environmental objective.

[32] For example, a better designed policy would have probably avoided the yellow vest phenomenon in France.

- *Earmarking tax revenues*: voters have a preference for earmarking tax revenues and using the proceeds to further reduce greenhouse gas emissions. They are particularly keen to see support provided for low-carbon research and development, along with subsidies to promote deployment.
- *Redistributing taxes to improve fairness*: carbon taxes can become more acceptable if these tax revenues are used to address important societal concerns, e.g. easing the impact on low-income households or on those working in a sector damaged by the carbon tax[33].
- *Information sharing and communication.* As soon as policymakers start considering the design of a carbon tax, they should provide detailed information (obtained through analysis and perhaps model simulations) to navigate the process of public consultations and to pre-emptively address voter concerns. Providing rigorous analytical information through different, trusted channels and devices may ensure that the public debate about the effects of a carbon tax is based on the best available evidence.

c) **A third important transition risk to be highlighted involves financial institutions**. We mentioned previously that expanding low-carbon productive activities requires significant low-carbon physical and financial investments. Non-financial firms need to produce and install low-carbon capital while financial institutions need to invest in and lend to low-carbon firms. However, there is a second dimension to the problem, directly related to GHG mitigation. High-carbon sectors need to be phased out in a controlled manner. New high-carbon physical and financial investments need to fall rapidly until they stop. A strategy is required to deal with the existing stocks of high-carbon physical and financial assets, which could become 'stranded' and lose their value, thus affecting the wider stability of the economic and financial system. Two main types of physical assets are at risk of becoming 'stranded' in a disorderly low-carbon transition:

- reserves of fossil fuels might remain un-extracted;
- long-lived stocks of high-carbon capital may remain unutilised or must be prematurely decommissioned.

Economic impacts can spread from carbon-intensive activities to other sectors via the inter-firm production network. This may have two types of financial implication. **First, the probability of default of carbon-intensive firms may increase**, thus worsening the non-performing loan ratios of commercial banks and putting banks themselves at risk. **Second, a sudden downward revision of expected profits from such firms triggers a devaluation of their outstanding financial assets** (e.g. bonds and stocks), thereby negatively affecting the portfolios of financial investors holding the assets.

The first implication has been accelerated by the COVID-19 pandemic. COVID-19 induced a reduction in demand for electricity that disproportionally affected coal power plants, while the reduction in transport mostly affected oil demand. This has sharply accelerated pre-existing decline in the profitability of most fossil fuel industries: the value of energy companies in the S&P 500, which in the decade to 2019 had shrunk from above 10% to below 5%, dropped to below 2.5% during 2020. Within the context of a wider overall reduction in energy

[33] A choice experiment by Beiser McGrath and Bernauer (2019) finds that revenue recycling could help achieve majority support for carbon tax levels of up to USD 50-70 per metric tonne of carbon, but only if industrialised countries join forces and adopt similar carbon taxes. The issue of international coordination will be addressed in Section 6.

investment, this has prompted a substantial relative shift towards low-carbon investment particularly by the private sector.

Recent work on physical assets suggests that a 2°C target is incompatible with full depletion of fossil reserves and continued investments in high-carbon capital stocks, so there is a risk of stranding of productive infrastructure in both upstream and downstream sectors. The situation is even worse in a 1.5°C scenario[34]. At the same time, there is evidence of a relatively small direct financial exposure to carbon-intensive sectors, but a larger and potentially systemic indirect exposure via financial networks. In addition, transition risks are likely to be increasingly priced in by the market over time even though, as shown above, current asset prices suggest the presence of a green premium instead of a carbon premium.

d) **What is the economic size of the above transition risks?** According to a recent ECB study (see Figure 4 in ECB, 2021a), the transition risk in Europe in the case of an orderly transition (our 'green deal' Scenario 2) would be practically zero. In the case of a disorderly transition (our Scenario 3), it would be about 1-2% per year from 2030 to 2050. The damage would be significant in energy-intensive sectors and in the financial sector. The ECB (2021a) results show that for corporates and banks most exposed to climate risks, the impact is potentially very significant, especially in the absence of further mitigating policies. If climate risks are not reduced, the costs to companies arising from extreme weather events would rise substantially and negatively affect their creditworthiness. Similar conclusions on transition costs are provided in a study by the Energy Transitions Commission (Energy Transmissions Commission, 2020).

Results that are more encouraging are presented in a paper by Way, Mealy and Farmer (2020), where the usual three scenarios (present policies and trends (Scenario 1), fast transition to zero carbon (Scenario 2), and slow disorderly transition (Scenario 3)) are compared with a focus on technology trends and the future development of prices of energy technologies. Transitions costs are computed by forecasting cost savings generated by the future lower prices of renewables and storage. There is no assessment of costs in the labour market or the financial sector, but rather a comparison between Scenario 2 and Scenario 3 in terms of development, diffusion and pricing of energy technologies. Results are produced for a large range of discount rates (a nice feature, which is hardly ever shared by other analyses). The conclusion is strong: at all reasonable discount rates, the fast renewable energy transition (Scenario 2) is likely to be substantially cheaper than the existing fossil-fuel based energy system. Using a 1.4% discount rate, the expected net present saving is roughly USD 11 trillion. The median value, which better indicates the net present saving likely to be achieved in practice, is roughly USD 24 trillion. The slow renewable transition (Scenario 3) also generates savings relative to no transition, though it is not as cheap as the fast transition. The savings in the energy sector may be used to compensate losses in other sectors.

Furthermore, in most studies, including ECB (2021a), the size of the transition risks remains much smaller than the size of the physical impacts of climate change that could be avoided by fast and ambitious climate policies (see ECB, 2021a). In other words, the costs of climate

[34] In a recent study – Welsby et al (2021) – it is estimated that unextractable oil, fossil methane gas and coal reserves comprise the percentage of the 2018 reserve base that is not extracted to achieve a 50% probability of keeping the global temperature increase to 1.5°C. They estimate this to be 58% for oil, 59% for fossil methane gas and 89% for coal by 2050. This means that very high shares of reserves considered economic today would not be extracted under a global 1.5°C target. These estimates are considerably higher than those made by McGlade and Ekins (2015), who estimated unextractable reserves at 33% and 49% for oil and fossil methane gas, respectively for a 2°C target.

change are far greater than the costs of the green transition. This is even truer when climate policy is specifically designed to tackle transition costs and not only to reduce emissions.

For example, an IMF study (Jaumotte et al. 2021) explores the economics effects of a comprehensive policy package, which complements carbon pricing with an initial green fiscal stimulus, consisting of green public investment and subsidies to renewables production. Their model simulations show that thanks to the green public spending, the policy package boosts global output relative to the baseline for the first 15 years of the low-carbon transition. Subsequent transitional output costs resulting from further increases in carbon prices are moderate, of the order of 1% of baseline global GDP by 2050. **The initial stimulus package allows the financial costs of the carbon tax to be offset. Aside from the initial lift to aggregate demand, it boosts productivity in low-carbon sectors, increasing profitability and triggering more private investment in these sectors**. This policy also creates more employment in low-carbon sectors, supporting the employment transition out of high-carbon sectors. These findings suggest that upfront green fiscal packages could help smooth the transition to a low-carbon economy in the short and medium term, the timeframe most relevant to policymakers[35].

4.3.3 Transition risks and inequality

A survey by Markkanen and Anger-Kraavi (2019) synthesises evidence from the existing literature on social co-impacts of climate change mitigation policy and their implications for inequality. The analysis shows that most policies are linked to both co-benefits and adverse side-effects, and can compound or lessen inequalities depending on they are designed and implemented. The risk of negative outcomes is greater in contexts characterised by high levels of poverty, corruption and economic and social inequalities, and where only limited action is taken to identify and mitigate potentially adverse side-effects. Poor and marginalised population sub-groups that are highly exposed to the negative impacts of climate change (and thus among the greatest beneficiaries of successful efforts to limit global warming to 1.5–2°C), are also most vulnerable to the adverse effects of climate change mitigation policies that are poorly designed or inadequately implemented.

Vice versa, inequality matters for the feasibility of climate change policies. Furceri et al. (2021) show that the economic burden from climate change policies seem likely to be concentrated among certain groups, especially those with weaker initial conditions and less resilience. They show that when climate change policies are adopted in times of high inequality, political costs are magnified. Redistributive instruments targeted at the more damaged sectors, and policies to allow workers to more easily migrate from losing sectors to growing ones, are a tried and (in our view based on the data) true recipe for overcoming the political fallout from climate change policies.

The concept of a ‘just transition’, which has stressed the need for equity and fairness to underpin the transition to a low-carbon economy, has also gained momentum in recent years. Expanding from the initial focus on industrial transition and workers’ rights, the just transition concept is now increasingly acknowledged as having the various aspects of the transition within its remit, including, more broadly, the distributional impacts of climate change policy. The European Commission’s Just Transition fund is an important step in the right direction.

---

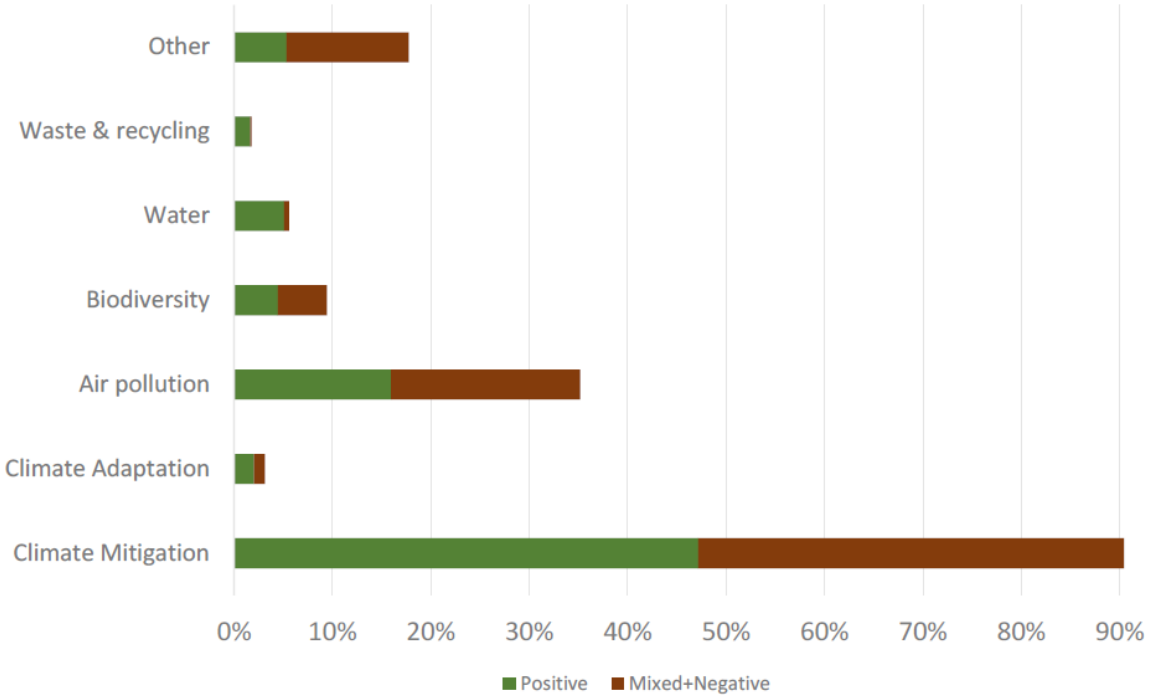
[35] An interesting feature of this study is the model used. The model features 10 countries/regions, detailed energy sectors, forward-looking agents, real and nominal rigidities, and fiscal and monetary policies. Because it has many short-term Keynesian features, it is well suited to examine the effects of mitigation policies on the macroeconomic dynamics in the short and medium term, in addition to looking at long-term effects.

4.4. MEASURES TO PRE-EMPT A CLIMATE CRISIS IN THE EU

An important lesson that can be drawn from the pandemic regarding climate change is related to the value of forward-looking risk management strategies, the role of scientific assessment, preparatory action and international processes and institutions. There have been long-standing warnings of pandemic risks and precursors. However, these focused mainly on direct health aspects: few warnings foresaw the potential scale and interlinked extent of the economic impacts of a global pandemic. This echoes long-standing climate literature on potential 'high-impact' events, which are often perceived as low probability events. The costs of preparatory action, which was mainly taken in those countries that had suffered from earlier pandemics, were negligible in comparison, suggesting the importance not just of knowledge but its effective communication and embodiment in society. How will these lessons be learnt and how will they affect the implementation of EU policies on adaptation and mitigation?

According to the OECD Green Recovery Database, climate change mitigation is by far the most common environmental area impacted by the recovery measures tracked (Graph 29).

Graph 29 **Proportion of total funding allocated to measures that affect different environmental dimensions**



Source: OECD Green Recovery Database

Nearly 90% of funding allocated goes to measures tagged as having clear implications for GHG emissions, roughly evenly split between measures that reduce emissions and those likely to increase emissions (though the proportion is slightly lower when counting the *number* of measures involved, at around 75% of total measures). The next most common dimension impacted is air pollution (with around a third of total funding, again evenly split), and also accounting for around a third of the number of measures counted. The strong number for air pollution is largely because of the synergy with climate measures, meaning that many measures are categorised as being positive (or negative) for both climate and air pollution simultaneously.

By contrast, other environmental dimensions feature much less strongly. For example, measures that impact biodiversity account for less than 10% of the funding allocated, despite biodiversity being

regularly mentioned as a government priority. Within that 10%, less than half is for measures judged to be actively tackling biodiversity loss. In terms of numbers of measures, a slightly higher proportion are tagged for biodiversity (around 15%), suggesting that on average biodiversity measures are smaller than other environmentally positive measures in monetary terms, or that funding is not reported. Water only accounts for around 8% of measures in both funding and number of measures (though it is possible that water-based measures are hidden in other broader measures). Other significant dimensions such as waste and recycling, and climate change adaptation, have so far also received a very small proportion of total funding and are targeted by only a small number of measures.

These figures suggest that the main lesson of the pandemic was not learnt. First, **significant funds are still allocated to measures which are likely to have environmentally negative or mixed impacts.** The current analysis points to around USD 334 billion being targeted towards measures categorised as negative or mixed environmental impacts – nearly the same as that allocated to environmentally positive measures; it is expected that this figure may be underestimated. Renewed attention is required to ensure that all recovery measures are focused on 'building back better'. There is still scope to better match green recovery rhetoric with the reality of expenditure plans.

Second, **prior evaluation of the environmental impacts of policy decisions is needed.** The above results highlight the importance of a prior evaluation of measures in terms of their expected impacts, in order to help governments understand the likely climate and environmental effects of measures, as well as where policy misalignments may exist. Aside from expectations for jobs and economic growth, this evaluation needs to include not only environmental dimensions, but also a consideration of broader social well-being and equality objectives that are an important basis for ensuring a lasting and sustainable recovery.

Therefore, and most importantly, **policy action should focus on pre-emptive measures**. This is the main lesson to be learnt from the COVID-19 crisis. It was well known from many reports and analyses that a pandemic was likely to occur, although it was obviously uncertain when and where it would happen. Nevertheless, almost all countries were not prepared to manage the crisis. Similarly, large damages from climate change are very likely, but preparation, pre-emption and adaptation are far from adequate. In particular, the tiny fraction of total recovery funds devoted to biodiversity protection, water management and adaptation to climate change is worrisome. Pre-emptive adaptation (e.g. coastal protection, land and forestry management, irrigation systems, early warning processes, smart agriculture, climate-proof infrastructure) is crucial to minimise both short-term and long-term impacts of climate change. Impacts that are partially unavoidable even if countries succeed in decarbonising their economies by 2050. Even a 'small' temperature increase of 2°C in this century (in relation to pre-industrial levels, namely doubling the increase of the last century) would damage many economic sectors, primarily agriculture, and a lot of infrastructure (from harbours to telecommunications).

In the EU-27, investment in climate mitigation increased by 2.7% in 2019 to EUR 175 billion, with all segments of climate mitigation growing except energy efficiency. Renewable energy generation led the way rising by 7.8%, hitting a level not seen since 2012. The increase came largely from the wind and solar photovoltaic sectors. Estimates for energy efficiency investment indicate a modest decline in 2019 to EUR 55 billion. However, given the difficulty in estimating this kind of investment, it would be safer to say that there has been no evidence of a substantial change in real terms over the last 5 years. In the transport sector, investment in rail and inland waterways grew by 3.6%, making up for the lower rates witnessed since 2014. Forestry grew by approximately 6% and R&D by 0.8% with increases in government R&D making up for declines in the corporate sector (see EIB, 2021).

Investment in adaptation is much harder to track than that in mitigation. Adaptation is more diffuse, and can be included in a wide range of investments across many economic sectors. It is impossible to track this type of investment with any accuracy without a globally accepted reporting method. Investors typically do not identify adaptation investments separately in their accounts. Two categories

of adaptation investment are identified and tracked, namely: i) major projects supported by EU public institutions and ii) flows of adaptation finance from OECD to non-OECD countries. However, these two categories very likely represent only a small part of the total. Adaptation investments by individual firms are not tracked, nor, for the most part, are those undertaken by other government entities and local authorities. Those adaptation investments not covered by the data could be substantial, for example, costs related to the location of factories and warehouses and the associated engineering works, design and location of housing, plants and machinery.

Climate change adaptation is integrated into EU policies through the European Structural and Investment Funds. Projects include flood protection, land rehabilitation, forest fire protection, habitat conservation and risk management. The projects are funded with a combination of EU and national budgets. In 2019, total spending reached EUR 23.8 billion, expanding rapidly from EUR 3.3 billion in 2015.

Nevertheless, the share of funding for adaptation remains small, less than 10% of total spending. The gap between the level of risk we face and the level of adaptation underway has widened. Adaptation action has failed to keep pace with the worsening reality of climate risk. As stressed in a recent report by the UK Committee on Climate Change, 'in the absence of further adaptation, the number of risks with annual impacts costing of the order of EUR billions per year is likely to triple by the 2080s, even if the global effort is successful in reducing greenhouse gases and limiting warming to 2ºC above 1850-1900 temperatures'. Similar to the preparation for the next pandemic, adaptation planning needs to accommodate unpredictability and the potential for sudden shifts in the climate, even at lower levels of warming.

Furthermore, as previously stressed, climate change is likely to widen existing inequalities through its disproportionate effects on socially and economically disadvantaged groups. Actions to address climate change could also exacerbate existing inequalities if not carefully designed and planned. Inequalities are related to where people live, their income level and assets, as well as characteristics such as age and ethnic background. These inequalities can correlate to current vulnerabilities and the capacity to adapt to climate change. National adaptation plans should map these effects and include measures to deliver positive distributional effects. Providing EU support to these kinds of measures is particularly important.

4.5. INTERNATIONAL COORDINATION OF CLIMATE POLICIES

The EU produces only 7.8% of total GHG emissions worldwide. Therefore, it is clear that, whatever strategy the EU adopts, effective control of climate change cannot be achieved without ambitious and fast emission reductions in other countries, particularly the US and China (together these two countries produce 40% of total GHG emissions; India and Russia another 13%; Japan and Korea 4.2%).

Similarly to the EU, some of today's major carbon emitters (China, Japan, Korea, and the US) have made pledges to reach net zero emissions by mid-century or soon after. This would halve total emissions by 2050. In addition, the transition in these countries will provide technology and policy solutions that will make it easier and more affordable for other countries to follow.

However, the 1.5°C climate target requires global emissions to reach net zero by 2050. In the absence of climate policy, today's smaller emitters will become major emitters as their populations grow and per capita incomes increase (even though damage from climate change will mostly affect developing countries). Global emissions will be far from reaching net zero, underscoring the need to ensure broader participation in mitigation strategies.

Therefore, successfully mitigating climate change will require most countries to participate, including developing economies where carbon emissions are expected to grow substantially. Widespread

adoption of climate policies would also level the playing field for companies and investors, avoiding a competitive advantage for countries with less stringent climate policies.

Nevertheless, this is unlikely to happen for several reasons:

- The historical responsibility for climate change and global GHG concentrations is correctly attributed to developed countries – the US and the EU in particular – that are responsible for 37% of cumulative emissions. Therefore, the effort and cost of reducing emissions should be proportional to cumulative past emissions rather than present and future emissions.
- More generally, the cost of reducing emissions should be equitably shared, with respect to both the past historical responsibilities and the present income availability and technology capacity. This implies large financial transfers from developed to developing countries that did not occur in the recent past and are unlikely to occur in the coming years.
- Developing countries do not see the fight against climate change as one of their development priorities (energy poverty, health, education and economic growth are considered more important).
- In developing countries, transition costs are more difficult to bear, due to fast-growing energy needs and less fiscal space to finance green investments.
- The allocation of resources, in particular fossil fuels, gives developing countries a comparative advantage in using these resources to produce the energy they need.

The difficulties and slowness of climate negotiations clearly signal the relevance of the above reasons. The NDCs submitted as part of the Paris Agreement will lead to emission reductions consistent with a temperature increase of about 3°C, still far from the 2°C (possibly 1.5°C) target. There could be a better outcome if pledges announced in Glasgow at COP 26 are met. Countries with net zero targets by 2050-2060 together represent 61% of global emissions, 68% of global gross domestic product (in purchasing power parity terms) and 52% of the global population. Cities and regions whose net zero targets are not subsumed by a higher level of government add a further 4% to the total population covered. The announcements in Glasgow have not been limited to CO2 emissions, with over 100 countries promising to cut emissions of methane – another potent greenhouse gas – by 30% by 2030. Rapid actions to reduce methane emissions from fossil fuel operations provide one of the most effective ways to limit near-term climate change. Preliminary estimates of the effects of the commitments submitted at COP 26 indicate a temperature increase close to 2°C (according to the IEA, the expected temperature increase would be 1.8°C)[36].

What policy measures can the EU adopt to broaden the climate coalition and encourage developed and developing countries to move more quickly towards a zero-carbon pathway? Below are some proposals.

- Financial and technological support to developing economies should be increased. Huge investments in infrastructure and education are necessary.
- A global carbon price floor (at least among the G20) – differentiated according to level of development to reflect the principle of common but differentiated responsibilities – would curb emissions and limit carbon leakage among participating countries.

[36] See https://www.iea.org/commentaries/cop26-climate-pledges-could-help-limit-global-warming-to-1-8-c-but-implementing-them-will-be-the-key

- A border carbon adjustment could be implemented to protect the competiveness of EU energy-intensive industries. This would also be a strong economic incentive for countries with insufficient climate change goals to improve their policies.
- Joint action through a coordinated green investment push would create beneficial demand spillovers, lift global output and pave the way for higher carbon prices.
- Quickly implementing the economic mechanism approved in Glasgow (in line with Art. 6 of the Paris Agreement) could help equalise marginal abatement costs and would make climate policy more cost effective in all participating countries.

4.6. CONCLUSIONS

The strategic and economic importance of adopting measures to reduce GHG emissions and increasing the resilience of economic activities in the EU to climate change is clear. Damage caused by climate change is already high and will progressively increase. Impacts will mostly affect the poorest, thus increasing inequality and social exclusion. These trends are already explicit in developing countries and are likely to become increasingly clear in the EU as well in a few years.

This is why urgent action is needed. Delays would increase the cost of reducing GHG emissions and the costs caused by the impacts of climate change. It takes time to curb the temperature increase curve. The speed of emission reductions, although accelerated by recent technological innovations and the fall in the costs of low-carbon solutions, is still insufficient to achieve the 1.5°C-2°C temperature stabilisation goal.

Therefore, we are at a crossroads. Either we continue on the present track where ambitious emission reductions are delayed and climate policy is not designed to foster technological innovation on the one hand and minimise negative impacts on income distribution on the other (Scenario 3). Or EU countries move quickly towards implementing those measures (energy efficiency, electrification and decarbonisation) necessary to quickly reduce emissions by deploying the necessary financial resources, removing harmful subsidies and providing the right incentives and direction to private investors, while preserving social justice and protecting those damaged by the transition to a zero-carbon economy (Scenario 2).

As previously shown, climate change mitigation is likely to have a limited equilibrium macroeconomic cost. However, the transition to a new equilibrium may be costlier. As for investments, most of the necessary resources should come from private investments, even though public resources – e.g. NextGenerationEU, recycling revenues from ETS – could accelerate the low-carbon transition in this decade and help offset most of the transition costs as described in Jaumotte et al. (2021).

Policies to redirect private investments are needed. These policies include carbon pricing, well targeted subsidies (in particular by removing subsidies to fossil fuels), insurance schemes, incentives to R&D, other kind of economic incentives as well as introducing sector-specific standards and norms.

However, this would still not be sufficient. Measures to increase the political acceptability of climate policy are a crucial component of the policy package. High transition costs may characterise the labour market, particularly in countries/regions where fossil fuels are still largely produced and used, high energy-intensive sectors, and even the financial sector. Therefore, climate policy packages should include job insurance schemes, retraining programmes, safety nets, and income redistribution measures towards those mostly damaged by climate policy measures.

Among the crucial components of a climate policy package, energy and climate-related R&D is particularly important. We still do not yet have the technologies to achieve net zero carbon by 2050 and, above all, to remove portions of GHGs emitted in the past and those that will be emitted over the next three decades. This crucial component is still partially neglected by both public and private funding. Data on publicly funded energy-related R&D show there has been stability over the last 5 years – even though we would expect a large increase - and a level today which is below the level in the 1980s.

The recent IPCC report (IPCC AR6, 2021) shows that damage from climate change will be substantial in many regions of the world, including in Europe. Mitigation policies will reduce this damage in the second half of the century. However, during the next three decades the negative impacts of climate change will increase, in particular there will be climate-related extreme events. In this case, similar to COVID-19, prevention is the appropriate measure. Both Member States and the EU should envisage more pre-emptive adaptation investments.

5. FISCAL GOVERNANCE IN THE EU AND THE PROVISION OF GLOBAL PUBLIC GOODS[37]

Hélène Rey
Lord Raj Bagri Professor of Economics, London Business School
CEPR and NBER

EXECUTIVE SUMMARY

One of the most pressing issues of our time is the lack of global public goods even when the return in providing these goods would be extremely high and could determine our survival. This paper proposes **a prudential fiscal governance framework** for the European Union (EU) designed to increase the sustainability of EU public finances and to give incentives to Member States to invest in global public goods. We show how we could implement this mechanism using two examples, (i) the current COVID-19 pandemic and (ii) climate change in order to show that investing in global public goods is likely to improve the sustainability of Member States' public finances, especially when done at the EU level.

***

[37] This work draws on "Towards a Prudential Fiscal Framework: Fiscal Governance and Global Public Goods" with Xavier Jaravel, LSE and CEPR. Rey thanks Tharman Shanmugaratnam and participants in the 2021 Conference of the Padoa-Schioppa Chair at the European University Institute for comments.

INTRODUCTION

The world is increasingly confronted with global problems such as pandemics, climate change and biodiversity loss. It is well understood that these problems constitute a threat to our survival and that they cannot be solved by a single country or region. We need international cooperation and the provision of global public goods. In the case of COVID-19, only vaccinating a sufficiently large number of people will prevent new variants and new infections. It is not enough to widely vaccinate the EU population if at the same time the virus circulates in other parts of the world on a significant scale. Similarly, from an economic point of view, if large parts of the world see a fall in economic activity due to the pandemic, the EU economy will be hit due to interdependence in trade, finance, global supply chains, technologies etc… In the case of climate change, the accumulation of greenhouse gases in the atmosphere, which is due to the activity of everyone on the planet is an externality which affects all of us and, if unchecked, may lead to devastating consequences.

Yet, there is a lack of finance for global public goods, a neglect of the global commons. Even relatively small investments with very high returns are not made. A quantitative illustration of this inaction puzzle is the vaccination of populations in all countries. The benefits of such measures are huge and the cost is relatively low. The International Monetary Fund (IMF) estimates an approximate USD 9 trillion in benefits for a cost of USD 50 billion. This is an exceedingly high return. Yet there is inaction and paralysis. This pattern of inaction despite high and predictable risks is hard to explain. It may be linked to the political process and its short-termism, or it may be seen as unfair to provide global public goods if other countries are not also doing it or it may be because countries are free riding. It is also plausible that investing in global public goods is seen negatively by a country's population as a transfer to other countries or regions - though it may in fact be beneficial to fund a public good even from a self-interest economic point of view. Whatever the cause, this inaction plagues multilateral cooperation, which is nowhere near a level compatible with the adequate provision of global public goods. This is a first order issue which becomes even more acute every day with increased evidence of climate change and biodiversity losses.

5.1. THE INACTION PUZZLE

Whether we look at Member States in isolation or the EU as whole, a recurring concern is the bias of decision makers towards too little action too late[38] when they are faced with predictable long term and extremely costly global phenomena. Examples include climate change and biodiversity loss and event short-term catastrophic global shocks, such as COVID-19. All too often, the consequences of inaction are predictable and catastrophic, and yet mitigation or preventive policies are not put in place, even when the cost of acting is greatly outweighed by projected future or even current losses.

The case of COVID-19 is striking from that point of view. Losses are not incurred in the long term. They affect all of us now. The IMF estimated that the cost of vaccinating at least 60% of the global population by the first half of 2022, of tracking and insuring against downside risks, ensuring widespread testing and tracing, maintaining adequate stocks of therapeutics, as well as enforcing public health measures was about USD 50 billion (see Agarwal and Gopinath (2021)). The benefits of such measures are put globally at around USD 9 trillion. Yet, we have so far failed to rise to the task and very little has been done to increase vaccine coverage in low-income countries. The vaccination rates in Africa are still very low.

[38] Harstad (2020) provides an interesting theoretical discussion emphasising the behaviour of politicians and the role of time inconsistency.

Climate change and biodiversity loss are two other glaring manifestations of this inaction puzzle. The costs of climate change are becoming more evident by the day and we have now many estimates of the consequences of allowing temperatures to rise by 2, 3 or 4 degrees above pre-industrial levels. There are high costs associated to such rises in temperature and the downside risks are considerable. The Intergovernmental Panel on Climate Change has alerted us to the fact that, if we do not change our ways, our carbon budget to maintain the temperature rise below 1.5 degrees will be exhausted in about 8 years (this is tomorrow!). And in about 25 years to maintain the temperature rise below 2 degrees. Yet, governments are still engaging in lukewarm actions to counter the risks. As Carraro (2021) points out, a large part of the 'NextGenerationEU' funds are still allocated by governments to measures with likely environmentally negative or mixed impacts. Carraro (2021) points to around USD 334 billion being targeted towards measures with negative or mixed environmental impacts. Fossil fuel subsidies are still alive and well and the phasing out of coal, one of the most carbon intensive and polluting energy sources, is still resisted by an adamant minority whose lobby seems powerful among decision makers. Our long-term survival as a species seems often sacrificed to the short-term benefits of a few powerful constituencies. The required investments in green infrastructure are made neither fast enough, nor on a scale commensurate with the challenge we face.

The pattern of behaviour that we describe as 'too little too late', the inaction puzzle, is strikingly similar to the one we observed time and time again for financial crises. There is no willingness to pay small costs now to avoid huge costs later. This accounts for the well documented boom-bust patterns of our economies, which was experienced once again in 2008. Financial crises are very costly events that bring about GDP losses of often more than 10% of GDP (see Laeven and Valencia (2020)). Financial regulators have reacted by imposing more robust capital requirements ex ante, some conditional on the state of the economy, in order to make the economy more resilient ex post and avoid the huge social and economic costs of a financial meltdown. This preventive approach may have raised somewhat the cost of banks' operations, especially the compliance costs, but above all, it has prevented a financial crisis when we were hit by the COVID-19 shock. In other words, prevention can be successfully used in financial regulation.

Preparing today for the financial crises of tomorrow is not very costly and will help make huge losses less likely. To get an idea of the right capital buffers, one approach has been to look at historical data on financial crises and bank capital depletion and to calibrate the capital buffers to make sure that banks were more likely to survive when hit by a large shock (see Caruana (2014)). **Capital adequacy ratios and macroprudential policies are a way to bring forward actions that will guarantee better resilience in the future**. Similarly, the solution to the inaction Puzzle when faced with a pandemic or a climate crisis is to adopt a prudential approach. That prudential approach should be implemented through the fiscal governance framework.

5.2. DEFICIENCIES IN THE CURRENT FISCAL FRAMEWORK AND THE CURRENT FISCAL RULES

In most cases, the current fiscal framework used by countries and international organisations consists of assessing debt sustainability by forecasting the debt-to-GDP path, future deficits, and refinancing needs over the short to long-term horizon. These forecasts build on median scenarios, which rarely take[39] into account the likelihood and severity of expected future crises. Therefore, there is no estimation of future liabilities that result from climate change for example, when fiscal sustainability is assessed. **Because we ignore these future liabilities, the incentives to act now are non-existent and we end up in much worse fiscal situations later**. This is similar to what we did before banking

[39] Some projections present 'fan charts' but these are usually short horizon projections and they do not take into account climate risk.

regulation was tightened, when we allowed too much leverage and too much lending and ended up with financial crises and huge liabilities after financial crises. If we do not have preventive policies, we end up with much higher liabilities later down the line. **We need to put in place a prudential framework for climate (and pandemics) whose rules will be embedded in our fiscal governance framework.**

The fiscal governance framework should incorporate estimates of implicit liabilities, and reducing implicit liabilities should be rewarded. Not only do we not have a fiscal prudential framework currently, but in a number of cases, including the case of EU fiscal rules, the fiscal rules act as a disincentive to decrease future, implicit liabilities. Because we have a deficit limit at 3% and a debt-to-GDP ratio target of 60%, a number of investments and actions that should be taken in some countries to decrease future liabilities due to climate change or pandemics may not be undertaken.

Sustainability depends on the composition of public debt and in particular whether debt contributes to reducing future liabilities, for example, by investing in global public goods. New EU rules should be designed to take into account fiscal sustainability more rigorously. In other words:

1. having a better and more precise assessment of expected liabilities; and
2. encouraging investments and actions to reduce those liabilities.

To do so, one approach could be to take certain well-defined investments out of the 3% rule. Such reforms are needed to build a prudent fiscal framework.

5.3. TOWARDS A PRUDENTIAL FISCAL FRAMEWORK

Building an EU prudential fiscal framework requires:

i) Computing expected future liabilities of a Member State due to climate change (and pandemics). These expected future liabilities should be included in the debt projections and all debt sustainability analyses.
ii) Estimating the costs of actions to decrease the probability and extent of losses ('loss given climate conditions') due to climate change (and pandemics) as well as their effect on public finances.
iii) Enabling and rewarding prudent and good governance of public finances. This means that the fiscal framework should reward Member States that fully take account of those future liabilities and seek to reduce them. Fiscal rules should enable sufficient investment today to reduce future debt.[40]

Constructing a prudent fiscal framework may seem like a daunting task, but there are elements that make this feasible in a relatively short time frame. First, we are already used to doing some evaluations of a number of off balance sheet items over the longer term. For example, pensions and social care for older people. Second, we can rely on existing work on quantification of climate change costs and pandemic costs and build on them. Third and very importantly, in the EU the Commission's role in fiscal affairs provides a governance structure that, if we decided to, would allow us to deal correctly with implicit liabilities. By measuring and recognising implicit liabilities explicitly, and by

[40] Besides pandemics and climate, other examples are investments in education which may pay for themselves as governments recoup the cost of their initial spending through additional taxes and reduced transfers. Hendren and Sprung-Keyser (2020) find that this was the case for several policies in the US We focus here only on climate and pandemics as we think those are two very well identified risks, but it is clear that the notion of prudential fiscal policy could be made much broader.

giving incentives to act on them, we would greatly reduce our future debt. **The EU can build a prudential fiscal governance framework that brings forward the benefits of more ex post resilience and, by doing so, will reduce large amounts of future debt and help increase sustainability from a financial and climate perspective.**

To illustrate how this could work, a rough back of the envelope evaluation of what this would imply for France and the EU is provided in sections 3.1 and 3.2. Based on Jaravel and Rey (2021), it includes the current pandemics and climate change in sustainability calculations. **We find that for vaccines and climate change, it is likely to be fiscally prudent for the EU to fund global public goods.**

5.3.1 Cost-benefit analysis of eradicating COVID 19 globally

The IMF estimates that the cost of vaccinating at least 60% of the world population by the first half of 2022 is about USD 50 billion. This estimate includes:

- tracking and insuring against downside risks;
- ensuring widespread testing and tracing;
- maintaining sufficient stocks of therapeutics; and
- enforcing public health measures (see Agarwal and Gopinath (2020)).

According to the IMF estimate, the USD 50 billion investment would bring the pandemic to an end faster in the developing world, reduce infections and loss of lives, accelerate the economic recovery, and generate some USD 9 trillion in additional global output by 2025.

Building on the IMF study, Cakmakli et al. (2021)[41] estimate the costs of slow vaccine rollout for 65 countries. According to their work, up to 49% of the global economic costs of the COVID-19 pandemic in 2021 were borne by advanced economies, even if they achieved universal vaccination in their own countries. It may therefore be in the economic self-interest of high-income countries to fund global vaccination programmes. This is because advanced economies are connected through trade to many emerging markets and developing economies who remain largely unvaccinated. Thus, the bad economic conditions in these countries affect the advanced economies as well. Cakmakli et al. (2021) is based on an epidemiological susceptible-infected-recovered (SIR) multisector-macro model that incorporates the effects of the COVID-19 pandemic through both export and import (production) links. The costs estimated are due only to these international links and they do not take into account the increased possibility of new variants emerging due to the unvaccinated, so the costs may well be underestimated.

The paper considers several specifications and scenarios which are briefly summarised below.

The first specification only takes account of foreign demand shocks that affect exports. If country A is fully vaccinated and wants to export to country B, which is not fully vaccinated, the exports of country A will be lower compared to the counterfactual where country B was also vaccinated.

The second specification adds to this the effects of supply disruption coming from imported inputs. Total inputs are imported at the country level and distributed among the domestic sectors.

---

41 https://growthlab.cid.harvard.edu/publications/economic-case-global-vaccinations-epidemiological-model-international

The third specification is the most stringent as inputs from different country-sectors cannot be distributed across the sectors of country A. Therefore, delivering the highest economic costs.

The reality may be somewhere between specification 2 and 3 while specification 1 is likely to be an underestimate. In the first and second scenarios, advanced economies (AEs) are vaccinated from the start, with 100% effectiveness, but the emerging and developing economies (EMDEs) are not. Therefore, the dynamics of the COVID-19 pandemic for the unvaccinated EMDEs feed back into the economic recovery of the AEs. In the second scenario, there are also endogenous lockdowns in EMDEs that depend on the capacity of intensive care units. In the third scenario, there is a gradual distribution of the vaccines in both AEs and EMDEs, keeping endogenous lockdowns. The reality probably lies between scenarios 2 and 3.

The economic costs to countries vary across scenarios and specifications, but they are high in almost all cases (specification 1 is an underestimate). The results for the US, France and the EU are summarised below. In all scenarios and specifications, the benefits to the EU is well above USD 50 billion. Even for France alone, the return on investment is above 100% for 5 cases out of 9 (since the cost from unequal vaccine access is above USD 50 billion in 5 cases out of 9). If we eliminate specification 1 as a clear underestimation of the costs, in nearly all cases, it would be profitable for France to undertake the whole investment alone.

Table 8 **Economic cost to countries/regions from unequal vaccine access, in 2019 USD billions**

Scenario	Specification	US	France	EU
1	1	111	21	156.3
1	2	297	49	328.5
1	3	438	66	436.7
2	1	45	8	66.1
2	2	342	54	364.9
2	3	744	100	663.9
3	1	135	23	124.5
3	2	568	90	417
3	3	671	104	512.1

Source: estimates from Cakmakli et al. (2021)

The effect on public finances can be immediately estimated as they occur in the very near term. For France, a decline in GDP of 6.1% during the COVID-19 crisis (a decline of about USD 165 bn= 6.1% x USD 2700 bn)[42] resulted in a drop of EUR 63.1 bn = USD 73 bn in fiscal revenues in 2020[43]. Therefore, a decline in GDP of USD X bn (X depends on the scenario and specification considered) leads to a drop in fiscal revenues of USD 73*X/ 165 bn. For France, the loss in revenues if nothing is done ranges from USD 3.5 bn to USD 46 bn.

The cost of investment to end the pandemics globally is estimated at USD 50 bn, so if France were to pay that entire cost, its net fiscal losses would range from –USD 46.5 bn to –USD 4 bn. If the USD 50 bn investments in vaccination etc… were shared at the EU level and France would pay 20% of that investment (USD 10 bn), France's public finances could be boosted by +USD 36 bn, or drop in the worst case by only –USD 6.5 bn. Therefore, in all likelihood France would benefit **in terms of debt**

[42] French GDP was approximately USD 2700 bn in 2019 and in 2021.
[43] At current exchange rates (2/11/2021). This is an underestimate on the effect on public finances as it neglects the expense side.

sustainability to pay its share in an EU initiative to eradicate COVID-19 globally. An EU prudent fiscal policy would offer special treatment for this type of investment, e.g. by taking it out of the 3% limit (or whichever deficit limit). It would recognise the increase in debt sustainability coming from providing global public goods thanks to the significant positive externality it generates for each country's economic situation. This would justify replacing the target of 60% debt-to-GDP by a modified long horizon target of an 'inclusive debt' to GDP ratio incorporating implicit liabilities due to the impact of climate change and pandemics. The inclusive stability and growth pact refer to it as a 'sustainability and growth pact' would be more forward-looking than its predecessor. It would also be more rigorous in terms of public finances as it would not leave out significant liabilities as its predecessor.

It is in the economic self-interest of the Member States to finance global public goods. This improves their public finances. It is the role of the Commission and of EU fiscal rules to make this fact explicit and build a 'sustainability and growth pact.' From a pure EU perspective, it will improve Member State's debt sustainability and increase the EU's resilience.

5.3.2 Cost-benefit analysis of reducing CO2 emissions through public investments

Several Member States have now committed to reaching carbon neutrality within a certain timeframe. For example, France has committed to net-zero by 2050. To reach a net-zero CO_2 emissions target in 2050, public investments needed in France are estimated at 1.2% of GDP every year from 2025 to 2050. Several sources provide this order of magnitude, including a report of the 2019 Quinet Commission for France[44] and reports from the Commission[45]. Assuming that the interest rate is equal to the growth rate (r = g), the net present value of cumulative public investment costs is simply C = 30% of GDP (= 1.2% * 25). The benefits of such investments would be to reduce CO_2 emissions and in turn reduce future liabilities because reducing emissions reduces future environmental damages, i.e. it prevents a long-term decline in GDP and tax revenues.

As a money-metric for the value of reducing CO_2, we use estimates of the social costs of carbon (SCC). Leading estimates vary from EUR 750 a tonne of CO_2 according to the 2019 Quinet Commission[46], studying France, to EUR 130 a tonne of CO_2 in 2050, according to the IMF 2020 World Economic Outlook. Following Nordhaus (Nordhaus, 2015, equation (3)), we assume that a country i captures benefits from reducing global CO_2 emissions that are proportional to its shares θ_i of global output. With γ the social cost of carbon, the benefits of reducing CO_2 emissions by one tonne for country i is $\theta_i\gamma$. We assume that:

---

[44] (Commission Quinet, 2019, pp 117).

[45] e.g., A Clean Planet for All. A EU long-term strategic vision for a prosperous, modern, competitive and climate neutral economy (European Commission, 2018a)

[46] The Quinet Commission (Commission Quinet, 2019) took as exogenous the binding goal of reaching net-zero emissions by 2050 and provided a model-based estimate of the social cost of carbon that would be consistent with this objective. More formally, the damage function in the climate model is assumed to become infinite if net-zero emissions are not achieved by 2050. Therefore, this approach side steps the issue of calibrating the parameters of the damage function in the climate model. The Quinet Commission uses available carbon abatement cost curves to assess the path of carbon emissions and how much it must be adjusted, through the social cost of carbon, to achieve the 2050 net-zero target. Other approaches, e.g. Nordhaus (1992), have calibrated the damage function but obtained optimal paths for carbon emissions that are far from the scientific consensus. For example, Nordhaus (1992) finds that the optimal carbon emissions path would raise global temperatures by 4 °C relative to pre-industrial levels.

(i) the interest rate is equal to the growth rate (r = g);

(ii) absent public investments, emissions would remain at their 2019 level, E_i (in tonnes);

(iii) benefits accruing after 2100 for simplicity are ignored[47].

The Net Present Value of benefits, expressed in US dollars, is conservatively estimated at

$$B = \theta_{i\gamma} * E_i * 50$$

since the benefits accrue between 2050 and 2100 (50 years). The return on investment is

$$B/C = \theta_{i\gamma} * 50/0.3 * Y_i$$

Countries invest over 25 years to reap the benefits over 50 years, and the return is higher for a country that has a higher share of global output (due to the global emission externality). It increases with the social cost of carbon γ and the carbon intensity of production. Therefore, the return on investment is positive if:

$$\gamma * E_i/Y_i > 0.3/(50 * \theta_i)$$

Table 9 shows that the returns on investments are positive if the social cost of carbon is sufficiently high and if the effort is carried out at the EU level. A single country like France, accounting for only 2.36% of global output, benefits little from reducing emissions alone. By contrast, the return on investment at the EU level can be very high, above 5 with γ = EUR 750, implying a benefit of EUR 19 313 bn in net present value. In a counterfactual case setting $\theta_i = 1$, the returns are significantly above 1 in all cases.

Table 9 **Cost-benefit analysis of reducing CO2 emissions through public investments**

	EU	France
2019 CO_2 emissions	4.16 bn	441 m
2019 World GDP Share	15.39%	2.4%
2019 GDP	15 550 bn	2 425 bn
$\frac{\gamma \cdot E_i}{Y_i}$ **with γ = € 130**	3.47%	2.36%
$\frac{\gamma \cdot E_i}{Y_i}$ **with γ = € 750**	20.06%	13.6%
Benefits-to-costs NPV with γ = €130	0.89	0.094
Benefits-to-costs NPV with γ = €750	5.14	0.54
Benefits-to-costs NPV with γ = €130 and $\theta_i = 1$	5.80	3.94
Benefits-to-costs NPV with γ = €750 and $\theta_i = 1$	33.44	22.73

One possibility to calculate the implicit liabilities due to climate change is to recognise that the French government would foot a fraction of the total bill absent any investment to decrease emissions below

[47] It would be interesting to see the sensitivity of results to discount rate and to relax this assumption.

their 2019 level (inaction). For the sake of simplicity, we assume it will be responsible for about 50% of the implicit liabilities in the case of inaction, i.e.

$$50\% * \theta_{i\gamma} * E_i * 50 = 50\% * 2.4\% * \gamma * 50 * 0.441 = EUR\ 198\ bn$$

$$\text{for } \gamma = 750 \textbf{ or } 34\ bn \text{ for } \gamma = 130$$[48]

If there is public investment to decrease the emissions towards net zero in 2050, the change in the Net Present Value (NPV) of the French fiscal position will be the benefit (decrease in implicit liabilities) minus the cost of investment:

$$50\% * \theta_{i\gamma} * E_i * 50 - 0.3Y_i = 198 - 727.5 = EUR - 529.5\ bn$$

$$\text{for } \gamma = 750 \textbf{ or } EUR - 693.5\ bn \text{ for } \gamma = 130$$

Therefore, the NPV of French public finances will drop in both cases. This is because France is a small part of the global economy, and alone cannot provide enough of the global public goods to reduce carbon emissions in a way that makes it profitable from the point of view of its public finances.

But if the prudent fiscal strategy was implemented at the EU level ensuring that the relevant emissions E_i would be higher, the change in NPV of the French fiscal accounts would become

$$50\% * 2.4\% * \gamma * 450 * 4.16 = EUR\ 1\ 872\ bn$$

$$\text{for } \gamma = 750 \textbf{ or } EUR\ 324.4\ bn \text{ for } \gamma = 130$$

The change in the NPV of the French fiscal position would then be

$$50\% * \theta_{i\gamma} * E_i * 50 - 0.3Y_i = 750 - 727.5 = EUR\ 22.5\ bn$$

$$\text{for } \gamma = 750 \textbf{ or } EUR - 403\ bn \text{ for } \gamma = 130$$

In the case of the high social value of carbon, the change is now positive so that France's net fiscal position improves. Given that estimates of the social cost of carbon rises over time as the carbon budget decreases and that it is likely to increase towards the upper range of the estimates (closer to EUR 750), the NPV of French public finances are likely to benefit from investments in the global public goods if they are made at the EU level.

Evidently, the more Member States that participate the higher the gain. This reflects the complementarity of investments in global public goods. But, we find it striking that even if a relatively small share of the global economy participates (the EU represents 15% of the global economy), the effect on French public finances of investing in global public goods may well be positive. This means that even from the 'narrow perspective' of public finances, good governance should give the right incentives for investments. All these estimates can and should be considerably improved.

On the one hand, as emphasised by the COVID-19 pandemic, the required annual investments could be deducted from any deficit rule (3% or other). On the other hand, a ceiling could be set so that unreasonable investments are not made under the guise of decarbonisation. For example, the ceiling

[48] In France, tax revenues as a share of GDP are close to 50%.

could be based on the order of magnitude of the required investments, as estimated for France in the Quinet report (around 1.2% GDP per year).

CONCLUSIONS

A prudent EU fiscal policy should recognise the increase in debt sustainability coming from providing global public goods. Global public goods generate important positive externality on each country's economic situation. As for financial regulation, this requires a prudential framework to bring forward the incentives to invest now and pay a relatively small cost rather than having to spend a lot of money later down the line when things get worse. This requires replacing the target of 60% debt-to-GDP by modifying the long-term target of an 'inclusive debt'-to-GDP ratio incorporating implicit liabilities linked to climate change and the COVID-19 pandemic. This also requires removing out of any deficit limit investments increasing global vaccination or decreasing carbon emissions, subject to proper costing. We provided preliminary and illustrative evidence of how investing now in global public goods can improve public finances. Going forward, the framework could be extended to include other types of investments that are likely to pay for themselves in the long term by increasing economic activity or reducing expected liabilities, e.g. education or research spending.

The EU has all the experience, tools and legal framework to start the process. These practices could then be standardised – possibly by the IMF – and applied gradually more broadly. The goal is to build the equivalent of the **Basel Committee for Prudent Fiscal Affairs.**

Together, the **green deficit rule** and the **inclusive debt target rule** could constitute an **EU prudential fiscal framework, a sustainability and growth pact**. It would ensure better sustainability of each Member States' public finances and strengthen the EU's resilience. More broadly, it could help save the world.

6. POST-PANDEMIC POLITICAL SYSTEMS IN THE EU: THE PROBLEM OF BRIDGING THE GREAT DIVIDE

Otilia Dhand
Managing Director, Teneo

EXECUTIVE SUMMARY

The global pandemic will have amplified political trends towards increasing fragmentation, realignment and polarisation of party-political landscapes, and a decrease in government stability, trust in public institution and democratic order. The key factor driving this trend appears to be the growing perception among certain demographic groups that the current economic and political system structures does not work for them. To mitigate the risks related to these trends, the twin green and digital transition should be implemented with a view to redressing inequalities and counteracting the risk of a K-shaped recovery.

Key takeaways:

The global pandemic will have amplified political trends that developed in the period following the 2008 financial crisis. These trends may have a significant impact on political stability and cohesion both within Member States and at EU level, including:

- broader coalition governments that include more small parties with disparate policy priorities;
- less government stability, leading to more frequent cabinet collapses and early elections, as well shorter time horizons for policy decision-making;
- an increase in instances when parties aren't able to form a viable coalition, leading to repeat elections;
- more fragmented party-political landscapes with new parties emerging to cater for evolving voter preferences;
- an increase in polarisation of electorates alongside an emerging fault line between the demographic groups that have and have not benefited from liberalisation, globalisation and the green and digital transitions;
- declining trust in public institutions (both national and European), electoral systems and democratic order, leading to the search for alternatives;
- a greater role for political leaders and public figures in determining political trends and decisions.

These trends may be most pronounced in countries that were already fragmented when the pandemic started and where the recovery is delayed in comparison to their regional peers. Multinational and multi-ethnic states may experience social

tension and separatism. The EU and its values may be challenged by political developments in Member States, the rise and cooperation of Eurosceptic political forces at EU level, and the re-emergence of exit campaigns in some Member States.

The most destabilising trends could be counteracted if the EU proves to be a bulwark against the worst effects of the crisis by providing mutual help, vaccination campaign coordination and funding to boost the economic recovery. This would also help strengthen emerging trends that are better aligned with the aims of the European Commission, including increased climate consciousness, an emphasis on gender equality, and demands for the rule of law within some of the most polarised societies.

To achieve this outcome, however, it is imperative that the EU develops and implements the envisaged rapid digital and green transition to relaunch the European economy with a keen focus on redressing increasing inequalities and counteracting the risk of a K-shaped recovery.

***

INTRODUCTION

Crises typically amplify existing trends (Schwab & Malleret, 2020). The COVID-19 pandemic hit at a time of alarming trends within political systems in the European Union (EU), with strong implications for political stability and cohesion both within Member States and overall at EU level.

This paper outlines the political trends ongoing before the pandemic and discusses their likely causes. It argues that the polarisation of political opinion within society, a lack of stability in party-political landscapes, increased voter preference for strong leaders promising easy solutions to complex problems, an erosion of trust in the democratic order, and a questioning of common values under Article 2 of the Treaty on European Union (2012), all developed in a context of declining trust in public institutions across three consecutive crises between 2008 and 2015. These trends may all be exacerbated by the experience of the pandemic.

The text argues that political shifts will be most pronounced in countries that were fragmented when the pandemic started, and where their exit from lockdown as well as their economic recovery will come later than in their regional peers. It is likely that such governments will be perceived to be mismanaging the situation.

The paper posits that the pandemic will accelerate the redefinition of party-political landscapes, namely the division between those that have benefited from an open and globalised economy over the past two decades, and those that have been 'left behind' from these forms of economic development. It also suggests that the pandemic will intensify the role of political leaders in determining the course of political life, both due to trends established before the COVID-19 outbreak, and the use of online communication tools that emerged during the pandemic and that are likely to remain in place to a greater or lesser extent once the crisis is over.

In conclusion, the paper warns that corruption may increase as a result of specific features of leader-centric political forces. It also warns of the potential to exploit significant funds allocated to the European economic recovery over the next five years. It also observes that multi-ethnic states may experience social tension and separatism and that the EU and its values may be challenged by political developments in Member States, by the rise and cooperation of Eurosceptic political forces at EU level, and by the re-emergence of exit campaigns in some Member States.

Lastly, the paper suggests that the most destabilising trends for the EU could be counteracted if the EU proves to be a bulwark against the worst effects of the crisis, by providing mutual help, vaccination campaign coordination and funding to boost the economic recovery. This outcome would also help strengthen emerging trends that are better aligned with the aims of the European Commission, including increased climate consciousness, an emphasis on gender equality, and demands for compliance with the rule of law in some of the most polarised societies.

In order to achieve this outcome however, it is imperative that the envisaged rapid digital and green transition to relaunch the European economy is designed with a keen eye on the inequalities that have worsened since the outset of the pandemic, and the risk of a K-shaped recovery (Hauk, 2020). Unless these issues are addressed, they may have a lasting negative impact on European societies.

6.1. THE THREE CRISES AND THE DECLINING TRUST IN PUBLIC INSTITUTIONS

Public trust in institutions has been in decline since the global financial crisis of 2008, disrupting political systems around the world (Funke et al, 2016). In the EU, we can identify three consecutive crises that have dealt blows to trust in public institutions and political leaders: the global financial crisis, the subsequent European sovereign debt crisis in 2011-12, and the refugee crisis in 2015. The

global pandemic is likely to further exacerbate this trend, particularly in more fragile countries and regions.

Data from the European Social Survey as well as academic studies suggest that trust in political institutions has fallen at both national and European level. This lack of trust is viewed as a major cause of disruption to party-political landscapes and a driving factor behind the rise of populism (Norris & Inglehart, 2019).

A 2017 study on trust and populism in Europe by Christian Dustmann et al. found that declining levels of trust in political institutions correlates with macroeconomic shocks (Dustmann et al., 2017), such as the 2008 financial crisis and the sovereign debt crisis. Focusing on the Member States that joined the EU before 2004, the study found that older and less-educated voters tended to trust national and European political institutions less than their younger and more educated counterparts. At the same time, older and less-educated voters were more likely to vote for populist and nationalist parties. Lastly, traditional and authoritarian cultural traits were found to exacerbate the negative impact that deteriorating economic conditions bore on individual trust in institutions. By contrast, in more liberal regions, trust was deemed less sensitive to changes in economic conditions.

Meanwhile in the central and eastern European (CEE) countries that joined the EU in the 2000s[49], a generally low level of trust in public institutions was further eroded by the financial crisis, the sovereign debt crisis, and finally the 2015 refugee crisis. Trust in the EU among newer Member States plummeted soon after their accession. This can be attributed to overblown expectations of EU membership and the realisation that the channels of an open economy are not unidirectional. Throughout the 1990s, the then-candidate countries' governments broadcast messages about the 'desirability' of an open market economy, and EU integration as a means to achieve prosperity, stability and safety. Soon after their accession[50] however, the three successive crises brought the positive correlation between integration and prosperity into question.

The financial crisis spread into the region through the interconnection of local banks to global financial markets, the very link that in the 1990s the governments said would provide greater stability. The small, open, and export-oriented economies of the central and eastern European region took a significant blow in the subsequent recession. The three Baltic economies contracted by 14.3-14.8% year-on-year in 2009 (World Bank, 2009), and Latvia had to turn to the International Monetary Fund to support its recovery. In 2011, the new and relatively poorer EU Member States were asked to implement austerity measures and contribute to a 'common pot' to support Member States that they viewed as 'careless' and 'inefficient' with their public finances. In Slovakia, a disagreement among the centre-right coalition parties over the European Financial Stability Facility caused the government to collapse (The Times, 2011). Finally, the refugee crisis of 2015 raised questions regarding the 'wisdom' of open borders, from which the central and eastern European countries have otherwise largely benefited. The Visegrad Group countries[51] led opposition to the mandatory reallocation quotas (Nic, 2016). Alongside these crises and events, doubts were cast over the competence and motives of political elites as well as the desirability of EU membership.

The negative impact of the banking crisis was most pronounced in the southern countries of the EU. In Spain, Portugal, Italy, and Greece, stock markets witnessed historic downturns and risk premia reached previously unseen heights. In Spain, the Troika (European Commission, European Central Bank, and the International Monetary Fund) negotiated a rescue package of EUR 100 billion,

[49] Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia.
[50] For all but Croatia, which joined the EU in 2013.
[51] Czechia, Hungary, Poland and Slovakia.

conditional on a series of structural reforms. In Greece, the financial and banking crises caused a bank run, and the amount of cash that could be withdrawn was limited for several weeks. The country also experienced a government debt crisis, a subsequent Troika-led rescue package, and the longest recession yet to be recorded in an advanced economy. Trust in the national government eroded significantly, leading to a reshuffle across the political landscape. Austerity measures and structural reforms were met with anti-Troika backlashes from the general public.

Amid rising unemployment, thousands of highly skilled workers emigrated abroad, giving way to a brain drain phenomenon. Spain and Greece experienced vast shifts in employment. In 2007, the harmonised unemployment rate of the two countries together with the EU27 average was less than 8% (Eurostat, 2021a). By 2010 however, Spain's unemployment rate had climbed to over 20%. Greece soon followed course and in February 2013, both Spain and Greece recorded an unemployment rate of over 27%, while the EU27 average was under 12% (Eurostat, 2021a) Moreover, a series of major corruption scandals amid economic challenges led to a drastic reduction of public trust in political institutions. Finally, in Italy and Greece, the refugee crisis of 2015 played a significant role in shaping public opinion and lent additional momentum to far-right political forces. Although it was impacted by the refugee crisis to a lesser degree, Spain's anti-establishment right-wing parties also incorporated anti-immigration arguments into their political discourse (El Mundo, 2020).

By contrast, a study published by the German Institute for Economic Research (Falk, 2012) showed that at the height of the crisis between 2008 and 2009, unemployment in Germany had only risen by 0.3%, decreasing by 0.4% in the following 12 months. The study suggested that Germany avoided a major rise in unemployment thanks to the government policy that supported part-time work (Kurzarbeit), which also had the effect that trust in the institutions stayed relatively stable during this period. However, the 2015 refugee crisis triggered increased political polarisation and the rise of the far right, with a portion of the population markedly hostile to the government's open doors policy. The extremist and Islamophobic PEGIDA group (Vorländer, Herold, & Schäller, 2015) held a series of public demonstrations in key German cities in the aftermath of the crisis, and the far-right Alternative for Germany (AfD) doubled its membership between 2015 and 2019 (Statista, 2021).

France experienced less of a decline in economic activity than Germany in 2009[52] and it was also among the first countries of the EU to rebound (de Vrijer & Xiao, 2010). By contrast, its unemployment rate rose significantly in the years that followed the crisis, from 7.06% in 2008 to 10.36% in 2015. Trust in political institutions remained constant until 2012 (Goubin, Hooghe, & de Leeuw, 2016), with the number of protests and civil unrest increasing, and the political climate deteriorating gradually afterwards. A surge in terrorist attacks, especially around the capital, added to growing political tension. With the refugee crisis spurring further aggravation, the far right gained a significant share of electoral support, seeing Front National leader, Marine Le Pen reach the second round of the 2017 presidential elections. In 2019, the Gilets Jaunes movement caused major disruption and political tension, leading the government to back down on its green policy plans.

The Scandinavian states also suffered the economic consequences of the great recession. To some extent, the openness of their economies made them vulnerable to external macroeconomic factors. As a result, with the exception of Norway, Scandinavian countries were harder hit by external shocks than the OECD average (Gylfason, Holmström, Korkman, Söderström, & Vihriälä, 2010). In Scandinavia, as in the rest of Europe, the economic and refugee crises have produced a rise in populist movements, which all share a sense of distrust in public institutions and the political mainstream, an anti-immigration perspective, and a critical stance towards the EU.

[52] 2.9% of GDP year-on-year, compared to 5.7% in Germany (World Bank, 2021).

At European level, research by Pippa Norris and Ronald Inglehart (2019) found that besides deteriorating economic conditions, anti-immigration sentiment played a key role in the rise of authoritarian populism and growing mistrust in national and global governance. It is important however, to qualify the electorate groups where populism can be traced back to most strongly. The study by Norris and Inglehart concluded that voter support for populist parties is more likely to be found among older generations and rural areas, confirming the urban-rural divide. Religious voters and those with lower levels of formal education also had a stronger tendency to vote for populist parties, echoing the findings of Dustmann et al. (2017). In addition, Norris and Inglehart found a correlation between voters that belonged to the ethnic majority and support for populist parties.

Alongside the crises that have seen trust in both the efficiency and capability of public institutions across Europe erode dramatically, corruption is a long-term issue that has dented voter confidence in their elected representatives and civil servants. Corruption has been a major issue of concern for central and Eastern Europe. In several countries, it is perceived by the public to have increased after accession to the EU, following a marked decrease during their candidacy phase. Czechia, Hungary, Poland and Slovakia have slipped down the Corruption Perception Index in recent years (Transparency International, 2020), and while everyday, low-level corruption appears to have remained subdued, there is a sense that high-level corruption - linked to public procurement and EU funding distribution in particular (Fazekas, 2014) - has become a significant societal issue. This has fuelled popular discontent with the political system and its ruling elites. However, this is not just an issue in central and Eastern Europe. Transparency International recently concluded that Malta's economy is dependent on corruption (Saeed, 2021). According to the European Anti-Fraud Office (OLAF), the countries with the highest number of investigations into the use of EU funds were Romania with 11 cases, Italy with nine cases, Greece, Poland, and Bulgaria with seven cases each, and Hungary with five cases (OLAF, 2019).

Exposed cases of corruption have played a major role in destabilising political systems in several Member States over recent years. In Spain, corruption scandals were important factors in the breakdown of its traditional two-party system. In Romania, the Social Democratic Party (PSD) suffered a major loss of support and faced significant public protests over attempts at legislative changes that would help officials under investigation for corruption avoid prison sentences (Reuters, 2019). International scandals like the Panama Papers reinforced perceptions that globally, politicians cannot be trusted (France24, 2016).

Taken together, the effect of the three crises, as well as a rising level of perceived corruption, have led to declining trust in public institutions and increased resentment of the political establishment. The challenges faced by societies have contributed to a rising sense of public fatigue and discontent.

Against this backdrop, during the COVID-19 pandemic European populations were asked to comply with unprecedented measures devised by governments to slow down the spread of the virus and manage healthcare systems. Governments across the EU have brought in states of emergency, which give authorities extraordinary powers, leading to significant restrictions on personal freedoms. These measures – and publicised cases of politicians themselves failing to comply with the rules – have fuelled further resentment, giving rise to protests and COVID-19 denial movements. In some cases, governments have had to turn to the international community for help in managing the pandemic. Others admitted their helplessness in public (Folentova & al., 2021), which is unlikely to inspire increased trust and confidence in institutions.

For political systems, this means an exacerbation of pre-existing trends: a marked increase in government instability, shifts in party-political landscapes and challenges to political institutions. Countries that entered the crisis fragmented will likely see the most pronounced variants of this trend. Countries that entered the crisis with relatively popular and stable governments can be expected to fare

better. Exactly when countries exit the crisis compared to their regional peers will no doubt be an important factor in voter perceptions too.

6.2. PARTY POLITICAL LANDSCAPE IN FLUX

Political leaders often experience a surge in popular support at the outbreak of an external crisis, as the public seek to rally behind the person in charge (Kudzko & Markowitz, 2020). Evidence suggests however, that these same leaders (and their respective political parties) suffer a decline in popularity as the longer-term impact of the crisis unfolds, when the public is in a position to examine how matters are handled and grows impatient for solutions (Erlanger, 2020). Historical evidence indicates that major crises can lead not only to the decline in support for dominant political parties and a transfer of power to their main rivals, but to a collapse of the most well-established parties, and a complete redefinition of the party-political landscape and its traditional fault lines.

During the interwar period in Europe, the economic downturn coincided with increased political polarisation and the eventual downfall of representative democracies in Germany, Italy, and Spain, for example. The Weimar Republic is a textbook example of how a democratic state can come under threat from within its own institutions. Since the beginning of the Weimar Republic, numerous relatively sizeable parties[53] sat in the national assembly. In the second half of the 1920s, Adolf Hitler's National Socialist German Workers' Party (NSDAP) gained but a few seats within an already crowded arena. In 1930, just a year after the Wall Street crash triggered the Great Depression however, the NSDAP recorded a surge in the number of parliamentary seats, from 12 to 107 out of a total of 577 seats. In 1932, the NSDAP won over 200 seats (Schröder, 2014). The German sociologist Mario Rainer Lepsius described how the process of radicalisation followed several steps. Fragmentation facilitated the government's ruling by decree and ultimately by emergency decree, which in turn paved the way for dictatorship (Lepsius, 2017).

While the effect of the three consecutive crises between 2008 and 2015 has not been as dramatic as that of the Great Depression, each crisis brought an evident shift in the political landscape. More specifically, we have witnessed a gradual decline in support for established centre-right and centre-left parties, and growing public demand for simple, clear-cut solutions to the perceived inefficiencies of liberal democracies and the globalised market economy.

The majority of central and eastern European countries for example, with the notable exception of Hungary, entered the financial crisis with centre-right governments. By 2011, most of these governments were out of office, with support for their core parties in decline. Centre-right cabinets were typically replaced with multiparty coalitions, formed with the centre-left and the new parties that emerged under shifting political landscapes. These inherently tense, left-leaning coalitions were challenged by demands to implement austerity measures on the one hand, and voter expectations of expansionary fiscal policy on the other. Voter support for centre-left parties typically plummeted as a result, with political newcomers gaining in both numbers and popularity.

In southern European countries, the typical dominance of the conservative and social democrat parties was upset by a shift in electoral attitudes. In Spain for example, the traditional bipartisan system dominated by the conservative Partido Popular (PP) and the social democratic Partido Socialista Obrero Español (PSOE), was significantly shaken by the emergence of new parties, especially the rise

[53] Over the years, the major parties included the Communist Party of Germany (KPD), the Independent Social Democratic Party of Germany (USPD), the Social Democratic Party of Germany (SPD), the German Democratic Party (DDP), the German Centre Party (Centre), the Bavarian People's Party (BVP), the German People's Party (DVP) and the German National People's Party (DNVP).

in support for the left-wing Podemos and the centre-liberal Ciudadanos parties. While Spain initially resisted right-wing populism, the far-right party Vox entered the regional parliament of Andalusia in 2018, largely contributing to the downfall of the region's PSOE government. Vox's voter base has continued to grow, and it is now the third-largest political force in the Spanish Chamber of Deputies after PSOE and PP.

In Greece, the emergence of new populist parties has added complexity to its political landscape. Support for the radical left party, Syriza, rose from 4.6% in 2009 to 36.3% in the country's 2015 general elections. It ruled through the subsequent tumultuous bailout period, opposing austerity while negotiating bailout conditions with the Troika (Brunnermeier, 2016). On the other side of the political spectrum, the neofascist Golden Dawn party emerged, representing some of the most radical positions against immigration among Europe's far-right parties. The party won seats in the Greek parliament for the first time in 2012, almost two decades after its first electoral appearance in the 1990s. In the 2019 election, Golden Dawn dropped out of the Greek parliament once again and Syriza lost a portion of its votes, ceding rule to the centre-right group New Democracy[54]. Since then fragmentation has continued to characterise Greek politics, with the entrance into parliament of the far-right Greek Solution party and the left-wing MeRA25.

Italy has seen a similar trend of polarisation and fragmentation with the rise of the populist Five Star Movement and the nationalist Lega Nord party. The latter amplified anti-immigration narratives as part of a national debate. During its initial rise, Lega Nord questioned Italy's territorial organisation and its north-south system of redistribution, giving way to regional tensions. While politically opposed, both movements share anti-EU positioning. Lega Nord is a nationalist political force and the Five Star Movement emerged as the main political force opposing the austerity measures, calling for a referendum on Italy's Eurozone membership (Pullela, 2016) and labelling itself an opponent of the Troika position (Armelini, 2017).

Meanwhile in Germany, where the impact of the 2008 economic crisis was comparatively low, the right-wing political group AfD gained prominence, especially in the eastern regions of the country that lag their western counterparts in terms of economic activity. As discussed above, the rise of the extreme right has been attributed to a backlash against grand coalition policies during the 2015 refugee crisis. In the 2013 general election, the AfD fell just short of the 5% parliamentary threshold, winning 88 out of a total 709 seats. Meanwhile the Green party, which had hovered at 8-10% of votes in the early 2000s, became the second most popular party in October 2018, reflecting the rising importance of climate change among voters.

Similarly in France, the right-wing National Rally (formerly known as the National Front) has gained significant momentum. However, the situation in France shows that the rise of fringe populism can also help the emergence of political movements seeking to reform the system, while preserving its democratic values. Such movements gain ground in contrast with populist political forces. This dynamic helps to explain the rise of Emmanuel Macron and his La République En Marche! representing a call for political reform from a centrist, liberal perspective.

Even the Nordic countries failed to buck the trend of fragmentation, though established parties were able to contain the populist rise in the aftermath of the crisis. Populist parties have nevertheless gathered a significant following. The right-wing populist party Sweden Democrats, for example, currently holds over 17% of parliamentary seats, while the Danish People's Party holds around 9% (reaching a peak of 21.2% in the 2015 elections). The Finns Party holds 19% of seats. But here the

[54] New Democracy is one of the two parties that dominated Greek politics from the 1970s up until the early 2000s; New Democracy on the centre-right and PASOK on the centre-left.

formation of stable government coalitions has been facilitated by a long culture of coalition governments. Changes in the parliamentary configuration thus caused relatively little disruption to government stability compared with southern European countries such as Spain, where coalition governments were far from the norm.

Overall, most EU countries experienced changes to their party-political landscapes in the decade that followed the global financial crisis. The most pronounced shifts occurred in countries where the impact of the three crises was highest. In the countries that emerged relatively unscathed from the effects of the crises, the established political parties fared much better. Invariably however, fragmentation in the party political spectrums has increased.

6.2.1 The new great divide

Across the political spectrum, the combination of the three crises has led voters disappointed with the more well-established parties to seek new paradigms. While the nuances differ from country to country depending on the original system's fault lines and each country's experiences of the crises, dissatisfied voters can broadly be split into two groups. In one group are those seeking a new political agenda, building on liberal or green political trends as well as globalisation to address complex issues faced by modern European societies. In the other group are those drawn towards a strong political leader, prepared to challenge the system and deliver fast solutions?

The first group typically includes young, middle to high-income earners and educated urban elites, who have largely benefited from an open economy, European integration and globalisation. They are the 'front-runners' of growth in the post-Cold War global economy. These voters turn towards political groups that are vocal on topics aligned with their way of living, that promise to digitalise the economy, fight climate change, support gender and minority rights, increase government effectiveness or, in many cases, root out corruption. To name a few examples, the Alliance of Dissatisfied Citizens in Czechia, the Greens in Germany, La République En Marche! in France, Save Romania Union, and Progressive Slovakia have all benefited from shifting voter allegiances.

Given the diversity of interests, votes from this first group often have several different party allegiances. In some cases however, they unite for a short while, producing a phenomenon of 'meteorite parties[55]'. Meteorite parties tend to form just months ahead of a general election, and often base their campaign on vaguely defined change. They gain a significant share of the votes on election day, occasionally winning the electoral race. If they are not able to deliver the rapid change that they promised however, voters quickly abandon them and their parliamentary groups typically fall apart, due to a lack of internal cohesion among parliamentarians. Progressive voters subsequently search for a new change-driven party or slip into a non-voter category due to disappointment. The best illustration of this phenomenon is the succession of such parties in Slovenia; Positive Slovenia, The Modern Centre Party, and the List of Marjan Šarec all came to power over the past 10 years.

The second group of voters are those that have been 'left behind' from economic growth driven by globalisation and the liberal political agenda, marked by ever more progressive trends. This group consists of a mainly rural, low to middle-income electorate, mostly of an older generation, and living in lagging regions. These voters have not benefited from the dominant trends of the previous two decades to the same extent as the urban elite (Pellenyi and Pinelli, 2021). They have typically been critical of such trends, emphasising the need for economic protectionism, a return to traditional values, and to defend national identity. They have gravitated towards political leaders who promise to

[55] The metaphor reflects political parties that seem to appear out of nowhere and shine brightly for a short period before 'crashing.'

challenge the dominant system, and whose style is characterised by emotionally charged slogans as opposed to clearly defined programmes.

Populism is the term used to capture this second trend. Rather than the classical sense of economic populism, which emphasises income redistribution and downplays the risk of deficit financing (Passari, 2020), the populist trend is characterised by the ideology of a society divided into two antagonistic groups. This ideology pits the so-called 'pure' people against the 'corrupt' elite (Mudde, 2004), with populists claiming to represent the people. Some existing mainstream parties chose to ride the populist wave and thus avoid decline, such as Fidesz in Hungary or Smer-Social Democracy in Slovakia. In other countries, new movements rose to the demand of those who felt left behind.

Table 10 **Seats in the European parliament by political groups (%)**

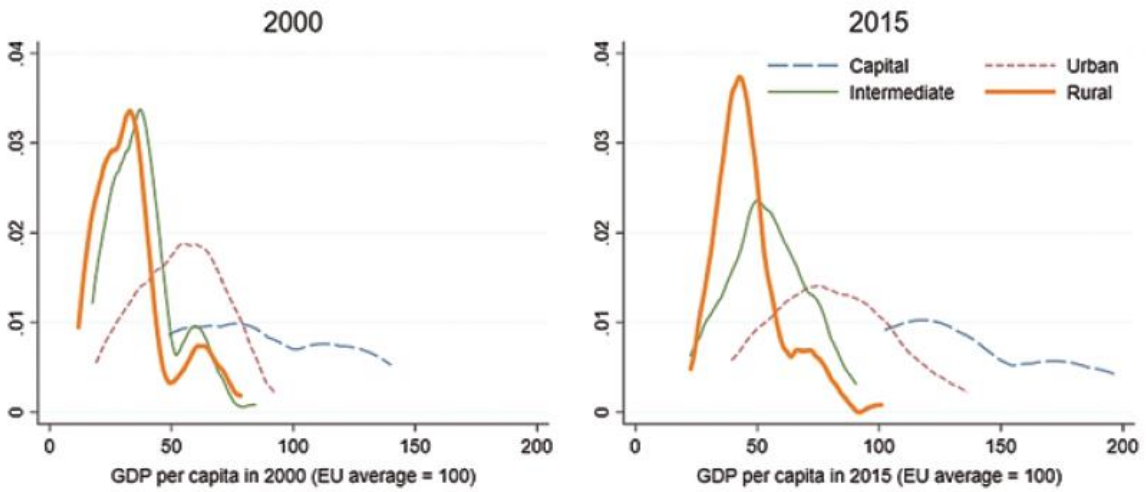
Election Year	1999	2004	2009	2014	2019	Change
EPP	37.22	36.61	36.01	29.04	24.23	-12.99
S&D	28.75	27.32	25.00	25.40	20.51	-8.24
Renew/ Alde	7.99	12.02	11.41	8.90	14.38	6.39
Greens	7.67	5.74	7.47	6.70	9.85	2.18
GUE-NGL/ The Left	6.71	5.60	4.76	6.90	5.46	-1.25
ECR/ Union for Europe of the Nations	4.95	3.69	7.34	9.30	8.26	3.31
ID Group/ EFD and close predecessors	2.56	5.05	4.35	6.40	9.72	7.16
NI/ Other Independent	4.16	3.96	3.67	7.00	7.59	3.43
Election Year	1999	2004	2009	2014	2019	Change
EPP - S&D Alliance	65.97	63.93	61.01	54.44	44.74	-21.23
EPP - S&D - Renew/ Alde	73.96	75.95	72.42	63.34	59.12	-14.84
Election Year	1999	2004	2009	2014	2019	Change
Major pro-EU (EPP, S&D, Renew, Greens)	81.63	81.69	79.89	70.04	68.97	-12.66
The Left	6.71	5.60	4.76	6.90	5.46	-1.25
Major right-wing populism	7.51	8.74	11.69	15.70	17.98	10.47
NI/ Other Independent	4.16	3.96	3.67	7.00	7.59	3.43

Source: Own calculation, political streams approach used to depict general directionality

Despite differences across countries, nationalism is a common trend among populist parties, because they typically pitch to voters who are dissatisfied with liberal democracy and globalisation. Alongside populist parties, pre-existing, fragmented fringe nationalist movements typically gain voter support as well, as they share a similar rhetoric and reasoning with populist forces. Golden Dawn in Greece is one example. Far-right parties attract a significant following among young voters (Zerka, 2019), countering the trend of support among older age groups. Nationalism is commonly accompanied by Euroscepticism, in some cases driven by the role that the European institutions played in the sovereign debt crisis and austerity measures.

As mentioned above, 'left-behind' voters tend to live in rural rather than urban areas, where 'front-runners' dominate. This divide appears to correlate with the disparate economic opportunities in urban and rural areas over recent years. The growing economic urban-rural divide has been well documented. In recent research by the European Commission, findings by Dino Pinelli and Gabor Mark Pellenyi suggest that GDP per capita has increased significantly in urban areas of Central and Eastern European countries, while remaining almost stagnant in rural areas.

Table 11 **Distribution of regional GDP per capita in the EU11[56] , by level of urbanisation**



Source: (Pellenyi and Pinelli, 2021, p. 131)

These findings suggest that following accession to the EU, urban areas in the EU11 (CEE) benefited a great deal more from an open market economy, globalisation, and integration. In other areas of Europe however, there are also growing differences between urban and rural areas and divergent views on political and economic systems. Catherine De Vries underlined that the growing cosmopolitan-parochial divide in the Netherlands defined the country's electoral and party-politics just as much as its left-right economic fault lines (Vries, 2017, p. 1541). Ethnic minorities are also part of the group of left-behind voters as they are often disadvantaged in terms of access to education and the labour market (Suessmuth, 2007).

The recent Commission working paper on the urban-rural divide in anti-EU votes also notes that, although a number of factors influence voter decision-making, people in rural areas across Europe are significantly more likely to vote for anti-EU parties (Dominicis, 2020). The same publication noted that regional economic and sociodemographic variables play a significant role in anti-EU voting patterns. The authors observed that economic decline resulted in more anti-EU votes in rural areas, highlighting the effects of economic insecurity on voting patterns. Conversely, higher levels in tertiary education, indicative of better employment opportunities, reduced the share of anti-EU votes. In this context, 'lagging' regions (European Commission, 2017), i.e. where there is low growth or low incomes, are the most likely to experience a rise in anti-EU populist votes.

Another shared feature of the new populist trend is fiscal leniency. Typically, populist parties offer an increase in social transfers as part of their core policies. This is a trend that again correlates with the preferences of an economically insecure electorate, often among lower-income groups and higher age groups. Syriza's battle with the Troika may be emblematic, but there are other less extreme yet vivid examples. Romania's hike in pension pay-outs in 2018 was estimated to have doubled fiscal spending on pensions over four years (Urse, 2019). Child benefit increases between 2016 and 2018 in Poland were estimated to have cost PLN 40.8 billion (Republic of Poland, 2020), or the equivalent of 1.8% of GDP in 2020.

[56] EU11 includes the same group of countries as those described as Central and Eastern Europe here.

The most prominent shared feature of new populist movements is that they are invariably centred on their leaders. Populist leaders are typically strong, male figures who offer simple, clear-cut solutions to complex problems. They promise to be the 'real voice' of the people against elites, portrayed as corrupt and incompetent. They are also characterised by a top-down internal structure, with decision-making centralised in the hands of the party leaders or their inner circle.

Interestingly, the meteorite parties tend to share this structure. Composed in haste, their parliamentary election lists are often populated with candidates who are handpicked by the party leader, without a formal structure to support the party nor personal links among candidates. Similar to the populist appeal of 'pure people' in opposition to corrupt elites, these parties typically campaign on a platform of anti-corruption, an overarching topic that transcends the typical divisions among progressive voters.

The dynamic of unifying disparate groups around one cause also helps explain their swift decline in polls, as they tend to fail to deliver on their main promise - usually to weed out corruption in the short term. The practicalities of governing a country also expose the differences among the disparate groups heading the movement, as well as the lack of experience of what typically are newcomers to politics. Populist leaders supporting left-behind voters tend to have longer lasting support. These voters usually have more shared interests, such as increased state handouts, for which populist leaders tend to deliver. As in Greece (where Syriza was unseated by New Democracy's rebound in 2019) and Spain (where support for Podemos fell from 26 to 12% between 2015 and 2020, and the traditional centre-right People's Party bounced back to being the second largest party on the national stage) demonstrate however, populist leader support also collapses quite swiftly following voter disappointment.

The rise of leader-centric parties on both sides of the political spectrum can be explained by voters losing trust in institutions across the urban-rural divide, and the appeal of an outside leader prepared to take on the system and fix its shortfalls. Countries where top-level corruption cases have been uncovered (and where there is dissatisfaction with how the country has handled the three crises) typically record a rise in support for anti-corruption and anti-establishment parties. One example is the victory of the Ordinary People and Independent Personalities movement in the early election in Slovakia in 2020, just before the outbreak of the coronavirus pandemic.

Overall, developments across party-political landscapes in EU countries suggest a new and emerging political divide between the front-runners and left-behinds, whose political agendas are also directly opposed. The left-behinds mobilised in the period following the three crises and formed often powerful, anti-systemic, and far-right leaning movements. Front-runners have tended to be divided, championing diverging agendas in a shared progressive direction. When they feel their interests might be threatened by a significant rise of far-right forces or perceived corruption however, they can unify for a brief moment, as demonstrated by the phenomenon of meteorite parties.

6.2.2 Party political landscapes in the pandemic

The global pandemic hit at a time of deepening polarisation in European societies with the emergence of two distinct groups known as 'front-runners' and the 'left-behinds.' While the former pushed through ambitious goals of an ever more liberal, modern and climate-conscious society, the left-behinds called for a return to a world before liberalism and globalisation became the dominant political paradigms. The pandemic is likely to amplify the trends and characteristics discussed in the previous section, though the outcomes in individual countries may vary.

The situation at the outset of the crisis is likely to be a strong indicator of how each political system weathers the pandemic. Overall, however, the trend is towards more volatility. Countries that entered the pandemic with fraught political landscapes and inexperienced leaders, such as Slovakia, have experienced turbulent political events in recent months. In countries where leaders have struggled with low levels of support, such as France, politicians have navigated troubled waters, clinging to an early

popularity boost through a 'rally round the flag' effect. For countries awaiting major transitions, such as Germany where there were questions surrounding Angela Merkel's successor just before the outbreak, significant shifts in electoral allegiances are ongoing. Even minor cracks in political forces, which would otherwise have appeared outwardly as monolithic, have widened into publicised cases of infighting, for example in Poland. Finally, in Hungary, and other governments with a strong grip on power, leaders have faced a unified opposition.

Meanwhile, public opinion has become more polarised. Many voters face growing economic uncertainty, and discontent with the government's handling of the pandemic has grown as containment measures are extended. Small business owners, who were hardest hit by lockdown measures, may join the ranks of populist supporters. Publicised instances of politicians breaking the rules have reinforced the populist narrative of a 'corrupt elite versus pure people'. Finally, having lost the opportunity for daily interactions with diverse groups, voters increasingly gauge politics through the prism of online news and forums. As research suggests, online news flows tend to reinforce pre-existing political leaning through the use of algorithms which, because they offer additional news items based on reader preferences, favour the distribution of information to like-minded peers (Cinelli, 2021). These patterns contribute to the observed phenomena of infodemics and decreasing interactions with people who hold different opinions in the pandemic (Ligot, 2021).

So far, general elections have taken place in seven EU countries since the first COVID-19 lockdowns were announced in March 2020. The electoral patterns observed are that of an initial 'rally round the flag' effect, followed by a decline in popularity for the ruling parties. Although Croatia's election in July 2020 strengthened the ruling Christian Democratic Union, Lithuania's October elections brought about a change in government. In Romania, the ruling National Liberal Party (PNL) came second in the December 2020 legislative vote and, although it was able to form a new ruling coalition with three more parties, this proved quite volatile and the PNL opted for a grand coalition with the Social Democratic Party (PSD) in November 2021. In the Netherlands, Mark Rutte's People's Party for Freedom and Democracy won the March 2021 election but his new coalition government was only inaugurated in January 2022, following the longest negotiation in the country's history despite the fact at it was formed by the same parties as the outgoing one.

In Bulgaria, the ruling Citizens for European Development of Bulgaria (GERB) lost a quarter of its seats in the April elections, and the parliamentary parties failed to find a common ground with a partner to form a majority coalition. A new vote took place in July but also failed to produce a new government. In the third attempt in November, the GERB was overtaken by a reformist newcomer, We Continue the Change, opening the door to a four-party coalition with two more reformist forces and the left-wing Bulgarian Socialist Party.

Polls in Germany (September 2021) and Czechia (October 2021) resulted in electoral defeat for the dominant coalition parties. Germany's political landscape has changed with the planned departure of its long-time Christian Democratic Union (CDU) leader, Angela Merkel, as well as shifting voter allegiances. At the outbreak of the pandemic, the CDU rose from 27 to 39% in opinion polls. By May 2021 however, it had fallen back to 24%, overtaken by the Greens who were later upstaged by the Social Democrats (Politico, 2021). In Czechia, the dominant ANO 2011 was ousted by Together, a coalition of centre-right parties, and the Pirate Party. At the time of writing, coalition talks were ongoing in both countries. It appears likely that the new ruling coalitions will be broader and will exclude the formerly dominant political forces.

Lastly, Portugal's early general election in January 2022 resulted from the implosion of the informal left-wing four-party coalition led by the Socialist Party (PS) over a budget vote. Bucking the trend and beating all opinion polls as many voters decided just days ahead of the vote, the PS won with 41.7% of all votes, gaining a narrow parliamentary majority. Portugal thus follows on some other countries, where voters have been disappointed with fragmentation, instability and the performance of the

newcomers, and traditional parties have bounced back. However, fragmentation has not decreased in this vote as nine parties entered the parliament, and the right-wing registered major gains.

The far right appears to be gaining ground in several countries, adopting a trend of COVID-19 denial and opposition to pandemic management measures. A vivid example is the rise of the Brothers of Italy, who polled at 5% in March 2019 but climbed to 20% in October 2021. During the peak of the crisis and shortly after, right-wing political parties gained popularity in Austria, Belgium (Flanders), Czechia, Finland, Romania, and Spain (Politico, 2021), although some lost popularity in the following months.

Lastly, in countries where populist movements have held onto power in recent years, we have seen a reorganisation of opposition parties, with voters seeking viable alternatives to challenge the status quo. In Hungary, the United Opposition brought together forces from across the political spectrum. In Poland, a new political party, Poland 2050, emerged to meet the priorities of front-runners.

However, these trends are yet to develop, and research suggests that the political consequences will peak approximately two years after the pandemic ends (The Economist, 2021). In the meantime, two important elections are on the horizon, the French presidential election in April 2022 and the Hungarian parliamentary election in April or May 2022. In Hungary, the United Opposition has brought together parties across the political spectrum to challenge the dominant right-wing Fidesz. Polls put the incumbent in a narrow lead two months ahead of the vote (Politico, 2021); however, if the opposition wins power, the new government may soon prove unstable given its broad composition.

Meanwhile, the forthcoming electoral battle for the French presidency appears to be heading for a rerun of the 2017 second round face-off between the liberal incumbent, Emmanuel Macron and right-wing leader, Marine Le Pen. Given the country's electoral volatility during the pandemic, however, it cannot be ruled out that one of the runner-ups, the centre-right candidate Valerie Pecresse or right-wing Eric Zemmour, make it into the run-off.

Beyond the near-term elections, the pandemic and the perceived failures of governments and institutions are likely to fuel a further rise in anti-establishment, leader-centric parties. The division of voters and parties along front-runner/left-behind fault lines is likely to become a dominant feature of party-political landscapes. This is particularly because economically vulnerable groups have been more negatively affected by the pandemic, and digital and climate savvy front-runners are more likely to benefit from the green and digital transition that is expected to drive post-pandemic growth in the EU's economy. This may further increase the perceived distance between the two groups and their interests.

6.3. GOVERNMENT STABILITY IN PERIL

The historic examples of economic crises triggering major political instability are virtually endless. Some of the more recent ones include the great recession of 2008 that accompanied financial crises around the globe, the Argentine economic crisis at the turn of the millennium, the Russian financial crisis of 1998 and the Mexican Peso crisis of 1994. Other types of crises, such as lost wars or major natural disasters, tend to have a similar effect on societies that are already prone to instability (Omelicheva, 2011).

Pandemics are no exception. The Black Death, the bubonic plague outbreak in Europe from 1347-1351, is perhaps the best-known example of a pandemic that led to a reconfiguration of political and socioeconomic structures, particularly in the harder hit areas. Its lasting effect on electoral systems could be felt up to 500 years later (Gingerich, 2021). The sheer loss of life was the main driver of political change, forced upon society through a drastic reduction in the labour force. While the cost to human life from the current COVID-19 pandemic has been considerably lower, and socioeconomic

conditions have changed significantly since the Black Death, the long-term political impact of this extreme event is a telling lesson to be learned.

In a time of crisis, governments typically experience both a decline in public support (following a brief rally at the outset of the crisis) and tensions within, as they face difficult decisions and failures. In addition, crises often produce civil unrest, generalised protests, the emergence of a new party-political landscape, or a rise in independence movements, particularly in fraught societies. These manifold challenges typically increase government instability, leading to frequent cabinet changes or outright failures, followed by the formation of a new government or early elections. One illustrative case is the collapse of the Slovak centre-right multiparty government in 2011, following the unsuccessful vote to ratify the European Financial Stability Facility. Prime Minister Iveta Radicova linked the matter to cabinet confidence in order to enforce a unified vote. Her plan failed, however (Stratfor, 2011), sparking early elections and a takeover by the centre-left opposition (DW, 2012).

A vivid example of these processes at work is the Irish coalition from 2008-2011. Already unpopular at the outset the economic crisis, as manifested in the failed referendum on the Lisbon Treaty in June 2008, the government struggled through the banking sector crisis, the collapse and government takeover of a major financial institution, two difficult austerity budgets, public protests, a coalition rebellion, two votes of no confidence, an international bailout, a botched cabinet reshuffle, and finally resignation of the government followed by dissolution of the parliament and early elections in February 2011. Other examples include Slovakia, where in 2012 the government fell apart over a decision regarding the European Financial Stability Facility and the Slovak parliament's approval to support bailouts of other EU states, triggering early elections and the opposition's rise to government.

The table below documents the considerable increase in instances of government failures and early elections in the period between the 2008 financial crisis and the COVID-19 pandemic.

Table 12 **EU27 increase of general elections, comparing periods 1998-2008 and 2009-2019**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Luxembourg	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0
Ireland	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0
Denmark	1	0	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	1
Netherlands	1	0	0	0	1	1	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0
Austria	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	1	0	1
Germany	1	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
Sweden	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Belgium	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	1
Finland	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1
France	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0
Malta	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0
Czechia	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0
Italy	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	1	0
Cyprus	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0
Lithuania	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1
Slovenia	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	1	0	0	0	1	0
Spain	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	1	1	0	0	2
Estonia	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1
Poland	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Portugal	0	1	0	0	1	0	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	1
Hungary	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Slovakia	1	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0
Latvia	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	0
Romania	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1
Greece	0	0	1	0	0	0	1	0	0	1	0	1	0	0	2	0	0	2	0	0	0	1
Croatia	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	0	0
Bulgaria	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0
EU27 Total	11	6	6	3	11	8	6	5	8	8	6	7	8	9	5	8	8	9	4	7	7	11
Total anomalous elections						14											22					

Source: Own calculation

Table 12 includes information on two critical periods, recording the years in which an election was held in the EU27 before the great recession (1998-2008), and the period after (2009-2019). Re-elections occurring within a two-year period were treated as an anomaly in terms of government stability, as early elections are typically triggered by government collapse. In the period following the global financial crisis up until the outbreak of the pandemic, the number of early elections in the EU increased significantly compared with the corresponding period before the financial crisis, from 14 to 22.

In addition, a significant share of rising government instability is generated in specific countries, with Greece and Spain mostly responsible for the increase in the number of elections. These findings suggest a correlation between the impact of the three consecutive crises and government stability, as the two most unstable countries are also those most adversely impacted by these crises.

The fragmentation of party-political landscapes discussed above will further increase the need for coalition making and the average number of parties required to form a government with majority parliamentary support. Coalitions have a greater tendency for instability than one-party cabinets. Individual coalition parties often have conflicting programmes, disparate electorates whose needs they must cater to, and are inclined to avoid responsibility for failures and difficult decisions. A very recent example is the 2019-2021 government of the left-leaning, majority Russian ethnic Centre Party, the conservative, majority Estonian ethnic Isaama party, and the right-wing, populist Conservative People's Party, which was marred by internal tensions until its collapse during the pandemic.

Moreover, if newly constituted parties enter government, they tend to become even more unstable, particularly if they are the central force of the coalition. These parties lack the internal cohesion and personal links needed to withstand difficult times. Often, they crumble and lose popularity shortly after the elections. In Slovenia, this has happened to three consecutive governments led by newly emerged parties between 2013 and 2020, all invariably ending in prime minister resignations, followed twice by early elections.

In more extreme cases, electoral systems fail to produce a working government despite considerable safeguards. This may have a more pronounced effect in countries that have a history of one-party rather than multiparty governments. Working governments may be easier to form in countries with a culture of coalition government compromise, but fragmentation can still be a challenge to these set-ups. This is particularly true where there is significant representation from anti-establishment movements that reject cooperation with established parties, or fringe forces with little coalition potential. Bulgaria is a case in point, where the parliament was divided three ways after the April 2021 elections into centre-right, centre-left, and anti-establishment blocks that all rejected cooperation with one another. Such cases may trigger calls for changes in electoral systems or even constitutional overhauls.

During the pandemic, we witnessed a constitutional vote on the downsizing of the Italian parliament, and a failed attempt at constitutional change in Bulgaria (where the unsuccessful coalition formed in April 2021 led to a re-vote in July). Changes were made to the electoral law in Hungary in December 2020, and in early 2021 the constitutional court in Czechia ruled parts of the country's electoral law unconstitutional, necessitating hasty reform ahead of the October 2021 general election. After the pandemic, the debate on a potential change to Spain's electoral system (Hernandez, 2019) may re-emerge, as well as similar public discussions should coalition making prove difficult and lengthy.

Overall, it is likely that countries that entered the crisis fragmented will experience more instability than others. How they come out of the pandemic (in terms of strategy and timing), particularly in comparison to their regional peers, will determine how the public perceives government handling of the pandemic. Those that are viewed as less successful may face more challenges and bear an increased risk of collapse. This in turn may exacerbate fragmentation of the political spectrum and a

polarisation of public opinion. Conversely, perceived success may help stem the negative trend of trust in public institutions.

6.4. POLICY MAKING IN SHIFTING POLITICAL LANDSCAPES AND VIRTUAL FORUMS

Swift changes in the political landscape in recent years have meant a much shorter planning period for politicians, who now face both a greater likelihood of having to govern with coalition partners, and an increased risk of their terms being cut short, either through the collapse of the coalition or early elections. With more elections, changes in power and unstable coalitions, political leaders are confronted with shifting decision-making incentives, time horizons and policy constraints.

With the increasing fragmentation of political landscapes as discussed above, it is becoming increasingly difficult to form governments. This is because parties find it difficult both to establish common ground for the joint government programme, and to agree on government positions to satisfy leaders' ambitions. Once the coalitions are formed, the resulting government programmes tend to be fairly high-level and typically remain on paper, as individual ministers often pursue their own party agenda for easy wins and visibility among voters. Often the result is additional tension within the coalition, and potentially break-up. This is particularly true for new and smaller parties that seek to stand out and establish their credentials with target voters.

These dynamics shorten the timeframe for policy choices. Instead of a typical four-year electoral term, political leaders now tend to plan for just a year or two ahead. An example of short-termism in policymaking is the targeting of the second pillar of pension systems to help redress the budget deficit or public debt issues in the post-2011 austerity drive (Krzyzak, 2014). Similarly, increased social spending or public wage hikes are being offset by funding cuts in long-term investment, in transport or digital infrastructure, for example.

One exception are the governments led by populist parties, representing the agenda of the left-behinds and challenging liberal and globalising trends. These governments look to the medium term by seeking to embed their nominees in systemic institutions, through long-term appointments in courts and regulatory authorities for example. They also seek to pass and implement legislative changes that are more difficult to revert, such as changes to the legal definition of a family or regulations governing reproductive health.

Lastly, the pandemic has brought one specific change in the way politics and policy decision-making is conducted, which is videoconferencing. Physical presence is no longer required to formally participate in a political assembly. In many ways, this may be empowering and increase political participation of individuals that live further away from the major centres of power. But the digital conduct of politics does decrease audience activity, highlight the role of the main speakers, and empower the moderators of online forums. This in turn may increase the role of political leaders, contributing to the personification of politics at the expense of institutions, and enforce the perception of politics as a spectacle.

6.5. RULE OF LAW AND DEMOCRATIC INSTITUTIONS AT RISK

The rule of law, defined as adherence to the supremacy of the law, equality, accountability and fairness, as well as the separation of powers, and procedural and legal transparency (United Nations, 2021), often comes into question during crises. Crises typically require extraordinary measures that are only a small step away from claiming the need for extraordinary powers or bypassing rules in order to deliver crisis solutions.

The collapse of governmental institutions and power grabs by non-democratic actors – be they autocrats, militias or self-appointed leaders of revolts – in the wake of a major crisis is well documented in political history. Once again, perhaps the best examples are the experiences of Europe in the 1930s. In March 1933, the German parliament passed the Enabling Act granting Adolf Hitler plenary powers (Bullock, 1991, pp. 147-148). In Spain, the Great Depression played a significant role in the downfall of the Second Republic, which ended abruptly with a coup d'état in 1936 and the start of the Spanish civil war. In interwar Italy, the recession contributed to the consolidation of fascist state authority and finally to the dismantling of its democracy (de Grand, 2000). Democratic institutions broke down in five other European countries too, Austria, Estonia, Greece, Hungary and Romania.

While additional factors such as the pre-existing social context and the actions of individual politicians played a role in these processes (Berg-Schlosser, 2012), the initial shock of the economic crisis was the force that set such social and electoral reactions in motion, and that in many cases led to the breakdown of democratic institutions. The visible effects of the crisis on politics became apparent only several years after its onset.

The measures employed to mitigate contagion in the COVID-19 pandemic brought about curbs on personal freedoms, including freedom of assembly and movement, unparalleled since the end of the Second World War (EPRS, 2020). States of emergency were proclaimed in many Member States, particularly during the first wave of the pandemic in spring 2020. However, these decisions were heavily scrutinised by judicial authorities, debated in public and political forums (European Commission, 2020d), and have not led to power grabs. Risks to the rule of law and the institutions are likely to be more subtle and take longer to develop, though the temptation of extraordinary executive powers cannot be completely ruled out.

The experiences of the 2009-2019 period suggest that leader-centric parties represent a particular risk in this regard, as they tend to weaken the institutional environment when elected to power. Their mandate is usually to overhaul the system or to root out corruption, which in both cases calls for changes in personnel at the very least, but typically in the institutional set-up also.

Moreover, the top-down structure of these parties means that after their accession to power, the leaders' inner circle typically gains influential positions within the system, and informal links within the group take over the formal structural lines of reporting. Indeed, formal institutions are often seen as an impediment and part of the very system the leader was elected to challenge.

This is particularly the case for institutions that make up the system of checks and balances, most often those within the judicial system. Populist leaders typically either populate these institutions with their nominees, or attempt to hollow out the institution's powers. Research by István Székely and Robert Kuenzel shed light on how the behaviour of institutions can change without any formal provision or change in legislation, to the overall detriment of the system (Székely and Ward-Warmedinger, 2018). Political nominees can be associated with this phenomenon, as institutional behaviour adapts to the political order of the day through informal channels.

Typically, a formal change of institutional power is only attempted if nominees cannot be easily replaced. This is because institutional changes usually require a constitutional majority in parliament as well as public attention. Although achieving a constitutional majority allows the ruling political force to make such changes, the fragmented political landscapes of today means that this is rare. Instead, political forces seeking institutional change may resort to messier alternatives, such as shortening the term of office for current holders, or creating new super-structures to impose closer political oversight of existing bodies.

Such moves attract scrutiny from the European institutions and the media. European institutions, particularly the Court of Justice of the European Union, are a form of external constraint on the power

of populist leaders. This would appear to be one of the main reasons for their typically strained relations with Brussels.

At the same time, political leaders intent on sweeping political change often seek to control the media to ensure favourable reporting and continued public support. Tightening political oversight of the public media, promoting private media ownership by government-friendly business interests, and disrupting the operations of government-critical media typically go hand in hand with a weakening of other institutions and are indicative of forthcoming challenges to the rule of law.

Finally, the top-down structures of leader-centric parties are conducive to the emergence of political patronage networks, with the potential to exacerbate political corruption. While populist leaders often proclaim their aim to resolve corruption, the informal lines of reporting, weakening of institutions - particularly the judicial system - and the drive to control key sectors of the economy[57] may all contribute to an environment where political corruption thrives rather than perishes.

Several EU Member States have received warnings from the European Commission over the deteriorating rule of law in recent years. Hungary and Poland are facing Article 7 procedures (European Parliament, 2018a) over the perceived risk of breaches of EU values. Romania was warned over changes to the criminal code in 2019 related to corruption and bribery offences both under the Verification and Coordination Mechanism in 2018 (European Commission, 2018b) and under Article 7 (Timmermans, 2019). Elsewhere in southern Europe, there has also been a deterioration in the quality of institutions, particularly with respect to the rule of law, governance effectiveness and the control of corruption (Székely and Ward-Warmedinger, 2018).

Deteriorating standards in the rule of law in Europe have been observed in recent years by various intergovernmental (World Bank, 2020) and international non-governmental organisations (Freedom House, 2020). At the same time, the twin cases of Hungary and Poland have shown that the need for unanimity in the Council to impose sanctions under Article 7 renders the procedure almost toothless. This realisation has prompted the addition of the rule of law conditionality to the proposal for the 2021-27 multiannual EU budget (European Parliament, 2020b), but its utility has yet to be tested.

Such trends, visible before the pandemic, appear to have continued or even escalated. In October 2020, the European Parliament passed a resolution noting a significant decline in respect for the principles of the rule of law in Bulgaria (European Parliament, 2020a). The new European Commission Rule of Law Report published a month earlier focused on assessing judicial independence, anti-corruption efforts and media freedom. The report voiced serious concerns over judicial independence in Hungary and Poland, and observed challenges in Bulgaria, Croatia, Romania and Slovakia. Difficulties in tackling corruption were also observed in Czechia and Malta. Lastly, on media freedom, the report noted that in addition to political pressure and a lack of transparency, journalists continue to face threats and come under attack in several Member States (European Commission, 2020d).

Should the pandemic further amplify the trends of the past decade, institutional quality would continue to deteriorate in southern Europe, constraining economic growth and challenging trust in the institutional system. Elsewhere, the rise to power of populist parties may challenge the institutional set-up in their respective countries as well as the fundamentals of the EU as a union, founded on the

[57] These tend to be sectors that underpin voters' support for the ruling party. In addition to the media, these may include the financial sector, utilities and retail chains, or other sectors that account for significant out-of-pocket expenses for voters, where government can make a visible and immediate difference to the economic situation of individual voters.

values quoted in Article 2 of the Treaty of the European Union, including rule of law, democracy, pluralism and equality.

6.6. STABILITY OF THE EUROPEAN UNION AND ITS MEMBER STATES

Support for EU membership wavered during the three pre-COVID-19 crises. The obvious example is Brexit, the United Kingdom's June 2016 referendum that resulted in the country leaving the EU.

Public opinion in the United Kingdom appeared to be significantly influenced by the perceived negative impact of immigration from EU countries following the 2004 job market enlargement, perceived constraints on sovereignty, and the cost of EU membership (Britton & van Goubergen, 2019). Pre-existing anti-EU sentiment was heightened by the protest vote of left-behinds, triggered by austerity policies in the aftermath of the financial crisis (this was the fourth most common reason to vote leave) (Crafts, 2019). The refugee crisis in 2015 may have been the final straw that tipped the referendum vote in favour of leave.

Besides that one exit, there were several other near misses in recent years. The prospect of an exit by Greece was very vivid in 2011-2012 as Athens negotiated a bailout at the cost of major austerity. The cost of these steps was carefully measured on all sides, with many suggesting that Greece's withdrawal from the Eurozone and the devaluation of its currency may be a more suitable alternative (Bootle, 2013). The term Czexit was coined in Czechia in 2015, with President Milos Zeman supporting a referendum on whether Czechia should remain in the EU in the wake of the Brexit referendum in June 2016 (Reuters, 2016). Exit campaigns have been active in Denmark, France, the Netherlands, Poland and Romania.

The relationship between crises and the rise of nationalism is not linear (Ruiz Jiménez, 2021), and some research even suggests an inverted dynamic (Hierro & Rico, 2021). The specific context of the three crises between 2008 and 2015 linked economic uncertainty to the perceived undesirable effects of an open and interconnected global economy as well as to an integrated, borderless EU. This fuelled the rise in nationalist sentiment. Given that the pandemic is once again a crisis whose rapid spread has been facilitated by global interconnections and travel, it is likely to reinforce the trend towards nationalism. Additional pressure on EU cohesion and on some of the EU's multi-ethnic states is thus likely.

At Member State level, separatist pressures may re-emerge in Spain once the pandemic eases. Tensions can be expected elsewhere, where national fault lines are a prominent feature of the political context. Public sentiment towards ethnic, religious, racial, and other minorities may also deteriorate. Besides recent non-European immigrant groups and local Muslim and Jewish communities, the Roma community is at particular risk of being targeted by far-right groups and populist political forces. Backlashes and social and political tensions may flare up as a result. Descriptions of various minorities as a threat to society (Easton, 2019) and support for unlawful segregations (Than, 2020) have already been associated with populist political leaders in the run-up to the pandemic.

Meanwhile, although it appears unlikely that any current Member State would choose to leave the European Union, this cannot be ruled out. First, the EU remains a negative reference point, an external enemy against which Eurosceptic populists position. Second, it is a convenient, distant institution to blame for policy failure at national level, even by pro-EU politicians. Third, popular opposition to a given EU-level policy within a particular national context can create an unexpected backlash against the EU.

A past example of how profound an effect opposition to a particular policy may be on voter support for EU membership is the tale of two June 2017 public opinion polls in Poland. A CBOS agency poll found that 88% of people surveyed supported their country's membership of the EU. At the same time,

an IBRIS agency poll conducted that same month found that 51% of respondents would have 'supported leaving the EU if it was the only way to prevent Poland from being forced to admit Muslim migrants' (Szczerbiak, 2017).

Countries most at risk of an exit are likely to be those with active exit campaigns. However, the countries that are most adversely affected by the pandemic will also benefit most from the fund, which will likely dampen potential support for exiting the bloc. The October 2021 ruling of Poland's highest court on parts of EU treaties not being compatible with the country's constitution highlights that exit campaigns and referenda are not the only risks to the integrity of the EU and its values.

Meanwhile, Eurosceptic parties may become a force at EU level. Their inconsistent ideological positions and differing views on how the EU should be organised have hampered their cooperation so far. However, they may yet find common ground that will overarch their disparate positions on common currency or perceptions of a democratic deficit, may be as a result of their socialisation in the European Parliament.

The rising prominence of Eurosceptic parties at EU level would likely complicate decision-making and policy formulation. However, the rise of populism within Member States may present a more significant risk to the EU. Government policies and acts can pose a challenge to the EU's fundamental values defined in Article 2 of the Treaty of the European Union, particularly the rule of law, pluralism and respect for human rights, including the rights of persons belonging to minorities (Treaty of the European Union, 2012).

Finally, should the EU prove to be a bulwark against the worst effects of the crisis by providing mutual help, vaccination campaign coordination, and funding to boost the economic recovery, it could counteract some of the most destabilising trends. In particular, the EU's contribution to avoiding a K-shaped recovery (Hauk, 2020) and levelling the post-pandemic growth experiences for residents across demographic groups and locations may help counter the negative perceptions that developed during pre-pandemic crises. This outcome would also help strengthen emerging trends that are better aligned with the European Commission's aims, including growing climate consciousness, an emphasis on gender equality, and demands for the rule of law within some of the most polarised societies.

6.7. CONCLUSION: A SYSTEM IN TRANSITION

It remains only to conclude that the pandemic and its economic impact is likely to amplify the growing political instability of recent years. However, political environments cannot fragment and descend into dysfunction indefinitely. It is more likely that we are living through a period of transition marked by shifting needs, priorities and interests. This requires making adjustments to governing institutions and political forces before systems settle into a new equilibrium. As with any transition, we only know what we are transitioning from, not what we are transitioning to, but the trends established in the pre-pandemic period provide guidance as to what we can expect.

Historically, public spending programmes have been used to alleviate the economic impact of crises on populations, and thereby mitigate political fallout. Pandemics have also typically been followed by periods of economic growth. The Recovery and Resilience Facility has the potential to both boost the growth cycle and demonstrate the practical utility of the EU, thereby dampening discontent and anti-EU sentiment.

The EU's focus on digital and green policies, which aim to transform the European economy and set it up for sustainable growth in the decades to come, is aligned with the interests, values, lifestyle and skillsets of front-runners. In this context, it is imperative that the needs and interests of the left-behinds are addressed, too. The experience of the *Gilet Jaunes* movement demonstrates that measures designed

to fight climate change may be perceived as an attack on the economic security of lower-income groups, rapidly leading to general anti-government protests using an 'elite versus the people' narrative.

It is therefore imperative that individual national recovery plans and their implementation focus on developing skills, lifelong learning, digitalisation, and infrastructure in rural areas - particularly in the lagging regions and for minorities. An emphasis on ensuring more balanced economic growth in cities and rural areas may help bridge the divide between the two groups. However, this can be a lengthy process and a certain level of negative political fallout from the pandemic is unavoidable in the interim.

Assuming the trends and patterns identified by research continue, we can expect the political impact from the pandemic to peak approximately two years after it has ended. In the meantime, populist movements seeking to challenge the system are likely to harness more support, with trust in institutions expected to further decrease. Populist forces may emerge with far-right characteristics or as centrist movements, and they are likely to pursue an anti-corruption agenda. In all likelihood, both cases will disrupt the political system by refusing to collaborate with established parties and, once in power, upsetting the system of checks and balances.

The individual trends identified are also likely to affect each other. For example, the increase in support for right-wing movements is likely to generate a response on the other side of the political spectrum – similar to the division between the left-behinds and the front-runners - with a rise in more liberal and sustainability-focused political forces. Political polarisation may cause more disruption than the populist forces, as it becomes increasingly difficult to reach a common ground.

A division of the political spectrum along the left-right economic axis is likely to fade in relevance compared with the division between the front-runners/left-behinds fault line. It is likely that new political parties will form, and established parties will seek to redefine themselves along such lines. The agenda of parties catering to the front-runners is likely to be dominated by liberal values, with an emphasis on human rights and diversity, and a reorientation of the economy towards sustainability. Political platforms for the left-behinds are likely to stress traditional values, the strong role of the state in the economy, and an increase in social transfers. At European level, the former group is likely to support further integration, while the latter will argue for a stronger role for Member States. Tensions between the two camps may emerge on fiscal policy too, in terms of revenue (for example, green taxes) and spending (social transfers versus funding for the transition to a green economy).

Meanwhile, the role of individual politicians, party leaders, and strong independent actors in the system, such as directly elected presidents, is likely to increase as institutions weaken and changes to the electoral system or constitution become plausible. The digitalisation of political life may shine more light onto the role and importance of leaders in post-pandemic politics. Similar to the 1930s, these leaders may be instrumental in determining the direction of the whole system, particularly if the rule of law and democratic institutions come under pressure.

Multi-ethnic states may experience tensions, with the results that Eurosceptic sentiment, separatist movements and EU-exit campaigns may gain momentum. This may give rise to challenges to EU fundamental values, with exit campaigns gathering momentum in some countries, and there may be some coordination among Eurosceptic parties at EU level.

Lastly, corruption may increase as a result of leader-centric parties with top-down structures, informal lines of reporting, and a system-disrupting agenda pushed by those in power. Some Member States may not be sufficiently prepared or equipped to identify and address such developments.

Transition periods tend to be turbulent. However, it is likely that over the medium term the system will find a new equilibrium. The contours of that future system will be determined by the action we take now.

7. HOW WILL COVID-19 AFFECT TRUST IN THE EUROPEAN UNION?[58]

Barry Eichengreen
George C.Pardee & Helen N. Pardee Chair,
Distinguished Professor of Economics and Political Science
University of California, Berkeley

EXECUTIVE SUMMARY

From a European standpoint, an important question about the legacy of COVID-19 is how the experience of the pandemic and the response of Europe's authorities will affect public trust in the institutions of the European Union. Some public commentary (e.g. Charlemagne, 2021) suggests that the legacy of the COVID episode will be profoundly negative. To date, the EU has vaccinated a much smaller proportion of its population than the United States, Britain or Israel. Blame for this has been placed on the Commission, which took its time in signing contracts for COVID vaccines. The threat of export controls on vaccines from the EU tarnished the Commission's reputation as a defender of a rules-based trading regime. Given these questions about the Commission's performance, further questions were then raised about the adequacy of the process through which Commissioners are chosen (in effect, about the structure of relations between national governments and the Commission) and about the effectiveness of oversight by the European Parliament.

At the same time, there is a more positive reading. The EU prevented European nations from fighting one another for scarce vaccine supplies (in the manner of US states under the Trump Administration). It ensured that pharmaceutical companies remained liable for health risks. It was more systematic than many governments outside Europe in ensuring that safety protocols were vigilantly followed. Confidence in safety, in turn, will ultimately mean that vaccine take-up is greater than otherwise. More generally, the EU's decision to launch an unprecedented €750 billion Recovery Plan for Europe suggested that it had the capacity to respond creatively and constructively to the economic and public health emergency.

This contribution to the report and deliberations of the High-Level Advisory Group will consider the impact of the pandemic on trust in the EU and its institutions from a number of perspectives. It will then suggest steps that can be taken to regain trust where it has been squandered and to enhance trust where it has been maintained. It will start by reviewing survey data on the evolution of public opinion since the outbreak of the pandemic, distinguishing Member States

[58] I thank Massimiliano Mascherini, Sanna Nivakoski, Daphne Ahrendt and Tadas Leoncikas for helpful comments.

as well as European citizens overall. It will then take a step back, using data from the European Social Survey, to document longer-term trends. This will make it possible to ask: if the pandemic has diminished trust in the EU, in general or in specific Member States, is this part of a longer-term trend that has only been accelerated by the pandemic? (As in "COVID acts mainly as an accelerant, accelerating already ongoing changes in economy and society.") This longer-term perspective will build on the analysis of Dustmann et al. (2017, where we found that citizens and voters value a European Union that delivers not only higher incomes but specifically personal and national security, along with other global public goods (where here one thinks of the relevance of the public good of global health).

Where the preceding analysis looks at the evolution of trust in general, the contribution will consider next what we know about the impact of epidemic exposure specifically on citizens' 2 trust in government, its leaders, and the process of leadership selection. The most directly relevant work is Aksoy, Eichengreen and Saka (2020), who find that epidemic exposure has an enduring negative impact on trust in government, national leaders and elections, specifically among individuals who were in their impressionable years (ages 18 to 25) when an epidemic affected their country. In addition to reviewing these results, attention will be paid to dual problems of external validity. First, can one extrapolate from the effects of past epidemics to the global pandemic that is COVID-19? Second, can we safely apply findings about changes in attitudes toward national governments to attitudes about the European Union?

Again, the conclusion will offer some recommendations of changes that would help to enhance trust in the EU and its institutions.

***

INTRODUCTION

For Europe, an important question about the legacy of COVID-19 is how this experience, including the response of officials and institutions, will affect trust in the European Union (EU). Some commentary (e.g. Charlemagne, 2021), informed by the European institutions' initial response to the pandemic, predicts that the legacy will be profoundly negative. The EU initially allocated for vaccine development only a small fraction of the funding mobilised by the US government (EUR 2.7 billion versus USD18 billion), owing to a lack of perceived urgency and a lack of resources (Kirkegaard, 2021). Early on, EU countries then vaccinated a smaller proportion of their population than the US, the UK or Israel.[59] Blame was placed initially on the European Commission (the Commission), which refused to allow an informal 'Vaccine Alliance' of France, Germany, Italy and the Netherlands to finalise an agreement with the pharmaceutical company AstraZeneca, took its time in signing contracts for COVID vaccines, and made over-optimistic assumptions about vaccine delivery.[60] A threat to apply export controls to vaccines, implying the imposition of a hard Irish border, tarnished the Commission's reputation as a defender of a rules-based trading system. The European Medicines Agency and French and German governments disagreed publically about whether the AstraZeneca vaccine was safe for individuals aged 65-74.[61] Given these issues around the performance of EU institutions, questions were then raised about the adequacy of the process through which Commissioners are chosen (and by implication about the structure of relations between national governments and the Commission), as well as about oversight of the EU's executive branch by the European Parliament.

Subsequent experience suggests a more positive reading. The EU largely succeeded in preventing EU member governments from fighting one another for scarce vaccine supplies (in the manner that US state governments fought one another for scarce personal protective equipment). The Commission ensured that pharmaceutical companies remained liable for health risks. It was more vigilant than governments outside the EU in requiring safety protocols to be followed. The resulting confidence meant that vaccine scepticism was limited and take-up was greater than otherwise would have been the case.[62] Vaccine administration accelerated in 2021. By September 2021, the EU-27 Member States had administered more doses per 100 people than the US. Meanwhile, on the financial side, the decision to launch an unprecedented EUR 750 billion EU Recovery Plan indicated that the EU had the capacity to respond constructively and creatively to the economic and public health emergency[63].

This contribution to the deliberations of the High-Level Advisory Group will consider the impact of the pandemic on trust in the EU and its institutions. It will then suggest steps that can be taken to regain trust where it has been lost and enhance trust where it has been maintained. It will start by reviewing survey data on the evolution of public opinion regarding trust and confidence in the EU institutions, both before and since the pandemic. This longer-term perspective will build on the

[59] As late as June 4, 2021, EU countries had administered only two-thirds as many vaccine doses as the US (60 versus 90 doses per hundred population).
[60] As European Commission President Ursula von der Leyen put it in February 2021, 'We were late to authorise. We were too optimistic when it came to massive production, and perhaps too confident that what we ordered would actually be delivered on time.' BBC News (2021).
[61] I return to this particular episode below.
[62] This hypothesis leaves aside health (blood clot) concerns that arose in conjunction with the AstraZenica vaccine, with whose development the EU was involved. I leave this issue aside for the moment.
[63] In addition to the pharmaceutical interventions discussed in these first two paragraphs, one might also consider how trust in government was affected my non-pharmaceutical interventions, such as lockdowns and school closures. However, unlike vaccine procurement, decisions regarding non-pharmaceutical interventions were taken by national governments, which are not covered by this paper.

analysis of Dustmann et al. (2017), who documented and analysed the secular deterioration in trust and confidence in EU institutions.

Where this analysis looks at the evolution of trust in general, Section 2 of the paper will consider what we know about the impact of epidemic exposure specifically on people's trust in government, its leaders, and their selection. The most directly-relevant work is Aksoy, Eichengreen and Saka (2020), where my co-authors and I find that epidemic exposure has a persistent negative impact on trust in government, national leaders and elections, particularly among individuals in their impressionable years (18 to 25) when an epidemic struck their country.

In addition to reviewing these results, the focus will also be on two problems of external validity. First, what can we extrapolate from the effects of past epidemics that apply to the global COVID-19 pandemic? Second, can we apply findings about changes in attitudes toward national governments to attitudes about the EU? Caution is of course appropriate on both scores.

Section 3 will then offer recommendations for changes that would enhance trust in the EU and its institutions and help to repair any damage brought about by COVID-19.

7.1. TRUST IN THE EU

Several earlier studies have described trends in trust in EU institutions and discussed their determinants. Mungiu-Pippidi (2015) is a useful example, in that it focuses on the impact of the global financial crisis, the largest economic shock affecting the EU economy before COVID-19. Using country-level Eurobarometer data, Mungiu-Pippidi documents a significant decline in trust in the EU and in particular in southern European countries over the course of the crisis. A somewhat smaller decline in the UK and most central and eastern European countries as well as in certain northern European countries that weathered the crisis relatively well was also observed. Between 2008 and 2013, she shows that trends in trust are positively associated with economic growth (trust in the EU falling with recession and rising with growth). However, the observed decline in confidence in the European Parliament is more muted, perhaps not so much because of its positive performance during the crisis, but more because of the lack of awareness of its role. Roth, Nowak-Lehmann and Otter (2011) report a similar cross-country analysis of the impact of macroeconomic variables. They conclude that growth and unemployment affect trust in the Commission and the European Parliament positively and negatively, respectively. They also found that high government debt levels have a negative impact on trust in both of these institutions, both before and during the global financial crisis.[64]

Whereas the preceding studies consider Eurobarometer data aggregated at national level, Arnold, Sapir and Zaopryanova (2012) use individual Eurobarometer survey responses to show how personal characteristics and country conditions interact to shape trust in EU institutions. They identify personal traits that are positively associated with the trust respondents place in the EU, including their:

- satisfaction with the way democracy functions;
- general satisfaction with life, political ideology (where an individual places themselves on the political spectrum); and
- general interest in politics.

[64] Roth, Nowak-Lehmann and Otter (2013) extend the sample period and emphasise high unemployment as a major factor driving the ongoing erosion of trust in EU institutions in southern Europe in particular.

They also identify a role for country characteristics, where people living in countries with low levels of corruption, low public spending on welfare and (somewhat peculiarly) relatively heavy influence over decisions taken by the EU are less likely to trust EU institutions.[65]

Another analysis speaking to these concerns is Dustmann et al. (2017). The authors use the European Social Survey to analyse trends in trust in the EU. They confirm that individual characteristics matter. Young people, urban dwellers, immigrants and the more educated place more trust in the European Parliament and are more supportive of the EU. Trust in the European Parliament and political support for the EU weaken as economic conditions deteriorate, but more slowly than trust in national parliaments and national political systems. This presumably reflects the perception that it is mainly national parliaments and systems that are responsible for managing the response to macroeconomic shocks. What matters more for trust in EU institutions is their perceived ability to deliver regional and global public goods that improve personal and national security and are difficult to supply at the national level. This finding is relevant to the COVID-19 pandemic, where national governments play an important role in mounting the response to the public health emergency, but where successful suppression of a contagious virus is a regional or global public good.

The authors then analyse the secular decline in trust in the European Parliament since 2002.[66] Declining trust in the European Parliament appears to reflect declining trust in government generally. Where trust in national parliaments has declined, trust in the European Parliament has also declined.[67] Indeed, in some countries, mainly in southern Europe, trust in national governments dropped even further. Although there is no comparable question regarding trust in the Commission, the European Social Survey does ask about attitudes toward European integration, the broad project overseen by the Commission. Here there are no EU-wide trends, although in a subset of countries – Italy, Greece, Ireland and the UK – favourability ratings declined over the 15-year period considered by the authors.

Eurostat (2020) provides annual analogous survey results for questions about both the European Parliament and the Commission for 2019.[68] These show the same secular decline in confidence in the European Parliament, from 58 per cent of those surveyed in 2007 to 54 per cent in 2019. The decline in confidence in the Commission is nearly twice as high, from 54 to 47 per cent.[69] For the Commission, most of the decline in trust was centered at the time of the euro crisis (starting in 2010), which is consistent with earlier findings of Roth, Nowak-Lehmann and Otter (2011) and Mungiu-Pippidi (2015). A partial recovery in trust was observed from 2015. This is in contrast to survey results concerning trust in the European Parliament, where the decline started around 2006, but slowed and then stopped following the outbreak of the euro crisis.

Moving to COVID-19, EUROFOUND (2020c, 2021) conducted e-surveys of EU residents in April and July 2020, and then again in March 2021, inquiring into attitudes regarding trust in national governments, the EU and other institutions.[70] Trust in the EU was found to have risen slightly between April and July, most sharply in Italy and Spain, two EU countries severely affected by the

[65] This is peculiar in that intuition suggests that respondents would be inclined to anticipate happy outcomes from EU deliberations when their own directly elected and appointed national representatives are influential in the deliberations of the EU institutions.

[66] They also highlight the existence a limited number of exceptions. For example, Sweden seems to buck the trend, displaying more trust in the European Parliament over time.

[67] The relationship between trust in national governments and trust in the EU clearly is complex. While the series discussed here appear to move in parallel (they display what Munoz, Torcal and Bonet refer to as 'congruence'), one can imagine also different relationships.

[68] These are based on surveys of roughly 1,000 respondents per EU Member State.

[69] Percentages are averages for a constant set of EU-27 Member States.

[70] The other institutions in question include the police and media.

pandemic. This rise is consistent with the rally-round-the-flag hypothesis, but also with the Commission's EUR 750 billion NextGenerationEU recovery package, which was successfully negotiated around this time (Italy and Spain being among the countries expected to benefit most from this emergency economic tool). In the July survey, trust in the EU was on average slightly higher than trust in national governments.[71] Levels of trust in the EU are also more tightly bunched across countries compared to trust in national governments.

There is some sign in the EUROFOUND survey of the pattern emphasised by Dustmann et al. (2017) that where trust in national governments is low, trust in the EU tends to be low as well.[72] In addition, there is some indication that trust in the EU continues to be shaped by historical experience. Thus, Greece reports the lowest level of trust in the EU in 2019, plausibly reflecting its difficult experience with the Troika (the Commission, the European Central Bank and the International Monetary Fund that oversaw its emergency rescue programme) after 2009[73]. Trust in the EU is highest in Ireland, presumably reflecting the perception that the Commission went to bat for the country in the UK's exit negotiations with the EU. At the same time, there was a decline in trust in the EU between April and July 2020 in Denmark, Finland, the Netherlands and Sweden, four members of the 'Frugal Five' who opposed an expanded EU budget in the EU's July negotiations.[74] This suggests that the ongoing fiscal impact of the crisis has a role in the evolution of public opinion.

The third EUROFOUND survey conducted in March 2021 showed trust in the EU sliding back to spring 2020 levels and even lower. This third survey presumably reflects the impact on trust following a full year of restrictions on economic activity, mobility and social interactions, including full lockdowns for residents of some countries. The timing of this third survey also reflected news of vaccine side effects and a new wave of COVID-19 infections.[75] In addition, there may have been some disappointment that the impact of NextGenerationEU funding was not yet being felt. Unsurprisingly, the decline in trust in the EU was most significant among the unemployed and those who lost their jobs during the pandemic.

Although survey data is silent on the question of how COVID-19 will affect trust and confidence in the EU, early data and analysis point to the following provisional conclusions.

First, if as often suggested, the main impact of the COVID-19 pandemic is to accelerate ongoing trends, then it is likely to affect trust and confidence in the EU differently. For example, in Germany, the Netherlands and Austria the trend in confidence in the Commission has been very positive in recent years.[76] By contrast, in France there is no visible trend for COVID to accelerate.

---

[71] This is in contrast to the April survey, in which trust in the EU was on average slightly lower than trust in national governments. It would be interesting to know how such patterns were affected by subsequent events such as the vaccine controversy – if only such data were available.

[72] Though there are exceptions. For instance, contrary to the general pattern, Poland, where responses indicate the lowest level of trust in the national government, has one of the highest reported levels of trust in the EU. The survey also finds that trust in government is highly correlated with satisfaction with the way democracy functions, which provides a hint about what the EU must to do restore and maintain trust.

[73] It is tied with Croatia, actually, for lowest level of trust in the EU.

[74] Austria being the fifth member.

[75] Conceivably, it could have also reflected questions about the safety of the AstraZeneca vaccine and public disagreement among European agencies. Nivakoski (2021) leverages the fact that the March survey was conducted both before and after the AstraZeneca controversy. She finds no evidence of a change in the average level of trust around the time of the relevant announcements.

[76] Between 2013 and 2019.

Second, as mentioned, confidence in EU institutions fluctuates with economic, financial and social conditions. This was evident, for example, when looking at the impact that the Greek crisis had on Greek people's trust in the EU. Looking across countries, we see this in the impact of the global financial crisis and euro debt crisis more generally. Since COVID-19 has created yet another economic crisis, this points to the possibility of a further erosion of trust in the EU because of worsening economic conditions. The good news is that national governments and the EU (through the EU's Recovery Fund) have taken ambitious steps to provide financial support to households and businesses. Trust in government is higher among people who receive financial support from their national governments (EUROFOUND, 2020).

Third, the findings in Dustmann et al. (2017) suggest that the public regard these economic variables as mainly the responsibility of national governments. EU institutions are seen as being more responsible for regional and global public goods that help to ensure personal and regional security, and for dealing with cross-border spillovers that national governments are less well positioned to handle. This provides an opening for EU institutions to build 'output legitimacy' (Scharpf, 1999). The public good of protecting public health cannot be ensured purely at the national level in a pandemic-prone world where a virus can mutate and where national borders cannot be closed to new mutations. Similarly, small Member States acting alone lack the resources to invest in accelerating vaccine development. New infections can only be prevented if the virus is suppressed in all EU Member States. Similarly, vaccine development can be accelerated only if EU Member States work together. This means that the EU is likely to experience unusually sharp gains in trust and legitimacy as a result of action taken to improve public health region-wide. However, if unsuccessful it risks unusually severe reputational damage.

7.2. EFFECT OF EPIDEMICS

A limitation of survey evidence is that it is hard (to put it mildly) to pick out the effects of the pandemic as opposed to other things going on at the same time. To cite one example, in the spring and summer of 2021 there was not only a resurgence of COVID-19 cases, but also increased tension at the EU's external border between Poland, Lithuania and Latvia and Belarus, where the EU could play a supportive role. It would therefore be useful to say more about the impact of epidemic and pandemic exposure specifically on confidence in government institutions.

Indeed, whether such an impact exists is not obvious. And even if it does it is not clear whether that impact is positive or negative. One can imagine a 'rally round the flag' response where the public fall into line behind their leaders in a show of political solidarity in the face of a public health emergency (Schraff, 2020). At the same time, one can imagine a public show of anger and declining confidence due to the authorities' failure to anticipate and head off the emergency. Either way, we know little about the persistence of the effects. Some authors (e.g. Gozgor, 2021) suggest that the 'rally round the flag' response should dominate in the short run, but this will fade and possibly give way to a negative reaction[77].

In addition, some observers (e.g. Amat et al., 2020, Bol et al., 2020) suggest that we are likely to see opposing responses to 'socio-tropic' and 'ego-tropic' factors. In other words, the spread of infection

[77] Gozgor (2021) uses a survey of very short-term reactions to COVD-19, conducted online in 178 countries between March 20 and 16 April 2020 (i.e. immediately following the outbreak of the pandemic), and finds a positive response of trust in government that rises with the severity of the public health emergency (number of confirmed cases, etc.). Using smaller surveys conducted in Sweden and the Netherlands in March 2020, Esaiasson, Sohlberg, Ghersetti and Johansson (2020) and Scharff (2020) report similar results.

in society (a socio-tropic event) tends to induce a rally 'round the flag response, while exposure of a close family member, a friend or oneself (an ego-tropic factor) tends to induce anger and alienation.

Some insight into these questions may be gleaned from Edelman (2021), which surveyed respondents in 11 countries in January 2020 (before the pandemic), in May 2020 (as the first wave was building), and again in January 2021 (during the second wave). Ranking countries on a 100 point scale, it reports a 6 point increase in trust in government (from 55 to 61) between January and May 1920, but then a 5 point decrease (from 61 to 56) between May 2020 and January 2021. This is consistent with the hypothesis that the 'rally round the flag' response dominates in the short run but gives way thereafter to declining trust.[78]

The spring 2021 Eurobarometer survey (DG COMM, 2021) conducted in the second half of March and first half of April 2020 provides further evidence on how views of the EU evolved over the first year of the pandemic. The proportion of respondents saying that their views of the EU had deteriorated increased by 10 points to 34 per cent overall, while the proportion saying that their views had improved declined by 7 points to 9 per cent. Respondents most frequently cited public health when asked what should be the priorities for the European Parliament. This could imply that the deterioration in overall views of the EU reflects the feeling that its institutions, including the European Parliament, are not delivering on this priority. In response to the question 'In general, how satisfied are you with the EU's measures taken to fight the COVID-19 pandemic?' opinions were almost evenly divided.[79]

We also have evidence on the impact of epidemic exposure on trust in governments, leaders and political institutions (Aksoy, Eichengreen and Saka, 2020). We use data from the Gallup World Polls, which surveyed some 750,000 respondents in 142 countries between 2005 and 2018, inquiring into confidence in the government, in the honesty of elections, and in the national leader, three dimensions of the broad issue of trust or confidence in government. We combine individual responses with data on 47 epidemics and pandemics experienced in 137 countries starting in 1970, drawn from the EM-DAT International Disaster Database.[80] Conveniently, Gallup World Polls provide large amounts of additional information about the individual respondents – income and labour market status, demographic characteristics and so forth – permitting these variables to be used as controls.[81]

The results point to a large, significant and persistent negative impact of epidemic exposure on trust in government, elections and political leaders.[82] Its persistence is striking: it is evident for as long as 20

---

[78] The increase in the first period is evident everywhere except in Japan, where confidence in the government fell by five points, while the fall in trust in government in the second period is evident everywhere but in France (where there is a marginal increase). In addition, it is plausible that the public is reassured initially by their governments' non-pharmaceutical interventions (lockdowns, school closings, social-distancing conventions) but grew less trusting when these measures failed to prevent further spread. One can question whether these comparisons don't relate to other factors affecting trust in government, such as the controversy in the US over the validity of the November 2020 election. It is interesting to observe that in fact the decline in confidence in the US government between May 2020 and January 2021 was small by international standards, although trust declined by much more among Trump voters than Biden voters.

[79] 50 per cent not satisfied, 48 per cent satisfied, 2 per cent didn't know.

[80] For EM-DAT to classify an episode of disease-related morbidity or mortality as an epidemic, 10 or more people must die, 100 or more people must be affected, the government must declare a state of emergency, or there must be a call for international assistance.

[81] The analysis controls also for country, cohort, year and related fixed effects.

[82] These results are compatible with the positive impact on trust in the very short run as reported by Gozgor (2021), Bol, Giani, Blais and Loewen (2020) and Schaff (2020), since in the Gallup World Polls data the timing of the survey and epidemic exposure can be and generally are separated by years.

years following the time of the epidemic exposure. However, this effect is limited to individuals in their so-called 'impressionable years' (18 to 25) at the time of exposure. Individuals who are either younger or older show no analogous deterioration in trust.[83]

The distinctive nature of the impressionable years has been rationalised in various ways. Some scholars draw on Mannheim's (1928) concept of the 'fresh encounter' suggesting that views are durably formed when late adolescents and early adults first encounter new ideas or events. Others invoke Erikson (1968) to suggest that individuals in this age group are open to new influences because they are at the stage of life when they are forming their sense of self and identity. Yet others suggest that attitudes are pliable at this stage in life because views have not yet been hardened by confirmatory information (Converse, 1976). Spear (2000) links the literature on the impressionable years to work in neurology describing neurochemical and anatomical differences between the adolescent and adult brain, suggesting that these neurochemical and anatomical changes are associated with durable attitude formation. Niemi and Sobieszek (1977, p.221 et seq.) suggest that only in the late adolescent years do young people develop 'the cognitive capacity to deal with political ideas,' while the same can be said to some extent of individuals in their university years (p.222).

Although epidemic exposure also affects a range of other self-reported attitudes and opinions (see for example Aksoy, Eichengreen and Saka, 2020), the impact on actual economic choices is not limited to individuals in their impressionable years.[84] As an example of actual economic behaviour, Aksoy, Eichengreen and Saka (2021) consider online and internet banking, using data for 2011, 2014 and 2017 from Gallup World Pools and Global Findex surveys for some 250,000 individuals in 140 countries, merged again with EM-DAT epidemic data. One would expect the outbreak of an epidemic to cause respondents to shift from bank-branch-based to ATM-based, online and internet banking in order to avoid close interpersonal contact and potential infection. This shift is evident in the data, and, plausibly, the effects are largest for individuals in regions with 3G signal coverage sufficient to support internet surfing.

But in this case, the effect is evident for individuals of all ages at the time of epidemic exposure. It is not limited to those in their impressionable years. It would appear that epidemic exposure has different impacts on attitudes and actions. When faced with an epidemic and risk of infection, all individuals are equally likely to change their physical behaviour. However, only those in their impressionable years are apt to modify their attitudes toward institutions. Trust in the EU is matter of attitude. This suggests that messaging intended to rebuild trust in EU institutions in the wake of COVID-19 could usefully target Generation Z (individuals born since the late 1990s).

The Aksoy et al. study of trust in government also shows that the negative impact of impressionable-year epidemic exposure is largest in democracies. In democracies, respondents sharply and persistently revise downward their trust in government in the wake of impressionable-year epidemic exposure. The same is not true, however, in autocracies. Evidently, individuals expect democratic governments to be responsive to their health concerns, and where that response is insufficient to head

[83] Previous authors (e.g. Krosnick and Alwin 1989, Giuliano and Spilimbergo 2014) have also shown that experiencing economic and other shocks at this stage in life has a durable and enduring impact on an individual's outlook and attitudes. Other studies similarly establishing this fact include Etchegaray et al. (2019), Akbulut-Yuksel, Okoye and Yuksel (2018) and Farzanegan and Gholipour (2019).

[84] Using 2018 data from the Wellcome Trust, Eichengreen, Aksoy and Saka (2020) consider the impact of epidemic exposure on trust in scientists and on views of the safety of vaccination, finding a negative revision of trust that is again limited to respondents in their impressionable years.

off the epidemic they revise their views unfavourably.[85] By contrast, in autocracies there may not exist a comparable expectation of responsiveness, leading to little impact on political trust.

In addition, democratic regimes may find consistent messaging more difficult. Because such regimes are open, they may allow for a cacophony of conflicting official views. This may result in a larger impact on trust when things go wrong. Both observations – the tendency toward a cacophony of messages and the expectation of responsiveness – apply to the EU.

Aksoy et al. also find that the negative revision of trust is larger and more persistent among people living in countries with weak governments. Weak governments tend to perform poorly in epidemics, and, insofar as they do, individuals will downgrade their confidence in government and trust in its leaders. Cross-country comparisons of COVID-19 policy indicate that weak governments took longer to implement their first non-pharmaceutical interventions. Again, this is consistent with the notion that individuals in countries with such governments became more disenchanted with their country's political institutions and leaders, insofar as those institutions and leaders failed to adequately respond to the countrywide public health emergency.[86]

The external validity of these results remains to be established. One can argue that COVID-19 is different in that it affected countries around the world without exception, where earlier epidemics and pandemics were at least somewhat more limited in incidence.[87] Aksoy, Eichengreen and Saka (2020) in fact ask whether the size of an epidemic is important for their results. They look alternatively at the impact of epidemic exposure of any kind in an individual's impressionable years versus the extent of epidemic exposure in an individual's impressionable years (calculated for each respondent as the number of persons affected by an epidemic as a share of the population, averaged over the eight years when the respondent was aged 18 to 25). The results are stronger (the impact on trust is larger and more significant statistically) when including the extent of epidemic exposure. If the impact on trust rises with the severity of the pandemic, then the reported results represent a lower bound on the impact on trust in government.

One can question whether results obtained using a data set of responses regarding trust in national governments apply also to EU institutions. There is no obvious reason to doubt that they do, but direct evidence would be reassuring. I hope to provide some in future work.

7.3. STEPS FORWARD

What steps can be taken to enhance trust in the EU's institutions in the wake of COVID-19? The answers seem obvious when stated, but it is worth stating them anyway.

First and most obviously, output legitimacy is a source of trust. Therefore, EU institutions that promise to procure safe and effective vaccines in a timely manner and that deliver on that promise will be seen as more trustworthy than EU institutions whose procurement efforts disappoint. Rebuilding

---

[85] Consistent with this, Economist (2020) discusses that democracies typically respond more effectively to epidemics. Our results suggest that when they disappoint this expectation, they are more severely punished. Below we address and dismiss the alternative interpretation that respondents in autocracies are more reluctant to volunteer a lack of trust or confidence in government.

[86] Corroborating evidence is in Sibley et al. (2020). The authors compare self-reported trust in politicians and government among two matched samples of New Zealanders, one assessed before the 2020 nationwide lockdown, the others during it. They find that the lockdown, as executed by a strong, competent government, durably enhanced trust and positive attitudes toward government.

[87] COVID-19 may also differ by the extent of press coverage and presence on social media.

trust therefore means engaging in a retrospective analysis of why things went wrong and reassuring the public that the problem has been not only identified, but also corrected. I'm not aware that the Commission has engaged in this kind of retrospective analysis of its actions during the pandemic, much less published its findings.

Second, the Commission needs to demonstrate to the public that it possesses sufficient institutional capacity in the relevant areas. One reason the Commission found it difficult to negotiate vaccine procurement contracts is that negotiators had too little experience dealing with the politics and economics of novel pharmaceuticals (Charlemagne, 2021). But it is not as if the possibility of a pandemic was a Rumsfeldian 'unknown unknown.' Rebuilding trust requires identifying 'known unknowns' and building up institutional capacity in those areas in advance of when it is needed.

It is reassuring that the Commission has acknowledged the relevance of these considerations by creating a Health Emergency Preparedness and Response Authority (HERA) to detect and address new COVID-related variants and future pandemic threats. In addition, it is also necessary to address the financial and institutional constraints that prevented a more forceful response to the urgent need to fund vaccine development (that the EU itself had limited budgetary resources and limited ability to borrow, and that all EU-27 Member States had to agree to any action taken). Here, Kirkegaard suggests that Member States should pre-approve EUR 20 billion or more EU bonds, resources from which will be earmarked for vaccine development, and authorise HERA to allocate it unilaterally.

This would solve the last problem, namely that of pandemic response, but not the next one, be it climate change, a foreign government, or wherever. Regaining trust requires the EU to demonstrate that it has the resources and structures, including the internal decision making capacity, rules and financial resources to respond quickly and effectively to the next crisis that comes down the line.

Third, evidence of clear thinking and systematic decision making is important. Decisions regarding both public health and the Commission's proposal for a EUR 750 billion Recovery Fund were made at the last minute. Incomplete plans were rolled out under time pressure. With advance planning, the President of the Commission could have consulted a broader range of experts and made better use of its seasoned staff (Mortera-Martinez, 2021). In addition, how decisions are reached, and in consultation with whom, could be better communicated to the public. Transparency is an important mechanism for rebuilding trust. The point applies as much to the Council as the Commission. The Council takes most decisions without a formal vote, obscuring the positions and arguments of Member States (Novak, 2021).

Fourth, messaging needs to be consistent over time and across sources. For example, the episode where mixed messages were sent regarding the efficacy of the AstraZeneca vaccine for individuals over the age of 65 led to confusion. In this case, some of the mixed messaging came from national leaders, who contradicted the position of the Commission. This highlights the need for closer and more continuous communication and coordination between Brussels and national capitals.

Moving from COVID-19-related steps to general measures to enhance trust, it would be useful for the Commission to create unit responsible for institutional self-reflection. This unit would serve as a 'ruthless truth-teller' when it came to evaluating the Commission's response to the COVID-19 pandemic and future challenges to come. The unit would review evidence and solicit opinions from decision makers and observers both from inside and outside the Commission and publish its findings. It would be fully transparent. It could be institutionally independent of the rest of the Commission, hiring independent experts from academia and other national and international organisations, and possessing its own budget.

Other organisations have moved in this direction: the International Monetary Fund's Independent Evaluation Office (IEO) is a case in point. At the same time, experience with the IEO points to some

of the difficulties of this model. IMF officials have sometimes been less than forthcoming in the context of IEO investigations. IMF staff seconded to the IEO may be tempted to 'pull their punches' insofar as they look forward to re-entry into the Fund's other departments.

The Commission should take steps to enhance the effectiveness and transparency of its 'foresight function.' One important function of a policymaking institution such as the Commission is to respond effectively, but also to anticipate the developments and threats requiring a response. More effectively organising that foresight function and sharing its findings would contribute positively to trust in the institution.

In addition, it would be helpful to adopt a transparent, merit- and qualification-based process for selecting the most visible EU leader, the Commission president. The Spitzenkandidaten process, in which the nominee of the largest political grouping in the incoming European Parliament becomes president, does not make for a merit- and qualification-based competition. Rather, the position tends to go to the candidate who attracts the least opposition. Moreover, the nominee of the largest European Parliamentary grouping may not represent the views and values of the EU as a whole or its median voter. Given expectations that other top positions will then be distributed to other political groupings, countries and regions, there can then be a cascade effect, as the selection of one less-than-ideal candidate results in the selection of other less-than-ideal candidates.

These procedures create a lack of accountability for the Commission. Trust would be enhanced by evidence that Commissioners suffer visible consequences from policy failures. In principle, the Commission, represented by the College of Commissioners, can be dismissed by a majority vote of the European Parliament. In practice, this is rarely happens because different party groupings in the European Parliament have consorted in allocating important posts to their nominees, all of which would be lost were the Commission to be dismissed, implying that a portion of the failure fell on their own shoulders.[88]

Accountability would also be strengthened and trust would be enhanced by shrinking the democratic deficit that plagues EU politics. Two proposals for doing so are enhancing the powers of the European Parliament, whose members are directly elected representatives, and moving to directly electing the President of the Commission.[89] The European Parliament could be given the power to initiate legislation, an agenda-setting prerogative that mainly resides with the Commission. The range of Commission proposals requiring Parliamentary approval could be broadened. At present, most EU legislation is adopted through a procedure under which the Commission must only consult with the Parliament, and the latter has only the power of delay.[90] In the limit, all proposals adopted by the Commission could be required to receive the support of two-thirds of the European Parliament, or of the members of the relevant committees, as opposed to just the support of the heads of state and government of countries holding two-thirds of the votes in the Council. All Europeans would then have a voice in EU decision making, insofar as all significant parties have members in the European Parliament – as opposed to the current situation where only voters who supported the national head of state, or the coalition standing behind that head of state, have a voice.

---

[88] Even in 1999, when the Commission was the subject of a motion of censure over allegations of fraud, the European Parliament voted against dismissing the Commission.

[89] As proposed by Eichengreen (2018), from where the next couple of paragraphs are drawn.

[90] This is known for self-evident reasons as the 'consultation procedure.' There is also a 'co-decision' or 'ordinary' procedure where the European Parliament must approve the Commission's legislative initiatives, but it applies only in certain policy areas.

Critics of the European Parliament will object and argue that it isn't capable of providing the democratic accountability after which Europeans hanker (see e.g. Sorace, 2018). Voters don't pay attention to the European Parliament. Turnout in European elections is rarely above 50 per cent. Members work away from their constituents and are known mainly for their lavish expenses and for shuttling between Brussels and Strasbourg. But if the European Parliament had more power to initiate legislation and to approve or reject legislative proposals directly affecting the people, voters would pay attention. They would have an incentive to elect members who more effectively represented their interests.

Directly electing the Commission President would be complex – which is not the same as saying that it would be impossible or undesirable. One approach would be approval voting. Under approval voting, each voter may select (or 'approve') any number of candidates. The winner is the candidate with the largest number of approvals. This approach has the strength of simplicity. It leads to the selection of a candidate with broad electorate appeal (the 'consensus winner'). Outcomes are relatively insensitive to the number of candidates. Approval voting gives minority candidates their chance, since their supporters are not discouraged from voting for them because another candidate is generally considered stronger. Therefore, voters from specific region or constituency would still have the opportunity to vote for a candidate from that region or constituency. All this would be desirable in the EU context.

CONCLUSION

The COVID-19 pandemic creates both opportunities and perils for the EU. While the outbreak of the pandemic produced a 'rally round the flag' effect where support for the EU institutions increased, that initial change appears to have reversed subsequently with the failure to contain the virus. This failure occurred against the backdrop of an ongoing, secular decline in trust in governmental institutions in the EU. If COVID-19 accelerates ongoing trends, then this should set off alarm bells. So should the fact that past epidemics have been associated with diminished trust in government, leaders and elections, specifically on the part of those in their impressionable years at the time of epidemic exposure – today meaning members of Generation Z – the youth of today being the voters of tomorrow. The EU faces daunting challenges, not just the pandemic but also managing and coordinating the green and digital transitions. Lack of trust in EU institutions would greatly weaken the effectiveness of their leadership.

The EU is not helpless in the face of this erosion of trust. Institutions such as the Commission can enhance their output legitimacy by building the capacity to respond quickly and effectively to emergencies, starting with public health emergencies. It can assess its failures, report on them publicly, and take corrective action. The EU can see that those responsible are held politically accountable for their actions. EU institutions can be more transparent and strengthen the consistency of their messaging, which means strengthening coordination with national capitals.

Enhancing trust in EU institutions requires shrinking the democratic deficit. Two routes are by increasing the powers of the European Parliament and changing selection procedures for the Commission President. These issues have been on the table for a long time. The COVID-19 pandemic has highlighted the need to urgently address them.

8. GLOBAL DYNAMICS AND EUROPE'S RECOVERY FROM THE COVID-19 CRISIS GEOPOLITICAL AND GEO-ECONOMIC PERSPECTIVE

Daniela Schwarzer
Executive Director for Europe and Eurasia, Open Society Foundations
Honorary Professor of Political Science, Freie Universität Berlin
Senior Fellow, Harvard Kennedy School's Belfer Center

EXECUTIVE SUMMARY

The geo-political and geo-economic environment in which the European Union operates is changing rapidly in this second decade of the 21st century. Profound shifts have been under way for a while, but the COVID-19 crisis has further accelerated global trends that decisively impact the international context of the EU's economic recovery. This paper assesses these developments and discusses how the EU can better respond to rising challenges. Against the backdrop of a changing international order and the multiplicity of crises, the text argues why the EU Member States have a very strong interest to cooperate more closely among each other as well as with the US and other allies in order protect their security, prosperity and democratic order. Based on the analysis of the EU's geopolitical and geo-economic environment, it discusses how the evolving geopolitical context should impact the thinking about EU policy. The connection between international and intra-European developments is circular: Global and regional developments challenge the EU and its internal cohesion. But stronger European cooperation is needed to build the capacity to shape international developments and governance for future decades. Internal consolidation, including stronger capacity to act and enhanced resilience based on cohesion among and within Member States as well as competitiveness are prerequisites for a stronger EU. The geopolitical and geo-economic context provides a strong rationale for strengthening the EU internally and as an external actor, and the longer policymakers wait with decisions and their implementation, the lower the likelihood that this can be achieved at all.

***

8.1. THE NEW GEOPOLITICAL NARRATIVE AND ITS CONCEPTUAL UNDERPINNINGS

The geopolitical and geo-economic environment in which the European Union operates is changing rapidly in this second decade of the 21st century. Profound shifts have been under way for a while, but the COVID-19 crisis has further accelerated global trends that impact on the international aspect of the EU's economic recovery.

In November 2019, European Commission President, Ursula von der Leyen, introduced her 'geopolitical Commission' (von der Leyen, 2019), acknowledging the growing international challenges the European Union is facing. What does this term signify? In international relations theory, geopolitics refers to the study of relationships between states (Dodds, 2007). The concept puts strong emphasis on a state's power resources and considers the effects of geography as well as the leverage governments have to defend their interests. While it acknowledges that global and regional governance frameworks affect governments' behaviour, it underscores the notion of competition between sovereign states. In line with this realistic world view, the EU's High Representative for Foreign Affairs and Security Policy and Vice President of the European Commission, Josep Borrell, has repeatedly claimed that the EU needs to 'learn the language of power' (Borrell, 2020), suggesting that it should define and defend its interests more proactively and in a more competitive manner.

As the debate on a stronger role for the European Union has heated up in recent years, the concept of 'strategic autonomy' is more and more frequently used, for the first time in the Conclusions of the European Council in 2013: 'Europe needs a more integrated, sustainable, innovative and competitive defence technological and industrial base (EDTIB) to develop and sustain defence capabilities. This can also enhance its strategic autonomy and its ability to act with partners' (European Council, 2013). The concept also featured prominently in the EU's 2016 global strategy which raised the EU's level of ambition.

The fact that stronger and more forward-looking foreign, defence and security policies have become a priority for many EU Member States is due to the EU's new geopolitical environment characterised by an increasingly aggressive Russia in the EU's direct neighbourhood, an authoritarian China that expands its global influence as well as uncertainties about the reliability of the EU's most important ally, the US. Russia has repeatedly violated the principle of territorial integrity of sovereign states. It intervened in Georgia in 2008, forcefully moved borders as it annexed Crimea in 2014 and is involved in a proxy war in eastern Ukraine. The troop build-up on the Ukrainian border in winter 2021/22 constitutes a massive security threat. Meanwhile, China is rising to become the number one world power with the declared goal to re-shape fundamental principles of the current Western liberal order.

The goal of giving the EU the capacity to decide and act autonomously gained even more salience when the EU's most important ally, the US, started challenging the EU and selected Member States during Donald Trump's presidency (2017-2021) in order to achieve better trade deals, push up European defence spending and ensure European governments' alignment with US foreign policy.

Trump's questioning of the transatlantic alliance NATO was a particular challenge, as European self-protection and defence was underdeveloped throughout two distinct geopolitical periods: during and after the Cold War. During the Cold War the US provided protection to Europe, to the extent that the members of the European Community could dodge tough security issues, turning security and defence matters over to NATO. Most European governments expected the US to be available to intervene in areas close to the EU even after 1989, such as in the Western Balkans in the 1990s. After the end of the Cold War, Europe appeared to be without enemies nearby, as the Western political model was expanding into the Eastern neighbourhood and was at some point expected to gain traction even in Russia. While the US gradually shifted its focus towards protecting its interests in other regions, in particular in Asia and as part of its fight against terrorism in the Middle East, European countries' defence capabilities continued to decline.

When the Trump administration imposed tariffs and extra-territorial sanctions on European allies and threatened to withdraw American security guarantees a number of governments decisively pushed for measures to enhance the EU's capacity to act. Others argued that a pursuit of a strategically autonomous EU might be counterproductive, warning that it could further alienate the US (Schwarzer, 2021). This controversy highlights one of the fundamental uncertainties the EU is facing: to what extent its relationship with the US - its most important partner in defence, security and economic terms - can be considered reliable beyond the Biden administration, and if not, whether the EU should strive for a stronger capacity to act. Diverging positions between Member States in this debate are not only based on their respective assessment of US politics, but are also a result of their perceptions of threat, particularly regarding to Russia. Bilateral armament procurement relationships, in some cases with American companies as sole providers, are another reason why some governments are reluctant to engage in policies that could reduce European dependence on the US Moreover, some Central and Eastern European Member States see the US as an offshore counterbalance to Franco-German leadership, which is perceived to have strengthened following Brexit.

Despite inner-European divergence over the question to what extent the EU should work towards strategic autonomy, the EU implemented important new initiatives in security and defence as of 2017. Building on the raised level of ambition of the global strategy, the Coordinated Annual Review on Defence (CARD) was launched in May 2017 to foster a gradual synchronisation of national defence planning cycles and capability development practices. The *first CARD report* (European Defence Agency, 2020), containing conclusions and recommendations for future cooperation, was presented by the European Defence Agency (EDA) to Defence Ministers in November 2020. In December 2017, the Permanent Structured Cooperation (PESCO)[91] was established by 25 EU Member States as a tool intended to provide Europe with *"a coherent full spectrum force package, in complementarity with NATO"*. In March 2018 and in November 2018, two lists of 17 projects were approved by the Council. Based on a Communication by the European Commission (European Commission, 2017), the Council and the European Parliament in 2019 and 2020 respectively agreed on the establishment of a European Defence Fund (EDF) to co-finance collaborative European projects in the domains of defence research and capability development. The Fund started functioning on 1 January 2021 with a budget of €7.953 billion for the period until 2027. In addition, the Capability Development Plan (CDP)[92] was established to provide a full capability picture that supports decision-making at EU and national levels regarding defence capability development. It looks at future security threats, identifies capability needs and defines EU Capability Development Priorities commonly agreed by Member States. The European Defence Agency today plays a central role in all four areas and ensure coherence among the instruments.

Working towards strategic autonomy has both a defensive and an offensive aspect. The defensive aspect consists of reducing the EU's external dependence and vulnerability. The notion of EU dependence on external partners was first developed in EU documents focusing on raw materials (European Commission, 2011). Since 2020, more and more initiatives are anchored in the geopolitically motivated thinking about the EU's strategic autonomy. Today, the defensive perspective is employed to broader questions of security, and includes economics, finance as well as tech, as the controversial debate over the risks of having Huawei supply 5G technology in EU Member States illustrated. The European Commission's Communication on the EU's industrial strategy of 10 March 2020 explicitly acknowledges the EU's dependence and places the concept of strategic autonomy within a broader policy spectrum: it 'is about reducing dependence on others for things we need the most: critical materials and technologies, food, infrastructure, security and other strategic

[91] European Defence Agency *Permanent structured cooperation (PESCO)*. https://eda.europa.eu/what-we-do/EU-defence-initiatives/permanent-structured-cooperation-(PESCO)
[92] European Defence Agency *Priority setting*. https://eda.europa.eu/what-we-do/EU-defence-initiatives/priority-setting

areas. They also provide Europe's industry with an opportunity to develop its own markets, products and services which boost competitiveness.'" Lately, healthcare became central, as bottlenecks in medical supplies during the COVID-19 crisis highlighted European vulnerabilities and the lack of alternative supplies. Two key examples of the EU stepping up defensive measures in the area of foreign direct investment are the Communication on *Foreign direct investment Screening* adopted in March 2020 (European Commission, 2020a) and the *EU Foreign Investment Screening Mechanism*, adopted in 2019 under the Juncker Commission and operational in October 2020 following its integration into national law.

The more offensive aspect of work on the EU's strategic autonomy focuses on developing the EU's markets, products and services externally. The most notable initiative is the Communication *Shaping Europe's Digital Future* of February 2020 (European Commission, 2020c), which goes beyond a defensive approach in that it clearly sets the goal for the EU to develop its own key capacities in the most crucial technologies and its ability to define its own rules and values.

As both Commission President von der Leyen and High Representative Borrell suggest, Europe needs to strengthen its global power projection for a new epoch and represent its own interests more forcefully. This may incur significant costs that weigh on the economy, for instance if the EU reacted to Russian aggression towards Ukraine or a Chinese attack on Taiwan with economic sanctions. The challenge for the EU and its Member States is to develop a coherent and strategic outlook onto the world, define its goals in the light of new challenges and build up resources to underpin it, while at the same time supporting internal EU cohesion and the will to cooperate.

Against the backdrop of geopolitical and geo-economic developments that have profoundly changed the EU's international environment, this paper argues that, unless the EU is internally consolidated and strengthened, it cannot protect itself and enhance its international role and co-shape the economic, political and security order in which it operates and in which economic and foreign policy, security and defence issues are intertwined in unparalleled ways.

8.2. CHANGING POWER RELATIONSHIPS

8.2.1 The relative decline of the West

Since the 1990s, economic and demographic weight has shifted from the geographical West to Asia, driven in particular by China's rise. For decades, the share of the 27 EU countries and the US in global economic power has fallen year by year. In 1970, according to the World Bank, its global GDP share was still over 60% whereas in 2021 it will fall to only 40%. The COVID-19 crisis has accelerated this trend as economic recovery is, according to European Commission forecasts, expected to be strongest in emerging and developing Asia, largely due to the strength of China's recovery (European Commission, 2021c). Large differences in vaccination rates between countries are adding to the unevenness of the recovery (European Commission, 2021c). Renewed outbreaks of the virus will continue to force some countries to restrict activities, resulting in bottlenecks and pressures on supply chains (OECD, 2021). The longer it takes for Europe to recover from the pandemic, the more it risks falling behind the rest of the world.

A continuously sluggish economy would affect the innovative strength and competitiveness of European companies, if private investment in research and development declines. Already before the pandemic, R&D expenditure relative to GDP in the EU at 2.19% was lower than in Japan (3.28%) and the United States (2.82%) (Eurostat, 2021c). Innovative strength and technological advantage are not only the basis for economic competitiveness, but also increase the strength of security and defence policy. A race to control new key technologies that can be used both in the civilian and military sectors is ongoing, for example in artificial intelligence, cloud computing, quantum internet and 5G.

In demographic terms, too, the transatlantic community is falling behind globally. Today, Europe and the US together account for only one-tenth of the world's population, as Africa and other Asian countries are experiencing high population growth. There are important differences in Asia with India growing very strongly, but North-East Asia (Japan, Korea and even Taiwan) as well as China are ageing rapidly, losing about 30 million people by 2050. In 1970, Europe and the US still accounted for 16% of the world's population, and at the time, their transatlantic economic and military strengths far exceeded their population share. Today, Europe and the US are becoming proportionately weaker in all areas compared to the rest of the world.

From a European perspective, its shrinking and ageing population are areas of concern, because one of the EU's key strengths in today's global competition is its large single market with consumers with strong purchasing power. If the European market shrinks because there are fewer consumers or their purchasing power falls, the EU loses negotiating power in trade policy and in standard setting and regulation, and cannot fully assert its economic interests and principles such as consumer and environmental protection. Its 450 million consumers outnumber the 328 million in the US, and consumers in the EU are financially stronger than their Chinese counterparts: China's average per capita income is so low, despite a rising number of consumers with high purchasing power, that it is still considered a developing country, although it has long been a world leader in future technologies.

The discussion about the role the West and its relative decline was for long mainly driven by the rise of Asia in terms of economic and innovative power, demography and defence. Over the past decade, however, the strategic alliance and cohesion of the political West, and in particular the role of the US came to the forefront of the debate, as Europe's most important military ally and economic partner started to increasingly focus on Asia. US President Obama announced a 'pivot to Asia' during a speech at the Australian Parliament in 2011. Acknowledging the rising importance of the Asia-Pacific, he committed to an 'enduring presence in the region. The United States is a Pacific power, and we are here to stay' (Obama, 2011). China was at the time considered as a rising challenger, but not as an existential danger to the Western liberal world order, as the expectation was at the time that China would slowly but surely transform into a more liberal, democratic and economically open country. The strategic refocusing of the US, however, did not result in a withdrawal from Europe, in particular not when the annexation of Crimea in 2014, Russia's intervention in Eastern Ukraine and its increasing use of hybrid warfare in the EU and neighbouring countries showed that Russia was challenging Europe's security order.

The rise of Asia and in particular China's expanding role, however, is increasingly seen as the bigger strategic challenge to the US and to the international order. From the US perspective, the relationship with China, the digital autocracy which pursues global power expansion including the support of other autocratic regimes, has turned into systemic competition that expands well beyond the two superpowers and their immediate neighbourhoods. China's rise is seen as an existential risk to the rules-based international order built under American leadership in the second half of the 20th century to protect values such as human rights and freedoms, the rule of law, and democracy, and to set the institutional framework for free market economies and international economic integration. The current US administration thus seeks to prevent China from achieving global dominance that would allow it to shape and operate the global order and seeks closer cooperation with partners in the Indo-Pacific and Europe.

For both the EU, the US and other likeminded allies around the world, as autocracies are on the rise and democracies are under increasing pressure, the question is whether the liberal international system can be further developed to withstand challenges. Given the rise of transnational challenges in the areas of climate, health, security and migration (see below), a key challenge is for systemic competitors to collaborate in prevention and to deal with their consequences since they can no longer be prevented. A final key question is whether regional orders and influences, i.e. authoritarian states

such as China, Russia, Turkey and Iran, will continue to expand their influence and bring other states, even those in the immediate vicinity of the EU, under their control.

These challenges reveal the extent to which the EU is dependent on the US in security and defence as well as economic terms. It is less seldom acknowledged, though, that the US also depends on close transatlantic cooperation. President Joe Biden prioritises the defence of democracy and the Western liberal order, albeit weakened by the internal divisions and fragilities in the US system. The current US administration needs European capitals and the EU as partners in the power struggle with China and in the support for the rules-based liberal order. This opportunity should be sized by the EU and its Member States as his predecessor, Donald Trump, undermined the existing liberal order and American democracy and showed Europeans how quickly the closest ally can turn into a threat to Europe's open economic and liberal democratic model. In order to cooperate with allies around the world in times of systemic competitions, given the EU's relative decline in economic, defence and demographic power, it needs to use existing resources more effectively. Stronger European cooperation and a smarter pooling of resources in defence, research and development can compensate at least a part of the loss in relative weight, provided that governments of EU Member States recognise their medium- and long-term interest to do so and succeed in cooperating better. With the single market and its unified trade policy being the EU's most important soft-power asset in increasing geopolitical competition, EU internal policies that support cohesion, in particular during today's dual challenge of climate and digital transition, gain salience. As the EU's and the combined political West's relative weight shrinks, it becomes all the more important to avoid any risk that the single market or the euro get undermined or break apart which is why policies to complete the single market and the European Monetary Union should be prioritised.

8.2.2 The global rival China

The COVID-19 crisis has accelerated China's catch-up, as the pandemic was contained comparatively quickly there. China's economy – which unlike most economies did not contract in 2020 – is expected to grow a solid 8.5% in 2021 and, like the US, is expected to contribute to about one quarter of global growth (World Bank, 2021). When measured by Purchasing Power Parity, China is already the largest economy in the world (International Monetary Fund, 2022). According to the Center for Economics and Business Research (CEBR) report, (Centre for Economics and Business Research, 2021) China's effective pandemic response will boost its relative growth compared to the US and Europe so that it will overtake the US to become the world's largest economy by 2028 in absolute terms, five years earlier than previously forecast.

China is pursuing its economic interests in the Indo-Pacific region and well beyond. The political leadership has outlined its goals and strategy in publicly available documents: a strategic centrepiece of President Xi Jinping's global power expansion is the 2015 industrial and technology strategy 'Made in China 2025' which envisions three stages for China's industrial and technological development over a decade. Western governments have long underestimated how purposefully China would implement the strategy. Combined with the 'China Brain Project 2030' which promotes human-like, higher-level artificial intelligence (AI), and the 'China Standards 2035' strategy, China seeks to be the world's leading industrial nation by 2049, the centennial of the People's Republic. Beijing combines the development of innovative strength and competitiveness with global standard setting seeking to systematically displace Europe and the USA.

In order to develop its power and influence abroad, China has built economic dependencies for a good decade through an orchestrated mix of investments, commodity and trade agreements and major infrastructure projects which have allowed it to significantly expand its power base in Europe and Central Asia, in Africa, Asia and Latin America. As Gelpern et al. (2021) show, Chinese loan contracts to fund infrastructure projects in developing countries are often opaque, involve political conditionality, and explicitly rule out debt restructuring through multilateral procedures which

cements dependence. The economic expansion strategy is flanked by diplomatic efforts, pressure and intervention in the internal affairs of states.

In 2012, China launched the 16+1 format to court Central and Eastern European as well as Southern European states. It initially included five Balkan states (Albania, Bosnia and Herzegovina, Northern Macedonia, Montenegro and Serbia) as well as eleven EU Member States (Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia). Greece joined in 2019 after China invested heavily in the country. The Chinese premier meets annually with the political leadership of the involved countries, including to discuss the Belt and Road Initiative (BRI) through which China is building and expanding intercontinental trade and infrastructure networks with more than 60 countries in Africa, Asia and Europe. The Pupin Bridge over the Danube in Belgrade, a highway in Montenegro, the Piraeus port in Athens, the Lagos-Ibadan rail line in Nigeria and a rail line in Hungary are examples of Chinese supported infrastructure investments. China's influence through investment, joint ventures, and lending in Central and Eastern Europe and the Western Balkans has grown significantly.

These meetings offer smaller countries direct access to Chinese leadership funding that they could not get individually. But recently the governments involved have become more critical. In February 2021, six of the twelve EU Member States announced that they would not join with their heads of government, but would only participate at the ministerial level, given the dispute and mutual sanctions following human rights violations against the Uighurs and the Chinese incursion into Hong Kong. Chinese President Xi Jinping brought more attractive offers to the talks, suggesting doubling agricultural imports from participating countries to China within 5 years and simplifying customs procedures. He offered to quickly supply Chinese vaccines, in addition to Hungary and Serbia who were already negotiating contracts. Such targeted offers in times of crisis suggest that the Chinese leadership uses the format to create stronger political dependence and to sow political division. In May 2021, Lithuania exited the 17+1 format and get sanctioned by China. The Lithuanian foreign minister Landsbergis warned that 'it is high time for the EU to move from a dividing 16+1 format to a more uniting and therefore much more efficient 27+1. The EU is strongest when all 27 Member States act together along with EU institutions' (Lau, 2021).

The challenge for EU leaders is indeed to keep the EU united facing China, in particular as the political consequences of China's billion-dollar investments in European infrastructure are tangible. State-owned shipping companies now own significant stakes in at least 13 European ports (Kakissis, 2018), and Chinese telecommunications equipment suppliers Huawei and ZTE have a strong presence in Southeastern Europe, as well as in Germany. Chinese company Huawei Marine Networks is building the Finnish digital cable project 'Arctic Connect' in the Russian far north, which connects Europe with Asia and is the longest undersea cable in the world. As part of the Belt-and-Road-Initiative, China provides energy infrastructure and investment into other countries' grids in order to reduce its vulnerability to energy supplies, promote its own high-tech products such as extra-high voltage transmission lines, and set future technology standards.

When countries relinquish control over their infrastructure and create the need for long-term collaboration, this potentially affects their independence and resilience, given the possibility of cutting off power grids or blocking access to a port. Diplomats see evidence of Chinese influence: Hungary initially blocked European sanctions over human rights abuses against the Uighurs, and Greece held up an EU statement critical of the human rights situation in China at the UN Human Rights Council in 2017, after the Chinese parastatal shipping company Cosco had acquired majority shares in the Greek port of Piraeus. To quote a senior official who wishes to remain anonymous: 'When we negotiate in Brussels, Beijing often is effectively at the table.'

In addition to investment, China has purposefully increased its trade footprint. In response to US and European efforts to reduce economic dependency on China in October 2020, President Xi Jinping

announced the goal of increasing other countries' dependence on Chinese supply chains in the Chinese Communist Party's (CCP) Qiushi magazine. US President Donald Trump emphasised the idea of 'decoupling' as a strategic measure to reduce dependencies on China. In Europe, the concern about dependencies gained prominence in the COVID-19 crisis, given the supply shortages of medical materials and the fear that China could buy into European value chains during the economic crisis, while the political and economic costs of a broader decoupling from China seem prohibitive.

China is now the world's largest exporter of goods, having displaced the United States as the largest trading partner for much of the world. As part of its global strategy, China signed a trade agreement, the Regional Comprehensive Economic Partnership, with US allies such as Japan, South Korea, Australia and New Zealand in 2020. The Comprehensive Agreement on Investment (CAI) with the European Union was draw up in December 2020 but appears unlikely to be ratified by the EU. This, together with the announcement of a customs initiative with Eastern European countries, new trade agreements with countries in the Middle East and Africa, and a regional agreement with Japan and South Korea, shows how aggressively China is developing its economic relations. In 2020, China also overtook the US as the largest recipient of foreign direct investment. China is still an attractive country because of its dynamic development, although concerns are growing among European companies about Chinese surveillance and potential crackdowns.

China is not only gaining weight in absolute and relative economic terms. Also its military investment is growing. Its declared defence expenditure is the second highest in the world after that of the US Over the past ten years, the defence budget has grown faster than China's gross domestic product and in 2020 it reached USD 252 billion according to an estimate made by the Stockholm Peace Research Institute (SIPRI) in April 2021 (Stockholm International Peace Research Institute, 2021). And yet, its military catch-up is only partially reflected in these numbers as China's actual defence expenditure is not nearly as transparent as that of Western countries. The implementation of a long-term strategy that aims at a partial merger of the military and civilian sectors makes it difficult to discern what purpose seemingly civilian technology and economic policy measures have in the interplay with defence and armaments policy. We can therefore assume that more is spent on the rapid modernisation of the Chinese military than the official figures suggest.

Not only China's investment, also its policy has also become increasingly aggressive. China clashed militarily with India in the Himalayas in 2020 and deprived Hong Kong of its treaty-guaranteed rights of self-determination after a brutal crackdown on protesters and journalists. In the South China Sea where disputes with other littoral states over maritime territory are commonplace, the navy is demonstrating its rapidly growing strength. Moreover, warships, including a Chinese aircraft carrier, have repeatedly engaged in show-of-force operations near Taiwan. The Chinese leadership claims sovereignty over the de facto self-governed island and is increasingly critical of the US stance on Taiwan. China's rise as a military power is not going unchecked. India is increasing defence spending and seeking closer cooperation with US, Australia and Japan (the Quad) in the attempt to counter China's military build-up. Both the US and Britain have increased their military presence in response to China's growing presence. When asked whether the US would come to Taiwan's defence in the event of an attack by China, Joe Biden responded that the US has 'a commitment to do that' (McDonnell, 2021). Although this statement was probably made 'off the cuff', the risk of military conflict between China and the US and its allies in the Indo-Pacific has grown. The new Chinese ambassador to Washington DC used his first media interview in January 2022 to warn of the possibility of a war (Sevastopulo, 2022).

In the event of an escalation, the consequences would at least be threefold for European governments: the US could ask them to impose severe economic sanctions or, in a more severe case, joint military action. Economic costs would be high for Europe, not only because of sanctions and countersanctions. Up to 30% of the international trade in goods that are indispensable for a functioning global economy is shipped through the straits in the Indo-Pacific. Trade requires safe and stable trade routes to be fully

developed and prosperity is consequentially directly dependent on security, including on secure sea routes in the Indo-Pacific. The need for Europeans to engage more strongly and more strategically in the Indo-Pacific with like-minded partners in the region or with presence in the region has clearly risen.

8.2.3 The regional rival Russia

Russia has turned into an increasingly dangerous EU neighbour, as illustrated by the build-up of troops on Ukraine's Eastern border and the fear of a further military intervention in Ukraine. Russia is a leading global military power, following just behind India in terms of military expenditure (Stockholm International Peace Research Institute, 2021). It has made itself an unavoidable actor in the Middle East, for instance in Syria, the development of which is of crucial importance to the EU. Russia played a key role in defining the conditions of conflict settlement, whereas the EU and its Member States were absent from the peace negotiation. Russia is furthermore the EU's main prime energy supplier as it is the geographically closest and cheapest, covering more than 40% of the EU natural gas and coal imports and almost a third of the EU's oil imports, which also strengthens its geopolitical role.

Since 2014, Russia has undermined the European security order through its annexation of Crimea and the proxy war it has since fuelled in Eastern Ukraine. In winter 2021/2022, Russia amassed troops on the border of Ukraine and tabled proposals for a reform of the European security order. For the EU, the significance of the events in Ukraine thus go well beyond the country itself. They illustrate the extent to which the European security order fell into crisis after the end of the Cold War and is questioned by Russia. In previous years, tensions between the US and Russia had already undermined the binding force of important arms control agreements, such as the Treaty on Conventional Armed Forces in Europe (CFE Treaty). The annexation of Crimea in March 2014 then showed that Moscow did not accept free alliance decisions by Eastern European countries, including economic, political and legal cooperation, after having been overtly critical of NATO's eastward enlargement in 1999 and 2004. Russia's intervention in Ukraine represents a breach of international law, the Helsinki Principles, and the Budapest Memorandum, all of which have been pillars of the European security order since 1989. After Russia formally joined the G7 in 1998, making it the G8, Moscow's annexation of the Crimea region of Ukraine in March 2014 resulted in its indefinite suspension of the group. Russia also supports Belarus, the government of which since autumn 2021 have weaponised migrants for blackmail purposes and deliberately brought thousands of migrants to and across the EU-border to Poland. Poland has accused Russian leader Vladimir Putin of organising and orchestrating the migration crisis on the Belarusian-Polish border to put pressure on and destabilise liberal democracies in the EU.

Russia's aggressive behaviour made a basic assumption of the EU's Eastern Neighbourhood Policy obsolete, namely that states were free to choose a closer relationship with the EU and that there was no either-or between participation in the EU's Eastern Partnership and a close relationship with Russia including membership in the Eurasian Union. While it remains the EU's goal to strengthen relations with its eastern partners and with states in Central Asia, where Russian and Chinese influence have increased at an alarming rate, the EU has become more cautious. It had underestimated as how confrontational Russia perceived the EU's overtures to its neighbours to be and how much pressure these countries would be put under.

It is not only the EU's approach towards its Eastern neighbourhood that has been challenged, but also Europe's policy towards Russia itself. After the end of the Cold War, Americans and Europeans hoped that Russia would democratise and become a partner in the US-led international order. NATO and the EU therefore established various cooperation mechanisms with Russia at the turn of the millennium. The 1997 NATO-Russia Founding Act and the NATO-Russia Council allowed reliable security cooperation for many years. After the terrorist attacks of 11 September 2001, Russia, which was no longer seen as a global political and ideological adversary, played an important role for NATO in

ensuring the logistical supply of American and European troops in Iraq and Afghanistan through Russian airspace. In addition to the fight against terrorism and the attempts to stabilise the situation in the Middle East, cooperation on the non-proliferation of nuclear weapons was of particular importance.

Despite Russia's intervention in Georgian in August 2008, the EU and Russia continued to build a strategic partnership in recognition of their mutual dependencies and the advantages of a cooperative neighbourhood. This included increased cooperation in economics, trade, energy and climate, research, education and culture. The European Union supported Russia's accession to the World Trade Organization (WTO) in 2012, and a possible free trade area from Lisbon to Vladivostok was openly discussed. But internal developments showed that Russia's domestic politics were evolving differently than its Western partners had hoped. The Kremlin tightened its control of the media and civil society organisations as well as of its political opponents.

In parallel to the illegal annexation of Crimea and support for the separatists in the Donbass, Russia expanded its hybrid attacks on the EU and its eastern neighbourhood, combining cyberattacks, disinformation campaigns and manipulation of social media. More and more cases of attempted influence became known. Emmanuel Macron's 2017 election campaign was the target of Russian hacking attempts and propaganda campaigns, and US intelligence agencies confirmed that Moscow-commissioned hacking groups had interfered in the 2016 election campaign to shake confidence in American democracy, denigrate Democratic presidential candidate Hillary Clinton and boost her rival Donald Trump (United States Senate, 2019).

Russia today causes uncertainty, disruptions and feeds internal divisions within EU Member States and within neighbouring countries in multiple ways such as the weaponisation of migrants and could use gas supplies to several European countries as leverage in Ukraine conflict. With supply shortage and record-high gas prices in the EU, Russia uses its geopolitical leverage. Sanctions by the US and EU and countersanctions possibly leading to even greater disruptions in energy provision with supply cut-offs in the event of an escalation of Russian intervention in the EU's neighbourhood, and most notably Ukraine, could weigh heavily on the EU's economic recovery and societal resilience. Although the EU has sought to reduce its dependency on Russian natural gas import, Russia continues to supply over 40% of EU gas consumption (Eurostat, 2022). In the event of a supply freeze, Europe would have the more expensive option to purchase more natural gas from other supplier countries via pipelines or to import more liquefied natural gas (LNG) for instance from the US

8.3. TRENDS SHAPING THE INTERNATIONAL SYSTEM

8.3.1 Global challenges and multilateral governance

Anthropogenic climate change, degradation in ecosystems and the decline in biodiversity as well as increasing migration, social cohesion and inequality, all contribute to the rise of global conflict and will fundamentally challenge the global order and multilateral cooperation. The economic and societal consequences of the pandemic will continue to intensify as the population is projected to grow to nearly 9.7 billion people by 2050 and almost 11 billion by the end of the century (United Nations, 2019).

The trend of increasing infectious diseases has become apparent in recent decades, most recently with the COVID-19 pandemic. Changing climate conditions that affect the life cycles and habitats of mosquitos, loss of habitats through deforestation and the dismantling of life on earth are among the factors that increase the risk of diseases passing from animals to humans (Harvard T.H. Chan School of public Health, 2021). Many of the root causes of climate change therefore increase the risk of pandemics like COVID-19.

The consequences of climate change are furthermore central causes of hunger and poverty worldwide. When global warming causes harvests to fail and weather extremes to destroy habitats, more and more people find themselves forced to leave their homes. The World Bank estimates that up to 143 million people could become climate refugees by 2050 (Rigaud et al., 2018). The continued degradation of nature as well as regional population growth impacting the use of land and resources will add to stress and chaos on local residents, public health, economies and ultimately the stability and order of society. According to the Global Risks Perception Survey (GRPS), large parts of the global population face an increasingly insecure outlook and perceive "livelihood crises" as one of the most potentially severe risks in the coming decades (World Economic Forum, 2022).

Socioeconomically disadvantaged groups and countries in the global South will be disproportionately affected by the consequences of climate change and other global transformations. Since the start of the COVID-19 crisis, social-cohesion erosion is the risk that has worsened the most globally (World Economic Forum, 2022). Research by the World Bank estimates that by 2030, 51 million more people are projected to live in extreme poverty compared to the pre-pandemic trend (Dooley, 2021). According to the GRPS, when asked about how respondents felt about the outlook for the world, over 84% were either concerned or worried, whereas only 16% were positive or even optimistic (World Economic Forum, 2022).

Effective national and international action to cope with the abovementioned challenges depends on restoring trust within societies, mobilizing national and international leaders and finding new opportunities for cooperation in multilateral fora like G7 and G20. As the EU is investing in its own climate transition and together with the Biden administration and other partners seeks to engage governments worldwide, the German G7 presidency seeks to advance a "cooperative and open climate club" in which club members can commit to climate action and clean transition and benefit from international carbon dividends, joint climate finance and technology transfer (Goldthau and Tagliapietra, 2022). The European Union should push this effort, leverage trade to incentivise climate action and extent the club to G20 level.

8.3.2 New risks and the changing nature of conflict

It is not only the increasing impact of transnational crises and the rise of the tech-based authoritarian China, the refocusing of the US on Asia and the relative loss of weight of the EU in economic, defence and demographic terms that gradually changes the way Europeans perceive international opportunities and threats. New security risks and instabilities in Europe's neighbourhood due to a more aggressive Russia are on the rise. Meanwhile, the population in at least a few Member States is comparatively unconcerned, and threats tend not to be perceived as realistic. The absence of war within the EU's borders and the comparatively stable level of prosperity despite various economic crises have led Europeans to feel safe. This is, on the one hand, a great success of integration as a peace project for over six decades. On the other hand, underdeveloped risk assessments explain the underinvestment in security and defence and contribute to the EU's vulnerability as the nature of threats evolve.

The European security situation has changed compared to the 1990s, when a phase of stability dawned after the end of the East-West conflict and the Western, cooperative approach seemed to be on the rise. In its immediate and wider neighbourhood including the Middle East, Europe must expect continued instability, and in the coming decade the dangers posed by it are likely to grow even more. Unless the EU steps into political vacuums that the US leave behind as they disengage from the Middle East, other regional powers such as Turkey or Russia will continue to expand their influence and power base, including by exploiting instability and conflict, as the example of Syria has shown. Terrorist groups will expand their networks and capabilities in zones of instability, such as Afghanistan after the withdrawal of American and European troops, and may be a growing security risk for the EU. Meanwhile, migratory pressures are likely to increase, in part because of instability in the Middle East

and Africa and because climate change and the resulting scarcity of water and food are driving people from their homes.

Hybrid attacks increasingly threaten our security. Actors like Russia and China combine economic pressure, cybercrime, the targeting of discussions on social networks and the manipulation of information in the media. Their goal is to cause confusion, destabilise societies, and influence public opinion. Hybrid attacks are below the threshold of official war and their impact is therefore often underestimated. In recent years, European institutions, governments, parliaments, businesses, and civil society organisations have repeatedly and increasingly become victims of cyberattacks, as shown in the regularly updated survey of cyberattacks on significant institutions by the Washington-based Center for Strategic and International Studies (CSIS) (2021). In 2020, there was an increase in attacks related to vaccine development, such as those against the European Medicines Agency, individual governments, and even companies. There were both espionage and sabotage attempts. Attacks on critical infrastructure are also on the rise, and if successful, they can have dramatic consequences for public safety and sustainable supply.

To better protect the community from digital vulnerabilities and cyberattacks in the future, the responsible EU cybersecurity agency ENISA has been strengthened financially and with additional personnel in 2019. Such investments are important, and yet, due to the diversity and complexity of the threats, we can no longer assume today that society, the economy and public infrastructure can be comprehensively protected at all. Incidentally, for all its other benefits, the pandemic-driven digitisation of our working world creates numerous new opportunities for attack.

Today, it is no longer just a matter of anticipating threats and fending them off. The goal must be to increase the resilience of infrastructure, the economy and society, i.e. ensuring that systems, organisations and even individual people recover as quickly as possible from shocks and disruptions and return to a functioning state instead of collapsing. Uncertainty has become the norm; disruptions and disasters must be expected. Just how powerful the impact of cyberattacks can be was demonstrated by the spring 2021 hacking attack on the Colonial Pipeline in the US, through which about 45% of the fuel consumed on the East Coast flows (Krauss et al., 2021). Operations had to be temporarily shut down after the attack, and parts of the country experienced gasoline shortages. In Washington, the nation's capital, 88% of gas stations ran out of fuel at times.

In light of the rapidly changing security situation, the EU's External Action Service (EEAS) has worked on a first comprehensive European threat assessment with input from all Member States. This classified document provides a common picture of the threats that, until now, had not existed. The respective geographic location, the acute experiences of the past years, but also the history of the states strongly influence which challenges they perceive. In the Baltic States and Poland, for example, Russia is at the top of the list as a military and hybrid threat. In France, Belgium and Spain, while the threat that Russia poses in particular since the military build-up on the Eastern border of Ukraine is acknowledged, the attention has been more focused on the development of Islamist networks and the situation in Africa and the Middle East. Bringing these perspectives together in a shared threat assessment is an important base for the increasingly close cooperation in the area of defence and security since 2017. Moreover, the Council will approve an important security policy document, the 'Strategic Compass' prepared by the EEAS in March 2022. Based on the **shared assessment** of the strategic environment and the threats and challenges the EU and its members are facing, it will set out targets and milestones in order to improve the EU's collective ability to defend the **security**, building on the progress in defence cooperation made since 2017.

In view of these differences in perspective, a permanent intra-European dialogue on threats, and how to defend against them, is necessary. There will only be a common understanding of the options for action when the EU has to decide how to act in a real life case. Both the encompassing threat assessment and the Strategic Compass which will set out concrete measures to improve the EU's

ability to provide security threat analyses, are important steps forward for the EU's cooperation on defence and security: so far, strategic discussions have taken place primarily at national levels and in the NATO defence alliance. A joint strategic situation analysis is an important foundation for greater operational effectiveness of civilian and military capabilities. This should entail an interdepartmental approach as the pressure on the EU currently arises primarily from hybrid threats and the danger of terrorism on European territory, ministries of the interior are increasingly responsible for security in addition to the ministries of defence. But policy fields such as economics and finance are also relevant in a world in which new and old security risks are intermingled with economic rivalry and geo-economic conflict. Horizontal cooperation across policy areas needs to be strengthened at Member State and EU level.

8.3.3 The geo-economic world

Economic power has always been a decisive factor in the international system – also for the European Union whose leverage as a soft power is mainly based on its large and integrated market and its economic openness. Combined with available public finances, economic power provides the material basis for military capacity building and potentially influential foreign and development policies. But today, resourceful policies are no longer the only decisive factor. The relationship between economic power and state power in the international system has changed with the growing interconnectedness brought about by globalisation.

In today's geo-economic world, economic and financial instruments are used to pressure governments to adjust their choices. In contrast to the more static, space-focused geopolitics of the Cold War, the geo-economic contest between the US, China, Europe and other world regions is much more dynamic. In addition to the protection (and in some cases like Russian expansion) of the territory under a state's control, governments increasingly try to control and influence financial, industrial goods, energy and other resource flows in order to secure influence outside a country's own territory. The control of data flows will play an increasing role as a tool for geo-economic power projection. China is the key example of a state acting geo-economically, using investments, technology exports, dependencies through the provision of energy and other infrastructures as much for its global power expansion as classical military instruments, which are currently used especially in the South China Sea.

The intertwining of economic, technological and security dimensions and their targeted use to expand power has turned the logic of previous approaches to foreign and economic policy making on its head. For example, the business-driven global expansion of value chains used to be seen as an economic opportunity for competitive countries and a development opportunity for poorer regions with lower price levels. The logic was as follows: if components are produced where it is cheapest to do so, this benefits the producing companies, the location where this happens - and the consumers in the buyer countries.

Mutual dependencies and economic openness were long considered a stabilising factor in the international system and beneficial to global value chains because they enable companies to organise and link production across countries. Today, while being key to economic growth, they produce uncertainty. The increasingly strategic use of foreign direct investment in companies abroad, in particular by China, has changed the picture. Trade and investment interdependencies and the ever-longer global value chains have significantly increased the economic vulnerability of states. This affects the weaker economies of developing countries as well as highly developed, open economies. Germany and the Netherlands are examples of how external economic interdependencies and dependencies limit the scope for foreign policy action even in highly developed states. For example, German policy toward China has tried to strike a careful balance between rapprochement and separation for years. Ever closer economic relations have led to a strong dependence of the German automotive industry on access to Chinese markets, while simultaneous criticism of China's human rights violations has only been voiced behind closed doors. This is not an isolated phenomenon:

European states with strong economic ties to China have tended to be less confrontational than the US in recent years, with Greece and Hungary preventing common EU and UN positions on China and human rights. Today, the discussion about the security implications of direct investment and global value chains is increasingly overshadowing the debate about the social impact of globalisation. Geopolitics now also dominates traditional development policy considerations.

8.3.4 Spreading digital authoritarianism

The technological leadership of states like China, the US, and in some areas Russia, combined with their varying willingness to use digital means of power, significantly determines the international environment in which Europe operates today. China is striving for global technological dominance by investing massively in its domestic technology sector and trying to set global standards, including for the governance of the internet. President Xi Jinping announced his plan to develop China into a 'cyber world power' at the Chinese Communist Party (CCP) Congress in October 2017. From the CCP's perspective, the digital space must be controlled by the Party in order to maintain control over citizens. Technologies and regulation are therefore developed in accordance with authoritarian principles.

Today China and the West compete over whether other states will join China's digital authoritarianism or place themselves in the democratic camp. China is investing heavily in the development of digital infrastructure abroad, for example in developing countries. This not only strengthens autocratic rulers, but it also gives Beijing leverage and direct access to information. Within the United Nations, Beijing is meanwhile blocking attempts to develop a free, open, and fair cyberspace, and is defending itself in virtual space and elsewhere from any attempts to strengthen human rights (Wainer, 2021).

Internally, the Chinese government has become more repressive, using technological innovations for that purpose. Through its cumulative market, data and financial power, Beijing is building up wide ranging control mechanisms that screen the population and the economy. Under the pretext of providing security and fairness, monitoring and tracking technology are used to enforce compliant behaviour. The fight against the COVID-19 pandemic was used as an additional justification for significant further restrictions of privacy. Widespread protest has become nearly impossible, as communication channels and especially social media are under near-total censorship and control. The introduction of data-based surveillance also affects European companies, which must submit to standards that contradict Western notions of good governance, privacy, and data protection.

Both Russia and China tightened internet surveillance in 2018 and 2020 respectively with comprehensive cybersecurity laws. In China, network operators and social media companies are obliged to store all data. The state has access to the data, and any content banned by the regime must be removed immediately. Authorities have cracked down on the use of Virtual Private Network (VPN) tunnels to bypass China's firewall, leaving Chinese users largely cut off from the open, opinion-pluralistic internet, while foreign companies' access to China's digital and telecommunications markets remains restricted due to deliberately prohibitive cyber and data security regulations.

In more and more countries, the idea of the internet as a platform for civic activity and a driver of democratic processes, once promoted with hope by the West, has been perverted. The export of technologies such as facial recognition, location programmes, high-resolution video surveillance, hacking tools, and applications used for online censorship that help autocratic rulers rises as repressive regimes seek to better predict and suppress mass protests or to monitor political opponents and civil society groups. As the NGO Freedom House observes, Beijing offers autocracy-supporting tech products bundled with censorship and surveillance training, for government employees of friendly autocracies or those states that want to be (Shahbaz, 2019). Also, technological exports from Western democracies can also be abused, and cases have been highlighted of products coming from France, the UK, Israel and the US According to a New York Times report, Ecuador, Venezuela, Bolivia, Angola, Uzbekistan, Tajikistan, Pakistan, Zimbabwe, Kenya, and the United Arab Emirates have purchased

Chinese-made surveillance technology, which is increasingly combined with facial recognition and mobile phone monitoring (Chan et al., 2019).

8.3.5 Democracy under threat

Progressive digitisation is a particular challenge for democracy as authoritarian politicians around the world use technology to consolidate their power.

Meanwhile, in democracies, technology can be used to increase transparency and opportunities for participation, but there is always the risk of misuse, such as of personal data. In recent years, another factor has become increasingly prominent, namely the targeted spread of disinformation and deep fakes, which undermines public trust in political institutions and within society. Hungary stands out as an example in the EU, with disinformation campaigns found in state-owned and state-related media. Hard-to-attribute cyberattacks also destabilise democracies and the credibility of their elected politicians and institutions.

For decades, Europeans have taken democracy for granted, not only in the European Union, but also as the foundation of the NATO defence alliance. Democracy was seen as a source of strength for the West in the form of soft power, exerting an attraction on states that were themselves facing or in democratic transition. For a few years now, democracies worldwide have been in retreat - more and more states are becoming authoritarian regimes. Even some European democracies are on the defensive, as populists systematically dismantle them.

The biggest shock to the global democratic community was the way in which Donald Trump damaged US democracy while in office. Much of his impact remains, despite Joe Biden's efforts to overcome the deep divisions in society and the political decision-making system. Polarisation and conspiracy theories continue to spread, and political norms continue to be flouted. In the May 2021 ruling on a defendant involved in storming Congress, Justice Amy Jackson said, 'the steady drumbeat that inspired the defendant to take up arms has not faded away; six months later, the canard that the election was stolen is being repeated daily on major news outlets and from the corridors of power in state and federal government' (Watt, 2021).

In an alarming poll released in November 2021, 30% of Republicans said that 'American patriots may have to resort to violence' against their political opponents 'because things have gotten so far off track' under Biden (PRRI, 2021). It is unclear today whether Biden can actually turn around these sentiments, combat the now deeply entrenched networks of supporters of Trump authoritarianism, and regain trust in the political system through his policymaking ability.

Fundamental norms are also under pressure within the EU. The erosion of the rule of law in Hungary since Viktor Orbán became prime minister for the second time on May 29 2010 it the most prominent example. With a two-thirds majority in parliament, he has implemented constitutional and legislative changes that weaken democratic institutions, restrict fundamental rights and the separation of powers, such as through electoral reform and new media laws. He has severely limited the role of the Constitutional Court, compromised the independence of the judiciary and violated the right to freedom of expression, academic freedom and the protection of minorities, as well as the fundamental rights of asylum seekers and refugees. The European Parliament noted this in a report back in 2018 (European Parliament, 2018b). Hungary has been rated as a semi-authoritarian regime (Freedom House, 2021). In Poland, too, the dismantling of democracy and the rule of law is being denounced. Moreover, Slovakia and Malta are under pressure following the murders of investigative journalists, not only because freedom of the press is under considerable threat, but also because of massive corruption, which is also a major problem in Romania and Bulgaria.

Protecting the rule of law and democracy within the EU is central to the functioning of the European legal system and to European cohesion. This includes the single market, which cannot function across borders if the rule of law and the binding power of EU law are not assured in Member States. If individual EU countries do not allow courts to judge independently, media to report freely, or free and fair elections to be held, and if citizens are subjected to arbitrary state action and unequal treatment, then the EU undermines itself and takes away its legitimacy to advocate for the rule of law and human rights on the global stage.

8.4. CONCEPTUAL IMPLICATIONS AND RECOMMENDATIONS

8.4.1 Changing paradigms in view of geopolitical developments

The complex new challenges and the increasingly conflictual geopolitical and geo-economic environment have far-reaching consequences for EU policy making and that of its Member States, which will have to think of how to design and frame policy priorities to protect EU and national interests. The post-World War II economic order, and the EU's internal governance set-up and external toolkit were not designed for the geopolitical world we are facing today. Externally, the focus was on economic openness, which promised welfare gains, but also created interdependencies within Europe and globally. International economic relations, in particular trade and exchange rate policy were based on rules underpinned by economic, and not strategic, foreign policy reasoning. Some tools that could serve the EU in a geo-economic world remained underdeveloped, as the weaponisation of economic, financial, energy and other policy areas was not a concept for the EU, which likewise did not have the defensive mechanisms to deal with other states' aggressive geo-economic strategies.

Moreover, policy makers have long expected that economic openness would support system transformation, e.g. in Russia, and eventually bring about China's transformation towards the Western model. Interdependence was expected to bring more stability, as the mutual interest for cooperation was assumed to rise. China's growing rivalry with the US, but also Europe's multiple conflicts with Russia have proven these assumptions to be wrong. Today, it is evident that economic integration and the rise of a wealthy middle class does not always bring about the expected move towards greater democracy, with China being the most notable case.

Meanwhile, even within the EU, democracy and the rule of law, both fundamental principles of a functioning EU which every member signed up to upon joining, are challenged by political actors pursuing authoritarian or illiberal visions of the state and society. While both are fundamental principles of a functioning EU which every member accepted upon joining the EU, it did not build strong tools to protect them as it was hardly conceivable that a state would stray so far from them that sanction mechanisms would be needed to ensure their observance. Today, Article 7 of the EU Treaty, the recently enhanced conditionality of EU funds, and the European Commission's regular annual report on the rule of law and democracy (European Commission, 2020b) provide a certain toolkit to the Union, but the political support of member governments, in EU procedures, but also in bilateral relationships, remains crucial. The report's examination of all EU Member States is important for tracking problems early and for countering the criticism of Central and Eastern European governments that the dispute over the rule of law is a conflict between West and East that lacks any objectivity and is biased against the 'Eastern European way of life'. In addition, European and national supply chain laws could further oblige companies to ensure that human rights, rule of law and democratic principles are respected when choosing their business relations. A delicate issue is the concern that national and regional elections in EU Member States may not be conducted properly. The Organization for Security and Cooperation in Europe (OSCE), civil society groups as well as independent media and the corresponding unit working against foreign disinformation in the EU are key for providing transparency on this matter.

8.4.2 Comprehensive cooperation needs vs. declining trust

In the geopolitical and geo-economic environment outlined above, conflicts are more frequent and more complex, uncertainties are mounting and governments face multiple pressures that make long-term policy orientation more and more difficult. This assessment stands in stark contrast to the urgent need for farsighted cooperation in the face of the major transnational challenges of our time (see part 8.4.1). The climate crisis, the deterioration of the natural ecosystem and the related risk of further health crises constitute a global 'meta-challenge' (Shanmugaratnam, 2021) which is unfolding during a period of widening socio-economic divergence within and between countries, and between world regions. The modest convergence achieved in past decades risks being reversed as people in large parts of the developing world are exposed to waves of the pandemic, to the dire consequences of climate change and the long list of economic, political and social consequences that follow from both. In both middle-income countries and developing countries, a worrisome pattern is emerging that suggests that we are not dealing with a short-term phenomenon, but a longer-term issue. The problem is not divergence in income or wealth in static comparison, but divergent life opportunities. Developing countries will have increasing problems in participating in global value chains through labour intensive production as technology and digitisation advance, a development that accelerated during the pandemic.

For public opinion in the EU, the repercussions of the COVID-19 pandemic have both positive effects and entail risks. Recent opinion surveys indicate that trust in the EU improved from summer of 2020 to winter 2020/2021, placing it at its highest level since 2008.[93] The EU's initial inability to react to the pandemic in a European way was rapidly self-corrected, for instance by setting up European procurement for medical products including vaccines and, most importantly, but setting up the 750 bn euro recovery fund. Although this fund makes an extraordinary contribution, there nevertheless is a risk of destabilisation within societies because of the social and economic consequences of the pandemic. In a survey on these effects, most respondents in 14 EU Member States agreed with the statement 'overall, regarding your quality of life, it was better before', with the highest proportions in Cyprus (84%), Greece (77%) and Croatia (74%)[94]. On the consequences of the COVID-19 restriction measures, 41% of respondents believe that the economic damage is greater than the health benefits[95].

If socio-economic divergence, people's pessimism about their future as well as political polarisation continue to rise, external hybrid interventions, such as the spread of disinformation, can have negative effects, even in stable democracies. This may weigh on European and international cooperation if trust in national decision-makers as well as European and international institutions is negatively affected. As major transnational challenges require broad cooperation to prevent the unfolding climate and sustainability crises from reaching the next tipping points, this trend is of concern. The EU and its Member States must pay as much attention to the global 'perfect storm' comprising planetary risks such as pandemics, climate change, divergence, increasing political volatility and rising security threats, as to inner-European developments, relationships with key partners and competitors, and divisions and polarisation within societies.

---

[93] European Parliament (2021) *Standard Eurobarometer 94 Winter 2020/2021: Public Opinion in the European Union*. Brussels: European Parliament. https://europa.eu/eurobarometer/surveys/detail/2355

[94] European Parliament (2021) *Eurobarometer Spring 2021: Resilience and Recovery. Public Opinion One Year into the Pandemic*. Brussels: European Parliament. https://www.europarl.europa.eu/at-your-service/files/be-heard/eurobarometer/2021/spring-2021-survey/report.pdf

[95] European Parliament (2021) *Eurobarometer Spring 2021: Resilience and Recovery. Public Opinion One Year into the Pandemic*. Brussels: European Parliament. https://www.europarl.europa.eu/at-your-service/files/be-heard/eurobarometer/2021/spring-2021-survey/report.pdf

8.4.3 Fostering resilience and cohesion

The complex and volatile threat environment affects the EU and its Member States' ability to provide stability. In an era of hybrid warfare, governments can only ward off threats to society, economic systems, digital or physical infrastructure to a limited extent. They can no longer fulfil their protective role as comprehensively as they used to. If vulnerability cannot be eliminated, the capacity of EU countries to 'bounce back' needs to be strengthened. In the new threat environment, public authorities partly rely on economic actors to increase resilience, for instance by investing in reinstalling functioning digital and physical infrastructure for energy and water supply, transport and healthcare. The deadly terrorist attacks in several Member States have shown the importance of a robust society that recovers quickly after attacks and returns to normality as soon as possible without turning its fear into aggression or extremism, without weakening democratically elected decision makers or the democratic system itself. Such events highlight the importance of preparedness and a policy agenda that prioritises social cohesion, and socio-economic and democratic stability.

Against this backdrop and given the EU's integration of markets and the single currency and its governance which constrains the capacity of governments to affect economic and socio-economic developments in the integrated economic space, the EU needs to pursue a more pro-active economic and social policy agenda. The financial, debt and banking crises after 2008 and the pandemic a good 10 years later have two things in common - they resulted in an economic collapse of historic proportions, and they demonstrated how incomplete integration can threaten the status quo. While the euro was almost brought down by the sovereign debt and banking crises that began in 2010 because there were no European stabilisation instruments to handle crises of this kind, the COVID-19 pandemic also posed a serious challenge to the integration that had been achieved. The pattern that incomplete integration can turn against itself is familiar: in the course of single market integration, cross-border mobility of the population was explicitly encouraged, but the EU offered no protection as the trans-European health crisis hit. As the EU had no competence for health policy, the crisis was fought nationally, and borders were reinstated. COVID-19 has made it obvious that the EU needs health policy beyond acute pandemic management to protect the population and to keep the single market open. During the sovereign debt crisis, similar lessons were learnt, and action was taken, namely equipping the euro area with crisis-management instruments and accompanying policies. To preserve the single market and economic competitiveness, and to strengthen the euro and its international economic capacity to act, the EU must further develop its economic order. There are strong arguments for adding a stronger social dimension, in particular as the ecological and digital transformations need to be managed in an equitable way.

As new risks and opportunities emerge due to the digital and green transformations, economic growth theories are being reconsidered, with a greater focus placed on inclusion and tackling inequality, and the relevance of traditional welfare state models is being examined. This debate has intensified since the 2008 crisis and now in the wake of the COVID-19 pandemic and crisis.

The social economy - the part of the economy driven primarily by collective interests and social and environmental objectives, has been hit hard by the crises, but also has the potential to mitigate its negative effects. The European Commission seeks to enhance social economy organisations' contribution to fair and sustainable growth, to increase social investment, and to help social economy actors to start up, scale up, innovate and create jobs[96]. The social economy's values-based approach enables it to introduce new elements into its ecosystems and be an important 'engine' for the immediate recovery and the longer-term potential restructuring of the economy for greater resilience,

[96] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12743-EU-action-plan-for-social-economy_en

fairness, and sustainability. For the social economy to reach its full potential in Member States and contribute to green and inclusive growth with renewed welfare state models, it needs to be supported at all levels. This includes facilitating access to finance and markets, including the digital single market, better frameworks, including for collaboration and cross-border activities, support for innovation - including new business models, and the development of international relations. The European Commission's social economy action plan, expected at the beginning of 2022, can address these issues.

Meanwhile, the reform agenda for euro area economic governance was made clear before the pandemic hit. As the presidents of the EU institutions proposed[97], economic and budgetary policy cooperation are to be strengthened and the Banking Union is to be completed through the introduction of a European deposit guarantee system. The same applies to the Capital Markets Union, which is supposed to deepen the EU's financial markets, provide better funding opportunities to benefit the European economy and back a stronger international role for the euro, which is becoming increasingly important in geopolitical terms.

The EU's pandemic response has also enabled the debate on EU funding to be reframed, as the EU needs to build better tools for strategic investment and to protect the rule of law. The 'NextGenerationEU' recovery fund is a remarkable step, not only because it amounts to 750 billion euro, but also because it provides transfers in addition to loans to cushion the harsh consequences of the crisis for states, companies and individuals alike. The new EU financial tools and programmes come with a new rule of law condition whose application can be tested in practice. The EU should also test to see if it can loosen the rules on EU funds being paid to national governments, as during the COVID-19 crisis, for example, aid for the healthcare system could have gone directly to mayors or regional governments that wish to uphold core European values, in contrast to their central government. It is also an important achievement that the EU successfully raised money on the markets for the NextGenerationEU recovery fund and the 100 billion euro SURE loan programme by issuing European bonds. In the coming years, governments can choose whether they want to continue to incur debt to finance EU spending. While the legal basis has existed for decades, the NextGenerationEU recovery fund has emphasised this possibility, as the EU is testing a new, safe investment tool - attractive to international market participants and to the European Central Bank, which pays particular attention to safer forms of investment.

8.4.4 Strengthening the euro internationally

Just like the single market and the EU's trade policy, the single currency is a key asset in the geo-economic world. Strengthening the international role of the euro as the European Commission suggests (European Commission, 2018c) would increase the EU's capacity to act in times of geo-economic conflict. Since its introduction in 1999, the euro has become the second most important currency in the world. Although it has lost some of its prestige as a result of crises in the Eurozone, it has never experienced a currency crisis. The reason the discussion on the international role of the euro has strengthened so much in recent years is that in today's geo-economic world, currencies are always used to put pressure on governments.

A stronger international role for the euro cannot be 'declared' - it must be hard-won internally. Ultimately, the importance of a currency is decided by the markets. Market participants are interested

[97] *Four Presidents Report Towards a genuine Economic and Monetary Union by Herman Van Rompuy in close cooperation with José Manuel Barroso, Jean-Claude Juncker and Mario Draghi. Five Presidents Report on Completing Europe's Economic and Monetary Union by Jean Claude Juncker in close cooperation with Donald Tusk, Jeroen Dijsselbloem, Mario Draghi and Martin Schulz*.

in how stable the monetary union and the underlying economy and public finances are, and whether governments are willing to strengthen the Eurozone.

There are two points in favour of the euro assuming a bigger role: a large economy and free movement of capital. Points against it include a lack of a deep, integrated financial market and not enough safe investments in the Eurozone. However, the demand for the European bonds financing the NextGenerationEU recovery fund and the SURE programme help to strengthen the euro's role as an international investment currency. Completing the Banking Union and moving ahead with the Capital Markets Union are also vital for ensuring that the monetary union has a deeper capital market. Finally, the geopolitical orientation of the EU would have to strengthen and become more decisive to support a more international role for the euro. A currency area must have credible and reliable political orientation and leadership if it is to develop broad confidence in the currency.

Though technical in nature, the steps to further deepen the euro area contribute significantly to strengthening the European Union as a geopolitical actor and making it more resilient to external pressure. Alongside the often accounting-inspired discussion on budget rules, the debate should also focus on what the EU and its Member States will need in the future to best represent their interests in a more conflict-ridden world, which clearly includes a strong and internationally-used currency. The euro has the chance to gain weight alongside the dollar because many other countries and private investors are keen to diversify their risk from the dollar to the euro.

8.4.5 Protecting democracy

The European Union has taken measures to strengthen its democratic resilience in recent years, and more should follow in addition to the existing mechanisms. The Swedish idea of a 'psychological defence agency' could be set up in Europe support open societies, freedom of expression and independence of political will. Such an agency could identify and act against disinformation and other forms of influence, while supporting open-source research and the tracking of other organisations. The East Stratcom Task Force, an EEAS team that was set up in 2015 when Russia accompanied its interventions in Crimea with disinformation campaigns against the European public, should increasingly address Chinese influence alongside Russian propaganda. In view of the domestic dimension of this foreign influence, it could be transferred from the EEAS to a Directorate-General dealing with internal affairs.

Another effective tactic would be for EU and national authorities to publicly identify propaganda sources, giving very concrete examples. They could name the media outlets that censored the outbreak of the COVID-19 crisis in China for 3 months, for example, or those that broadcasted confessions coerced under torture. The US has identified Chinese media outlets (15 in 2020 alone) as 'foreign missions', damaging their credibility as sources of information. This includes the Xinhua Agency, the China Global TV Network and the People's Daily newspaper. Transparency about Chinese organisations within the EU should also be enforced. To limit opportunities for espionage and the spread of China's massive information control system, Chinese telecom companies should be barred from European infrastructure, and EU-level and Member State public authorities should not use tech platforms that are under Chinese control.

Since the protection of democracy is a common political interest on both sides of the Atlantic, the EU and the US should cooperate on platforms for moderating content and removing hate speech and fake news, as this is where the highly damaging information war is taking place. Hate-filled comments and misinformation can target individuals directly through their mobile phones. Joint action should also be stepped up against cyber threats, including by increasing the use of sophisticated AI. The US and EU should work together to make AI and other IT systems and critical infrastructure less vulnerable, with a focus on protecting sensitive data flows.

8.4.6 Choosing partners carefully

The EU and its Member States currently need to work with three main players – China, Russia and the US China is a key and rising economic partner, on whom Europe depends also in areas like technology. It is also an increasingly dangerous systemic competitor and security threat. The latter is also true for Russia due to its rising aggressiveness. But there are also strong interdependencies with Russia due to its energy exports to the EU. The US, under its current leadership, continues to be the biggest provider of security and the most important economic partner. It is the EU's key ally in managing transnational risks and crises, and defending liberal democratic norms and governance. Therefore, a close relationship with the US is a clear strategic choice for the EU.

However, the EU's relationship with the US is potentially highly fragile in the medium term due to the domestic situation in the US which could lead to the election of a President in 2024 who undermines democracy at home, destroys the liberal international order and weaponises economic ties against the EU. For the time being, the EU has no alternative than to continue working with the US as a security, defence and economic partner. But the EU needs to pursue its policies that increase resilience and its capacity to act in order to prepare for the scenario of an uncooperative US administration that may come into office at the beginning of 2025. The EU should, firstly, try to become the most consistent and interesting partner for the US possible. This means closer and more balanced cooperation on defence and security, which would make staying with the transatlantic alliance attractive to the next US administration.

Secondly, the EU needs to reduce its own vulnerabilities in case the US again turns away from Europe. European governments and the EU should establish stronger ties with like-minded countries such as Japan, South Korea and Australia. Taiwan is also an important partner for the EU, but if China puts Taiwan under its control, the EU's dependency on imports of technology from Taiwan would become risky. These geopolitical developments and possible scenarios of an increasingly crisis-driven and adverse international environment make a very strong case for the EU to become more self-sustained and competitive in the field of technology, digital, defence, energy, health and other areas in which cutting off the provision of supplies can be very harmful to the EU.

Geographically, the impact of power plays and the question of how the EU can develop its capacity to act does not only concern the EU-27 Member States. The EU's ability to influence developments in its neighbourhood has declined, as Russia and China expand their influence. The EU and its governments are trying to correct their course since they have failed to pursue a strategic investment policy that would have offered an alternative to Chinese money in the Western Balkans, in Central Asia and in Africa. The price for Europeans to regain influence in these regions is much higher today than it would have been in the past when China's presence was not as significant. Standing by flexibly in crises like the current pandemic, as well as the strategic funding of infrastructure projects, will allow the EU to regain credibility as a soft power and help counter growing Chinese or Russian influence. Western Balkan countries' prospects for joining the EU have lessened in recent years due to developments both in the EU and in some of the countries wishing to join. By supporting regional integration projects, such as the 'Open Balkans', helping to build a railway, and supporting regional development as part of the green transition, the EU can increase cooperation between the Balkan countries and eventually bring them closer to EU accession.

8.4.7 An encompassing China strategy

With some partners, the EU will have to compartmentalise relations. This means seeking close cooperation in some areas - for instance in shaping international and regional governance and in tackling global meta-challenges, and choosing confrontation in others. In its dealings with China, the EU needs to strengthen cooperation on climate and on arms control, while expressing disagreement about security matters in the South China Sea, human rights issues and the prohibition of certain Chinese investments in the EU, for example.

Given China's expansive strategy and its threats to democracy and to open society, China's policymaking is no longer mainly restricted to foreign and trade policy. It now cuts across multiple policy areas and is highly relevant for society as a whole. The EU and its Member States now see China in various different lights - as a partner, a competitor and a strategic rival. As a next step, the EU should look at every policy field and dimension of the relationship and analyse how systemic rivalry affects it. This includes areas that fall under the category of partnership. China reaches far into European societies, which is why not only governments, but also local authorities, businesses and civil society need support in dealing with it. The EU, alongside national governments, should therefore provide advisory and educational services for business associations, companies, municipalities, and schools.

Furthermore, the EU, together with its non-EU partners, should define its interests and the underlying values of a principled EU-China policy. This exercise will allow it to identify how it can reach these goals. Given China's increased influence in the EU and its neighbourhood, alternatives to the Belt and Road Initiative, the Global Gateway Initiative as a global infrastructure initiative which combines the mobilization of investment in order to strengthen digital, transport and energy networks with a value driven approach. It seeks to offer attractive investment and business-friendly trading conditions, regulatory convergence, standardisation, supply chain integration and financial services. The EU has put in place financial and other tools to address the investment needs in sustainable infrastructure development across the world. It builds on the achievements of the 2018 EU-Asia Connectivity Strategy, the Connectivity Partnerships with Japan and India, as well as the Economic and Investment Plans for the Western Balkans, the Eastern Partnership, and the Southern Neighbourhood. In addition, Africa, Central Asia and Latin America are also included.

While the Global Gateway is a comprehensive approach and is ambitious in its goal to mobilise 300 bn EUR from 2021 to 2027 (European Commission, 2021i), it comes late given the strong presence that China has built in the regions: the Foreign Affairs Council only tasked the European Commission on July 12, 2021 to develop a Communication on the matter. Given its strong interest to ensure that global connections and networks develop in line with democratic values, supporting sustainable development and ensuring both a level playing field and avoiding unsustainable debt created by infrastructure investment. It is also a response to the global infrastructure investment deficit, which will reach 13 trillion EUR in 2040 and to the risks that connection gaps in global infrastructure entail. It is, however, of key importance that this initiative is compatible and closely coordinated with the 'Blue Dot' network, a mechanism to certify infrastructure projects that meet international quality standards, laws and regulations which the US has set up with Australia and Japan to promote open and inclusive infrastructure investment. Like the EU states for Global Gateway, the goal is to ensure transparent and economically viable investment, aligned with the Paris climate agreement and financially, environmentally and socially sustainable (US Department of State, 2021).

8.4.8 Managing the transatlantic relationship

If China takes a more aggressive stance in the Indo-Pacific, the US will expect its European allies to step up their efforts to stop its rise. The EU clearly positions itself in the Western camp in the competition between the US liberal model and China's state capitalist techno-authoritarianism.

However, EU Member States' economic dependency on China and the risk of being drawn into a military conflict, for instance in the South China Sea, makes some governments regard the US approach as too confrontational. Deepening the EU-US strategic conversation together with likeminded partners about China is key. To assert geopolitical power, the EU will need the transatlantic partnership, in the medium to long term. Doing more for its own security is a sign that Europe is increasing its contribution to the transatlantic project, rather than turning away from the United States. The EU and US have recently increased their joint efforts in line with their shared commitment to transatlantic security and confronting common security challenges (EEAS, 2021), and have made significant progress with the launch of the Trade and Technology Council (TTC) at the EU-US Summit in June 2021 (European Commission, 2021d).

Developing a transatlantic agenda for strengthening democracy and international governance is also important - both at home and internationally. The struggle to preserve European democracies can be embedded in broader transatlantic cooperation to defend liberal democracy as a core value of the EU and the transatlantic alliance. The EU should ask the US for support in pressuring NATO members Poland, Hungary and Turkey to adhere to democratic principles and the rule of law. While the EU can refuse payments to its Member States if rule of law principles are violated, NATO has no mechanism for sanctioning behaviours that violate democratic principles, although the Alliance was founded on a common commitment to democratic values. For the time being, the only option is for governments to politically pressure the leadership of Member States which move away from democratic principles. As this approach, however, has not been effective, for instance in the case of Turkey, NATO members should explore how they could, in the long-run, make their security and investment programme support conditional on recipient countries fulfilling rule of law and democratic principles. The Biden administration's focus on these issues, including the Summit for democracy that was held in December, offered an opportunity to make a new and lasting commitment to these principles in the transatlantic alliance.

8.5. CONCLUDING REMARKS

The complexity of the combined threats, the interdependencies between countries and policy areas and the rapid pace of evolving crises require governments and EU institutions to change their methods as the lines between internal and external policies are increasingly blurred. Against the backdrop of international geopolitical and geo-economic challenges, there is an urgency and an opportunity to reframe the debate on the EU's consolidation. The dependency of a stronger international role on a successful implementation of its internal reform agenda should be explained by spelling out the external and geopolitical aspects of the consolidation of the euro area, of the single market, and the implementation of the climate and digital transition agendas. For instance, clarifying the internal prerequisites of a stronger international role of the euro can help build momentum for necessary integration such as the completion of Banking Union or the Capital Markets Union.

Given the complex and conflictual global situation, the EU and its Member States need to develop a more strategic pursuit of shared goals across policy areas. For instance, foreign policy and trade policy need to be connected more closely with European technology and industrial strategies, climate transition policies as well as economic and monetary policy. Meanwhile, Europe's security and defence need realistic goals, which should be anchored in NATO as it adapts to the global situation by developing a new strategic concept. Once priorities have been established in various policy areas, EU Member States have to face the question whether they are providing adequate resources to meet the challenges ahead and should lead to a serious debate whether the EU is adequately equipped to meet its international challenges. A further priority is to improve the EU's decision-making capacity. Since majority voting remains a long way off, EU Member States need to coordinate more closely and act, if necessary, in smaller 'coalitions of the willing', in some cases including the United Kingdom. It has become easier to build agreement on how to protect Europe effectively. This broad consensus will help underpin actions that become necessary to protect against competitors and adversaries that are

prepared to make strategic use of information flows, innovative technology, and economic instruments against Europe's interests. In recent years, the EU has significantly broadened its defensive repertoire and has tightened up its monitoring of external influence within its borders and nearby regions. However, dependencies and external influence have to be further diminished, while economic, social and political resilience need to simultaneously be improved. Otherwise, Europe risks being in no position to act, because it will be in no position to decide.

REFERENCES

Aburto J.M., Scholey J., Kashnitsky I.., Zhang L., Rahal C. et al., *Quantifying impacts of the COVID-19 pandemic through life expectancy losses: a population-level study of 29 countries*, medRxiv Prepr, 2021

Acemoglu, D., Aghion, P., & Zilibotti, F., 'Distance to Frontier, Selection, and Economic Growth', *Journal of the European Economic Association*, Vol. 4, No. 1, 2006, pp. 37–74

Acemoglu, D., Chernozhukov, V., Werning , I. and Whinston, M. D., *Optimal Targeted Lockdowns in a Multi-Group SIR Model*, National Bureau of Economic Research, NBER Working Paper, No. 27102, 2020

Acemoglu D., Restrepo P., 'Robots and Jobs: Evidence from US Labor Markets'. *J. Polit. Econ.*, Vol. 128, No. 6, 2020, pp. 2188–2244

Adams-Prassl, A., Boneva, T., Golin M. and Rauh, C., 'Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys', *Journal of Public Economics*, No. 189, 2020, pp. 104245

Agarwal R., Gopinath, G, *A Proposal to End the COVID-19 Pandemic*, IMF Staff Discussion Note, 2020

Akbulut-Yuksel, M., Okoye D. and Yuksel, M., 'Social Changes in Impressionable Years and the Formation of Political Attitudes', *Economic Inquiry*, No. 57 https://onlinelibrary.wiley.com/doi/10.1111/ecin.12843

Aksoy, C., Eichengreen, B. and Saka, O., *The Political Scar of Epidemics*, National Bureau of Economic Research, NBER Working Paper, No. 27401, 2020

Aksoy, C., Eichengreen, B. and Saka, O., *Spreading New Habits? Epidemics and Financial Technology Adoption*, King's College and EBRD, University of California-Berkeley and London School of Economics, 2021, unpublished manuscript

Alinger, B., Adam, G., *Mixed impacts of COVID-19 on social dialogue and collective bargaining in 2020*, EUROFOUND, 2021, https://www.EUROFOUND.europa.eu/publications/article/2021/mixed-impacts-of-COVID-19-on-social-dialogue-and-collective-bargaining-in-2020

Amat, F., Arenas, A., Falco-Gimeno, A. and Munoz, J., *Pandemics Meet Democracy: Experimental Evidence from the COVID-19 Crisis in Spain*, SocArXiv (Open Archive of the Social Sciences), 2020, DOI: 10.31235/osf.io/dkusw

Andersson, M., Checherita-Westphal, C., Gomez-Salvador, R., Henkel, L. and Mohr, M., 'Economic developments in the euro area and the United States in 2020', *European Central Bank Economic Bulletin*, Issue 2, 2021, pp. 44-46

Antras, P., *De-globalisation? Global value chains in the post-COVID-19 age*, ECB Forum: Central Banks in a Shifting World, Conference Proceedings, 2021

Armelini, A., *Italy's Five Star Movement presents 'sovereignist' agenda*, EU Observer, https://euobserver.com/beyond-brussels/137610, 2017

Arnold, C., Sapir, E. and Zapryanova, G., 'Trust in the Institutions of the European Union: A Cross-Country Examination', in Beaudonnet L. and Di Mauro, D. eds, *European Integration Online Papers*, No. 2, Article 8, 2012

ASEAN, *ASEAN 2025: Forging Ahead Together*, 2015

Aspachs, O., Durante, R., Graziano, A., Mestres, J., García-Montalvo, J. and Reynal-Querol, M., *Real-Time Inequality and the Welfare State in Motion: Evidence from COVID-19 in Spain*, Barcelona School of Economics, Working Paper, No. 1202, 2021

Aum, S., Lee, SY (Tim), Shin, Y., 'COVID-19 doesn't need lockdowns to destroy jobs: The effect of

local outbreaks in Korea', *Labour Econ.*, No. 70, 2021, pp.101993

Bakogiannis, T., Mytilinis, I., Doka, K., Gouma,s G., 'Leveraging Blockchain Technology to Break the Cloud Computing Market Monopoly', *Computers*, Vol. 9, No.1, 2020, pp. 9

Baldwin, R. and Robert-Nicoud, F., 'Trade-in-goods and trade-in-tasks: An integrating framework', *Journal of International Economics*, No. 92, 2014, pp. 51-62

Baldwin, R. and Forslid, R., *Globotics and development: When manufacturing is jobless and services are tradable*, National Bureau of Economic Research, Working Paper No. 26731, 2019

Baldwin, E. and Freeman, R., *Risks and global supply chains: What we know and what we need to know*, National Bureau of Economic Research, Working Paper No. 29444, 2021

Barrett, P. and Chen, S., *Social Repercussions of Pandemics*, IMF Working Paper No. 21/21, 2021

Barrero, J.M., Bloom, N. and Davis, S.J., 'Why working from home will stick', *National Bureau of Economic Research*, Working Paper, No. 28731, 2021

Batini, N., Fragetta, M., Melina, G. and Waldron, A., *Building Back Better: How Big Are Green Spending Multipliers?*, IMF Working Paper 21/87, 2021

BBC News, "Co'id: EU's von der Leyen Admit Vaccine Rollout Failures', https://www.bbc.com/news/world-europe-56009251, 2021

Begall, K., Mills, M., 'The Impact of Subjective Work Control, Job Strain and Work– Family Conflict on Fertility Intentions: a European Comparison', *Eur. J. Popul. / Rev. Eur. Démographie*, Vol. 27 No. 4, 2011, pp. 433–56

Begall, K,, Mills, M., Ganzeboom HBG, 'Non-Standard Work Schedules and Childbearing in the Netherlands: A Mixed-Method Couple Analysis', *Soc. Forces*, Vol. 93, No. 3, 2015, pp. 957–88

Beiser McGrath, L. and Bernauer, T., 'Could revenue recycling make effective carbon taxation politically feasible?', *Science Advances*, September, 2019

Belzunegui-Eraso, A., Erro-Garcés, A., 'Teleworking in the Context of the COVID-19 Crisis', *Sustainability*, Vol. 12, No. 9, 2020, pp. 3662

Bentley, T.A., Teo, S.T.T., McLeod, L., Tan, F., Bosua, R., Gloet, M., 'The role of organisational support in teleworker wellbeing: A socio-technical systems approach', *Appl. Ergon.* No. 52, 2016, pp. 207–15

Berg-Schlosser, D., *The impact of the Great Depression on democracy. In U. J. Wnuk-Lipinski, Democracy under stress: The global crisis and beyond*, Verlag Barbara Budrich, 2012, pp. 47-58

Block, P., Hoffman, M., Raabe, I.J., Dowd, J.B., Rahal, C. et al., 'Social network-based distancing strategies to flatten the COVID-19 curve in a post-lockdown world', *Nat. Hum. Behav.*, Vol. 4, No. 6, 2020, pp. 588–96

Blyth, W., Gross, R., Speirs, J., Sorrell, S., Nicholls, J. et al., *Low carbon jobs: The evidence for net job creation from policy support for energy efficiency and renewable energy*, UK Energy Research Centre, 2014

Böhringer, C., Peterson, S., Rutherford, T.F., Schneider, S. and M. Winkler, 'Climate policies after Paris: Pledge, Trade and Recycle. Insights from the 36th Energy Modeling Forum Study (EMF36)', *Energy Economics*, 103, 2021

Bol, D., Giani, M., Blais, A., and Loewen, P.J., 'The Effect of COVID-19 Lockdowns on Political Support: Some Good News for Democracy?', *European Journal of Political Research*, 2020, forthcoming

Boone, L. and Ladreit, C., 'Fear of COVID and non-pharmaceutical interventions: An analysis of their economic impact among 29 advanced OECD countries, *COVID Economics*, Vol. 73, No. 23,

2021, pp. 1-40

Bootle, R., *Leaving the Euro: A Practical Guide*, Capital Economics, 2013

Borin, A., and Mancini, M., *Measuring what matters in global value chains and value-added trade*, World Bank, Policy Research Working Paper, No. 8804, 2013

Borrell, J., 'Embracing Europe's Power', *International Politics and Society (IPS) Journal*, https://www.ips-journal.eu/regions/europe/embracing-europes-power-4095/, 2020

Bown, C., 'How the United States marched the semiconductor industry into its trade war with China', *Peterson Institute for International Economics*, Working Paper, No. 20-16, 2020

Britton, S., & van Goubergen, J., *Voting Leave: what were the underlying factors behind the Brexit vote?*, https://www.kbc.com/en/economics/publications/voting-leave:-what-were-the-underlying-factors-behind-the-brexit-vote.html, *KBC*, 2019

Brunnermeier, M. K.-P., *How philosophical differences between Eurozone nations led to the Euro crisis—and where to go from here*, Princeton and Oxford: Princeton University Press, 2016, p.154

Bui, T.T.M., Button, P., Picciotti, E.G., 'Early Evidence on the Impact of Coronavirus Disease 2019 (COVID-19) and the Recession on Older Workers', *Public Policy Aging Rep.*, Vol. 30, No. 4, 2020, pp.154–59

Bullock, A., *Hitler: A Study in Tyranny*, Harper Perennial, New York and London, 1991

Buti, M., *A tale of two crises: Lessons from the financial crisis to prevent the Great Fragmentation*, VoxEU.org, https://voxeu.org/article/lessons-financial-crisis-prevent-great-fragmentation, 2020

Buti, M. and Messori, M., *Towards a new international economic governance: the possible role of Europe*, EUI, 2021

Cajner, T., Crane, L.D., Decker, R.A., Grigsby, J., Hamins-Puertolas, A. et al, 'The US Labor Market during the Beginning of the Pandemic Recession', *Brookings Pap. Econ. Act.*, Vol. 2020, No. 2, 2020, 3–33

Cakmakli, C., Demiralp, S., Kalemli-Ozcan, S., Yesiltas, S. and Yildirim, M. 'The economic case for global vaccinations: An epidemiological model with international production networks', *CID Faculty*, Working Paper No. 390, Harvard University, 2021

Carattini, S., Carvalho, M. and S. Fankhauser, 'Overcoming public resistance to carbon taxes', *WIREs Climate Change*, 2018

Carleton, T.A. and Hsiang, S.M., 'Social and economic impacts of climate', *Science*, Vol. 353, No. 6304, 2016

Carraro, C., *Macroeconomic costs and financial needs of the EU post-COVID transition to carbon neutrality*, mimeo, 2021

Caruana, J., *How much capital is enough?*, BIS, speech, London, 2014

Case, A., and Deaton, A., *Deaths of Despair and the Future of Capitalism*, Princeton University Press: Princeton, N.J., 2020

CDC, 'COVID-19 Among Workers in Meat and Poultry Processing Facilities — 19 States, April 2020', *Morb. Mortal. Wkly. Rep.*, Vol. 69, No. 18, 2020, pp. 557–61

Centre for Economics and Business Research (CEBR), *World Economic League Table 2021*, 2021, https://cebr.com/wp-content/uploads/2021/02/WELT-2021-final-15.01.pdf

Center for Strategic and International Studies, *Significant Cyber Incidents Since 2006*, *CSIS*, https://www.csis.org/programs/strategic-technologies-program/significant-cyber-incidents, 2021

Chan, M., Mozur, P. & Kessel, J.M., *Made in China, Exported to the World: The Surveillance State*, The New York Times, https://www.nytimes.com/2019/04/24/technology/ecuador-surveillance-

cameras-police-government.html, 2019

Charlemagne, 'Looking for Someone to Blame', *Economist*, 6 February 2021, p.44

Chetty, R., Friedman, N., Hendren, M., Stepner, M., *How did COVID-19 and stabilization policies affect spending and employment? A new real-time economic tracker based on private sector data*, NBER, Working Paper No. 27431, 2020

Ciminelli, G., Garcia-Mandicó, S., 'COVID-19 in Italy: An Analysis of Death Registry Data', *J. Public Health*, Vol. 42, No. 4, 2020, pp. 723–30

Cinelli, M., *The echo chamber effect on social media. Proceedings of the National Academy of Sciences of the United States of America*, PNAS, 2021, https://www.pnas.org/content/118/9/e2023301118

Collier, P., *The Future of Capitalism: Facing New Anxieties*, Allen Lane, London, 2018

Commission Quinet, *La valeur de l'action pour le climat*, France Stratégie, 2019

Consolidated Version of the Treaty of the European Union, https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:115:0013:0045:en:PDF, 2008

Converse, P., *The Dynamics of Party Support: Cohort-Analyzing Party Identification*, Sage, Beverly Hills, CA, 1976

Courtney, J., *HR 748 - 116th Congress (2019-2020): CARES Act*, https://www.congress.gov/bill/116th-congress/house-bill/748, 2020

CPI (Climate Policy Initiative), *Global Climate Finance: An Updated View*, CPI Report, 2018

Crafts, N., *Brexit: Blame it on the banking crisis*, https://voxeu.org/article/brexit-blame-it-banking-crisis, VoxEU/CEPR, 2019

Darvas, Z, 'Will European Union countries be able to absorb and spend well the bloc's recovery funding?', *Bruegel Blog*, 24 September 2020

Darvas, Z., Dominguez, M., Grzegorczyk, M., Guetta-Jeanrenaud, L., Hoffmann, M., Lenaerts, K., Schraepen, T., Tzaras, A. and Weil, P., *European Union countries' recovery and resilience plans*, Bruegel database, 2021, https://www.bruegel.org/publications/datasets/european-union-countries-recovery-and-resilience-plans/

de Grand, A., *Italian fascism: its origins & development*, University of Nebraska Press, London, 2000

de Vrijer, E., & Xiao, Y., *IMF Survey: France: Recovering Well But Public Debt a Challenge*, IMF, 2010, https://www.imf.org/en/News/Articles/2015/09/28/04/53/socar073010a

Dempsey, H., 'Chip shortage to last until at least mid-2022, warns manufacturer', *FT*, 2021

DESI, *Digital Economy and Society Index (DESI) 2021 Thematic Chapters*, 2021, https://digital-strategy.ec.europa.eu/en/policies/desi

Deutsche Bank, *Chart of the Day*, email newsletter, 2021

DG COMM, *Eurobarometer: Resilience and Recovery: Public Opinion One Year into the Pandemic*, 2021

Dhand, O., *The Idea of Central Europe*, Bloomsbury, London, 2018

Dias, F.A., Chance, J., Buchanan, A., 'The motherhood penalty and The fatherhood premium in employment during COVID-19: evidence from the United States', *Res. Soc. Stratif. Mobil.*, No. 69, 2020, pp. 100542

Ding, X., Brazel, D.M., Mills, M.C., *Inability to adhere to non-pharmaceutical interventions linked to COVID-19 infections in the UK*, medRxiv Prepr, 2021

Dodds, K., *Geopolitics: A Very Short Introduction*, Oxford University Press, 2007

Dominicis, L. d., *The Urban-Rural Divide in Anti-EU Vote: Social, demographic and economic factors affecting the vote for parties opposed to European*, Publications Office of the European Union, European Commission Working Paper, 2020, pp.15

Dooley, M. and Kharas H., *Long-run impacts of COVID-19 on extreme poverty. Future Development*, The Brookings Institution, 2021, https://www.brookings.edu/blog/future-development/2021/06/02/long-run-impacts-of-COVID-19-on-extreme-poverty/

Dover, R., Ferrett, B., Gravino, D., Jones, E., Merler, S., *Bringing transparency, coordination and convergence to corporate tax policies in the European Union*, European Parliament Research Service, 2015

Dowd, J.B., Andriano, L., Brazel, D.M., Rotondi, V., Block, P. et al., 'Demographic science aids in understanding the spread and fatality rates of COVID-19', *Proc. Natl. Acad. Sci.*, Vol. 117 No. 18, 2020a, pp. 9696–98

Dowd J.B., Ding, X., Akimova, E., Mills, M.C., 'Health and Inequality: The implications of the COVID-19 pandemic', 2020b

Draghi, M., *G20 Rome Summit, Prime Minister Draghi's opening address*, 30 October 2021

Dual Citizen, *Global Green Economy Index (GGEI) 2018 Global Green Economy Index*, 2018, https://dualcitizeninc.com/global-green-economy-index/

Duffy, P.B. et al, 'Strengthened scientific support for the Endangerment Finding for atmospheric greenhouse gases', *Science*, Vol. 363, No. 597, 2019

Dustmann, C., Eichengreen, B., Otten, S., Sapir, A., Tabellini, G., and Zeoga, G., *Europe's Trust Deficit: Causes and Remedies*, CEPR Press, London, 2017

DW, *Center-left wins landslide victory in Slovakia's elections*, 11 March 2012, https://www.dw.com/en/center-left-wins-landslide-victory-in-slovakias-elections/a-15802282

Easton, A., *Polish election: Leader targets gay rights as threat to society*, 2019, https://www.bbc.com/news/world-europe-49904849

ECB, *ECB economy-wide climate stress test. Methodology and results*, ECB, Occasional Paper, No. 281, 2021a.

ECB, *Monetary Policy Statement, Press conference, Christine Lagarde, President of the ECB, Luis de Guindos, Vice-President of the ECB*, 2021b

ECE, *European Centre of Expertise (ECE) in the field of labour law, employment and labour market policies: Thematic Review 2021 on Platform Work*, European Commission Employment, Social Affairs and Inclusion, 2021, https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8419&furtherPubs=yes

Economist, 'Out in the Open: COVID-19 and Democracy', *Economist*, 2020, pp. 77

ECOPA and CASE, *Estimating International Tax Evasion by Individuals*, Taxation Papers, No. 76, 2019

Eddleston, K.A,. Mulki, J., 'Toward Understanding Remote Workers' Management of Work–Family Boundaries: The Complexity of Workplace Embeddedness', *Gr. Organ. Manag.*, Vol. 42, No. 3, 2017, pp. 346–87

Edelman, *Edelman Trust Barometer*, Edelman, New York, 2021

EEAS, *EU-U.S.: Joint Statement by the Secretary of State of the United States of America and the EU High Representative for Foreign Affairs and Security Policy/Vice President of the European Commission*, 2021, https://eeas.europa.eu/headquarters/headquarters-homepage/108372/eu-us-joint-statement-secretary-state-united-states-america-and-eu-high-representative_en

Ehlert, A., 'The socio-economic determinants of COVID-19: A spatial analysis of German county level data', *Socioecon. Plann. Sci.*, No. 101083, 2021

EIB, *Building a smart and green Europe in the COVID era*, European Investment Bank, Investment Report 2020/2021, 2021

Eichengreen, B., *The Populist Temptation: Economic Grievance and Political Reaction in the Modern Era*, Oxford University Press, New York, 2018

Eichengreen, B., Aksoy, C., and Saka, O., *Revenge of the Experts: Will COVID-19 Renew or Diminish Public Trust in Science?*, NBER Working Paper, No. 28112, 2020

El Mundo, *Vox se reengancha exprimiendo su discurso más antiinmigración*, 2020, https://www.elmundo.es/espana/2020/12/03/5fc8a6e5fc6c8385088b4572.html

Energy Transitions Commission, *Making Mission Possible. Delivering a Net-Zero Economy*, 2020

Engzell, P., Frey, A., Verhagen, M.D., 'Learning loss due to school closures during the COVID-19 pandemic', *Proc. Natl. Acad. Sci.*, Vol. 118, No. 17, 2021, e2022376118

EPRS, *States of emergency in response to the coronavirus crisis: Situation in in certain Member States*, European Parliamentary Research Service, Brussels, 2020

Erikson, E., *Identity, Youth and Crisis*, Norton, New York, 1968

Erlanger, S., 'Coronavirus Has Lifted Leaders Everywhere. Don't Expect That to Last', *The New York Times*, 2020, pp. https://www.nytimes.com/2020/04/15/world/europe/coronavirus-presidents.html

Esaisson, P., Jocob, S., Ghersetti, M. and Johansson, B., *How the Coronavirus Crisis Affects Citizen Trust in Government Institutions and in Unknown Others – Evidence from 'the Swedish Experiment*, unpublished manuscript, University of Gothenburg, 2020

ESDE, *Employment and Social Developments in Europe 2021*, European Commission DG EMPL, 2021, https://op.europa.eu/en/publication-detail/-/publication/e823d46f-e518-11eb-a1a5-01aa75ed71a1/language-en

Etchegaray, N., Scherman, A. and Valenzuela, S., 'Testing the Hypothesis of 'Impressionable Years' with Willingness to Self-Sensor in Chile', *International Journal of Public Opinion Research*, No. 31, 2018, 331-348.

Etheridge, B., Tang, L., Wang, Y., *Worker productivity during lockdown and working from home: Evidence from self-reports*, CEPR Press, No. 42, 2020, pp. 118–51

EUROFOUND, *New Forms of Employment*. Luxembourg, 2015

EUROFOUND, *COVID-19: Policy responses across Europe*, 2020a

EUROFOUND, *New forms of employment: 2020 update*, 2020b

EUROFOUND, *Living, Working and COVID-19*, Publications Office of the European Union, COVID-19 Series, 2020c

EUROFOUND, *Living, Working and COVID-19 (Update April 2021)*, COVID-19 Series, Publications Office of the European Union, 2021

EUROFOUND and the International Labour Office, *Working anytime, anywhere: The effects on the world of work - new report highlights opportunities and challenges of expanding telework*, Luxembourg, 2017

European Commission, *Tackling the Challenges in Commodity Markets and Raw Materials. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions*, European Commission, 2011, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0025

European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Launching the European Defence Fund*, European Commission, 2017

European Commission, *A Clean Planet for All. A EU long-term strategic vision for a prosperous, modern, competitive and climate neutral economy*, 2018a

European Commission, *Report from the European Commission to the European Parliament and the Council: On Progress in Romania under the Cooperation and Verification Mechanism*, https://ec.europa.eu/info/sites/info/files/progress-report-romania-2018-com-2018-com-2018-851_en.pdf, 2018b

European Commission, *Towards a stronger international role of the euro*, European Commission contribution to the European Council and the Euro Summit on 05.12.2018, 2018c, https://ec.europa.eu/info/sites/default/files/communication_-_towards_a_stronger_international_role_of_the_euro.pdf

European Commission, *Guidance to the Member States concerning foreign direct investment and free movement of capital from third countries, and the protection of Europe's strategic assets, ahead of the application of Regulation (EU) 2019/452 (FDI Screening Regulation)*, Communication from the Commission 25.03.2020. European Commission, 2020a, https://trade.ec.europa.eu/doclib/docs/2020/march/tradoc_158676.pdf

European Commission, *Rule of Law: First Annual Report on the Rule of Law situation across the European Union*, European Commission, 2020b, https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1756

European Commission, *Shaping Europe's digital Future. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions*, European Commission, 2020c, https://ec.europa.eu/info/sites/default/files/communication-shaping-europes-digital-future-feb2020_en_3.pdf

European Commission, *The COVID confinement measures and EU labour markets*, Brussels, 2020c

European Commission, *EU action plan for social economy*, 2021a, https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12743-EU-action-plan-for-social-economy_en

European Commission, *Employment and Social Developments in Europe 2021: Annual Review. DG Employment, Social Affairs and Inclusion*, 2021b, https://ec.europa.eu/social/main.jsp?catId=113&langId=en#ESDE

European Commission, *European Economic Forecast. Autumn 2021*, Institutional Paper No. 160, 2021c, https://ec.europa.eu/info/sites/default/files/economy-finance/ip160_en_0.pdf

European Commission, *EU-US Trade and Technology Council: Commission launches consultation platform for stakeholder's involvement to shape transatlantic cooperation*, 2021d, https://trade.ec.europa.eu/doclib/press/index.cfm?id=2298

European Commission, *Proposal for a Directive of the European Parliament and of the Council on improving working conditions in platform work*, 9.12.2021 COM(2021) 762 final 2021/0414 (COD), 2021e

European Commission, *Recovery and Resilience Facility. Recovery from the Coronavirus*, 2021f, https://ec.europa.eu/info/business-economy-euro/recovery- coronavirus/recovery-and-resilience-facility_en

European Commission, *Taxation Trends Report*, 2021g

European Commission, *The EU economy after COVID 19. Implications for economic governance*, 2021h

European Commission, *The Global Gateway. Joint Communication to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank*, 01.12.2021, 2021i https://ec.europa.eu/info/sites/default/files/joint_communication_global_gateway.pdf

European Commission, *Updating the 2020 New Industrial Strategy: Building a stronger Single Market for Europe's recovery,* 2021j, https://ec.europa.eu/info/files/communication-updating-2020-new-industrial-strategy-building-stronger-single-market-europes-recovery_en

European Commission DG Communications Networks C& T, *Broadband Coverage in Europe 2019*, 2020

European Commission Employment, Social Affairs & Inclusion, 'Employment and Social Developments in Europe', *Quarterly Review December 2020*, 2020a

European Commission Employment, Social Affairs & Inclusion, *Labour Market and Wage Developments in Europe*, 2020b, https://ec.europa.eu/social/main.jsp?langId=en&catId=89&furtherNews=yes&newsId=9873

European Council, *Towards a genuine Economic and Monetary Union (Four Presidents Report) Report by President of the European Council Herman Van Rompuy*, 2012

European Council, *Conclusions of the European Council (19/20 December 2013)*, 2013

European Defence Agency, *2020 Card Report,* 2020, https://eda.europa.eu/docs/default-source/reports/card-2020-executive-summary-report.pdf

European Environment Agency, *Economic losses from climate-related extremes in Europe*, 2021, https://www.eea.europa.eu/ims/economic-losses-from-climate-related

European Parliament, *Rule of law concerns in Member States: how the EU can act (infographic)*, 2018a, https://www.europarl.europa.eu/news/en/headlines/eu-affairs/20180222STO98434/rule-of-law-concerns-how-the-eu-can-act-infographic

European Parliament, *The Situation in Hungary: European Parliament resolution of 12 September 2018*, European Parliament 2014-2019, 2018b, https://www.europarl.europa.eu/doceo/document/TA-8-2018-0340_EN.pdf

European Parliament, 'European Parliament resolution of 8 October 2020 on the rule of law and fundamental rights in Bulgaria', 2020a, https://www.europarl.europa.eu/doceo/document/TA-9-2020-0264_EN.html

European Parliament, *European Parliament resolution of 17 December 2020 on the Multiannual Financial Framework 2021-2027, the Interinstitutional Agreement, the EU Recovery Instrument and the Rule of Law Regulation*, 2020b, https://www.europarl.europa.eu/doceo/document/TA-9-2020-0360_EN.html

European Parliament, *Eurobarometer Spring 2021: Resilience and Recovery. Public Opinion One Year into the Pandemic*, European Parliament, 2021, https://www.europarl.europa.eu/at-your-service/files/be-heard/eurobarometer/2021/spring-2021-survey/report.pdf

European Parliament, *Rule of law concerns in Member States: how the EU can act (infographic)*, 2018, https://www.europarl.europa.eu/news/en/headlines/eu-affairs/20180222STO98434/rule-of-law-concerns-how-the-eu-can-act-infographic

European Investment Bank, *EIBIS – European Investment Bank Investment Survey*, 2021

Eurostat, *Early leavers from education and training. Statistics Explained*, 2020, https://ec.europa.eu/eurostat/statistics-%20explained/index.php?title=Early_leavers_from_education_and_training%20

Eurostat, *Eurostat Database*, 2021a, https://ec.europa.eu/eurostat/data/database

Eurostat, *Jobs Benefiting from COVID-19 Governmental Support Measures*, 2021b, URL: https://ec.europa.eu/eurostat/documents/10760954/11071228/Job_benefiting_from_COVID19_governmental_support_measures.xlsx

Eurostat, *R&D expenditure in the EU at 2.19% of GDP in 2019*, 2021c, https://ec.europa.eu/eurostat/de/web/products-eurostat-news/-/ddn-20201127-1

Eurostat, *International trade in goods – a statistical picture. EU imports of energy products – recent developments*, 2022, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_imports_of_energy_products_-_recent_developments#Main_suppliers_of_natural_gas_and_petroleum_oils_to_the_EU

Evenett, S. J., 'Chinese whispers: COVID-19, global supply chains in essential goods, and public policy', *Journal of International Business Policy*, Vol. 3, No. 4, 2020, 408-29

Evenett, S. J. and Fritz, J., *Subsidies and Market Access. Towards an Inventory of Corporate Subsidies by China, the European Union and the United States. The 28th Global Trade Alert Report*, CEPR Press, London, 2021

EY, *Global FinTech Adoption Index*, 2019

Falk, J., *Income inequality and poverty in front of and during the economic crisis: An empirical investigation for Germany 2002 – 2010*, Econstor, 2012, https://www.econstor.eu/bitstream/10419/59026/1/717196798.pdf

Farre, L., Fawaz, Y., Bonzalez, L., Graves, J., *How the COVID-19 lockdown affected gender inequality in paid and unpaid work in Spain*, 2020, 13434

Farzanegan, M., and Gholipour, H., 'Growing Up in the Iran-Iraq War and Preferences for Strong Defense', MAGKS Joint Discussion Paper Series, *Economics*, No. 07-219, Philipps-University Marburg, 2019

Fasani, F., Mazza, J., *A vulnerable workforce: migrant workers in the COVID-19 pandemic*, JRC Technical report, No. JRC120730, 2020, https://op.europa.eu/en/publication-detail/-/publication/43d3d0e2-a679-11ea-bb7a-01aa75ed71a1/language-en/format-PDF/source-194348210

Fay, D.L., Ghadimi A., *Collective Bargaining during Times of Crisis: Recommendations*, National Library of Medicine, 2020

Fazekas, M. e., *Are EU funds a corruption risk? The impact of EU funds on grand corruption in Central and Eastern Europe*, Corruption Research Center Budapest, 2014, https://www.researchgate.net/publication/259187507_Are_EU_funds_a_corruption_risk_The_impact_of_EU_funds_on_grand_corruption_in_Central_and_Eastern_Europe

Folentova, V., & al., e., *DennikN*, 2021, https://dennikn.sk/2304122/krajci-som-bezmocny-demisia-podla-neho-nie-je-riesenie/

France24, *A world tour of the politicians named in the Panama Papers*, 2016, https://www.france24.com/en/20160404-panama-papers-politicians-named-europe-africa

Franken, S., Wattenberg, M., 'The Impact of AI on Employment and Organisation in the Industrial Working Environment of the Future', *ECIAIR 2019 Eur. Conf. Impact Artif. Intell. Robot. Reading*, Academic Conferences and Publishing Intl Ltd, 2019

Freedom House, *Nations in Transit 2020: Dropping the Democratic Façade*, 2020, https://freedomhouse.org/report/nations-transit/2020/dropping-democratic-facade

Freedom House, *Nations in Transit 2021 – Hungary*, 2021 https://freedomhouse.org/country/hungary/nations-transit/2021

Funke, M., Schularick, M. and Trebesch, C., 'Going to the extremes: Politics after financial crises, 1870-2014', *European Economic Review*, No. 88, 2016, 227-260

Furceri, D., Ganslmeier, M. and Ostry, J.D., *Are Climate Change Policies Politically Costly?*, IMF Working Paper, No. 21/156, 2021

Garrett-Peltier, H., 'Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model', *Econ. Model., No.* 61, 2017, pp. 439–47

Garrote Sanchez, D., Gomez Parra, N., Ozden, C., Rijkers, B., Viollaz, M., Winkler, H., 'Who on Earth Can Work from Home?', *World Bank Res. Obs.*, Vol. 36, No. 1, 2021, pp. 67–100

Gaugitsch, R., Dallhammer, E., Schuh, B., Hui-Hsiung, C., Besana, F., *Territorial Impact Assessment: the State of Cities and Regions in the COVID-19 crisis*, 2020

Gelpern, A., Horn, S., Morris, S., Parks. B. & Trebesch, C., *How China Lends: A Rare Look into 100 Debt Contracts with Foreign Governments. Peterson Institute for International Economics*, Kiel Institute for the World Economy, Center for Global Development, and AidData at William & Mary, 2021, https://www.cgdev.org/publication/how-china-lends-rare-look-into-100-debt-contracts-foreign-governments

Gingerich, D. W., *Pandemics and Political Development: The Electoral Legacy of the Black Death in Germany*, World Politics, 2021

Giovannetti, G., Mancini, M., Marvasi, E., and Vannelli, G., 'The role of global value chains in the pandemic: Impact on Italian firms', English translation of an article published in Italian in *Rivista di Politica Economica*, No. 2/2020, 2021

Giuliano, P. and Spilimbergo, A., 'Growing Up in a Recession', *Review of Economic Studies*, No. 81, 2013, pp.787-817

Glauber, R., 'Trends in the Motherhood Wage Penalty and Fatherhood Wage Premium for Low, Middle, and High Earners', *Demography*, Vol. 55, No. 5, 2018, pp. 1663–80

Goldthau A. & Tagliapietra, S., *How an open climate club can generate carbon dividends for the poor*, Bruegel, 2022, https://www.bruegel.org/2022/01/how-an-open-climate-club-can-generate-carbon-dividends-for-the-poor/

Goubin, S., Hooghe, M., & de Leeuw, S., 'Inequality and Political trust in Europe: An Exploratory Analysis', *Centre for Citizenship and Democracy*, Leuven, 2016, p.14

Gozgor, G., 'Global Evidence on the Determinants of Public Trust in Governments during the COVID-19', *Applied Research in the Quality of Life*, 2021, https://link.springer.com/article/10.1007/s11482-020-09902-6

Graham, M., Hjorth, I., Lehdonvirta, V., 'Digital labour and development: impacts of global digital labour platforms and the gig economy on worker livelihoods', *Transf. Eur. Rev. Labour Res.*, Vol. 23, No. 2, 2017, pp. 135–62

Guriev, S., and Papaioannou, E., *The Political Economy of Populism*, SSRN, 2020, https://ssrn.com/abstract=3542052

Gylfason, T., Holmström, B., Korkman, S., Söderström, H. T., & Vihriälä, V., *Nordics in Global Crisis: Vulnerability and Resilience*, ETLA, 2010

Hafstead, R.A.C. and Williams III, R.C., 'Unemployment and environmental regulation in general equilibrium', *Journal of Public Economics*, Vol. 160, 2018, pp. 50-65

Hale, T., Angrist, N., Goldszmidt, R., Kira, B., Petherick, A. et al., 'A global panel database of pandemic policies (Oxford COVID-19 Government Response Tracker)', *Nat. Hum. Behav.*, Vol. 5, No. 4, 2021, pp. 529–38

Hanna, R., Xu, Y., Victor, D.G., 'After COVID-19, green investment must deliver jobs to get political traction', *Nature*, Vol. 582, No. 7811, 2020, pp. 178–80

Harstad, B., 'Technology and Time Inconsistency', *Journal of Political Economy*, Vol. 128, No. 7, 2020

Harvard, T.H., Chan School of Public Health, *Coronavirus, Climate Change, and the Environment – A Conversation on COVID-19 with Dr. Aaron Bernstein, Director of Harvard Chan C-CHANGE*, Harvard T.H. Chan School of Public Health, Boston, MA, 2021, https://www.hsph.harvard.edu/c-change/subtopics/coronavirus-and-climate-change/

Hauk, W., *Will it be a 'V' or a 'K'? The many shapes of recessions and recoveries*, The Conversation, 2020, https://theconversation.com/will-it-be-a-v-or-a-k-the-many-shapes-of-recessions-and-recoveries-147727

Hausfather, Z. and Peters, G.P., 'Emissions – the 'business as usual' story is misleading', *Nature*, Vol. 577, 2020

Hendren, N. and Sprung-Keyser, B., 'A Unified Welfare Analysis of Government Policies', *Quarterly Journal of Economics*, Vol. 135, No. 3, 2020, pp. 1209-1318

Hepburn, C., O'Callaghan, B., Stern, N., Stiglitz, J., Zenghelis, D., 'Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?' *Oxford Rev. Econ. Policy*, Vol. 36, No. S1, 2020, pp. S359–81

Hernandez, M., *Pedro Sánchez plantea reformar la Constitución para que gobierne la lista más votada*, El Mundo, 2019, https://www.elmundo.es/espana/2019/07/11/5d26e971fdddffb4648b4688.html

Hernández, H., Grassano, N., Tübke, A., Amoroso, S., Csefalvay, Z., and Gkotsis, P., *The 2019 Eu Industrial R&D Investment Scoreboard*, Publications Office of the European Union, Luxembourg, 2020

Hershbein, B. J., and Holzer, H. J., 'The COVID-19 Pandemic's Evolving Impacts on the Labor Market: Who's Been Hurt and What We Should Do', *Upjohn Institute*, WP, No. 21-341, 2021

Hierro, M. J., & Rico, G., *Economic crisis and nationalist attitudes: Experimental evidence from Spain*, Universitat Autònoma de Barcelona, 2021, https://gent.uab.cat/grico/sites/gent.uab.cat.grico/files/paper13_submitted.pdf

Hoekman, L.M., Smits, M.M.V., Koolman, X., 'The Dutch COVID-19 approach: Regional differences in a small country', *Heal. Policy Technol.*, Vol. 9, No. 4, 2020, pp. 613–22

Hollinger, P., and Abboud, L., 'Intel offers to spread $20bn chip factory investment across EU', *Financial Times*, 10 July 2021

Honohan, P., 'Is Ireland really the most prosperous country in Europe?', Central Bank of Ireland, *Economic Letter*, Vol. 2021, No. 1, 2021

Hosny, A., 'The sooner (and the smarter), the better: COVID containment measures and fiscal responses', *COVID Economics*, No. 73, 2021, pp. 137-157

Houser, T., Mohan, S., Heilmayer, R., *A Green Global Recovery? Assessing US Economic Stimulus and the Prospects for International Coordination*, World Resources Institute, 2009

Huang, T., Véron, N., and Xu, D., *The Private Sector Advances: Evolving Ownership Structures of the Largest Chinese Companies*, research in progress, 2021

IEA, *NetZeroby2050*, Paris, 2021

International Labour Organization, *ILO Monitor: COVID-19 and the world of work, 7th Edition*, 2021

International Monetary Fund, *Autumn Forecast 2021*, 2021a, https://www.imf.org/en/Publications/WEO/Issues/2021/10/12/world-economic-outlook-october-2021

International Monetary Fund, *Fiscal Monitor April 2021*, 2021b, https://www.imf.org/en/Publications/FM/Issues/2021/03/29/fiscal-monitor-april-2021

International Monetary Fund, *Reaching Net Zero Emissions*, IMF, prepared for G20 by the Staff of the International Monetary Fund, 2021c

International Monetary Fund, *Datamapper*, 2022, https://www.imf.org/external/datamapper/PPPSH@WEO/OEMDC/ADVEC/WEOWORLD

IPCC, *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]', IPCC, 2014

IPCC, *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]', 2018

IPCC AR6, *VIth Assessment Report*, in progress, 2021

IRENA, *Global Landscape of Renewable Energy Finance 2020*, 2020

Ivanov, D., 'Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case', *Transp. Res. Part E Logist. Transp. Rev.*, No. 136, 2020, pp. 101922

Jaravel, X. and Rey, H., *Towards a Prudential Fiscal Framework: Fiscal Governance and Global Public Goods*, mimeo, 2021

Jaumotte, F., Liu, W. and McKibbin, W.J., *Mitigating Climate Change: Growth-Friendly Policies to Achieve Net Zero Emissions by 2050*, IMF Working Paper, No. 21/195, 2021

Kakissis, J., *Chinese Firms Now Hold Stakes in Over A Dozen European Ports*, NPR Morning Edition, 2018, https://www.npr.org/2018/10/09/642587456/chinese-firms-now-hold-stakes-in-over-a-dozen-european-ports?t=1638174370277

Kalev, A., 'How You Downsize Is Who You Downsize', *Am. Sociol. Rev.*, 2014, Vol. 79, No. 1, 2014, pp. 109–35

Khan, Saif M., Mann, A. and Peterson, D., 'The Semiconductor Supply Chain: Assessing National Competitiveness', *Center for Security and Emerging Technology*, Issue Brief, 2021

Kim, J., Henly, J.R., Golden, L.M., Lambert, S.J., 'Workplace Flexibility and Worker Well- Being by Gender', *J. Marriage Fam.*, Vol. 82, No. 3, 2020, pp. 892–910

Kirkegaard, J., 'The European Union's Troubled OCVID-19 Vaccine Rollout', *Realtime Economic Issues Watch*, Peterson Institute for International Economics, Washington, D.C., 2021

Kitanova, M., 'Youth political participation in the EU: evidence from a cross-national analysis', *Journal of Youth Studies*, Vol. 23, No. 7, DOI:10.1080/13676261.2019.1636951, 2020, pp. 819-836,

Kleinhans, J-P. and Baisakova, N., *The Global Semiconductor Value Chain*, Stiftung Neue Verantwortung, Berlin, 2020

Koester, G., Benatti, N., Vlad, A., *Assessing wage dynamics during the COVID-19 pandemic: can data on negotiated wages help?*, European Central Bank Economic Bulletin, No. 8/2020, 2020, https://www.ecb.europa.eu/pub/economic-bulletin/focus/2021/html/ecb.ebbox202008_07~e846adc8b2.en.html

Kono, D.Y, 'Compensating for the Climate: Unemployment Insurance and Climate Change Votes', *Political Studies*, Vol. 68, No. 1, 2020, pp. 167 –186

Krauss, C., Perlroth, N., Sanger, D.E., *Cyberattack Forces a Shutdown of a Top U.S. Pipeline*, The New York Times, 2021, https://www.nytimes.com/2021/05/08/us/politics/cyberattack-colonial-pipeline.html

Krosnick, J., and Alwin, D., 'Aging and Susceptibility to Attitude Change', *Journal of Personality and Social Psychology*, No. 57, 1989, pp.416-425

Krzyzak, K., 'Bulgaria set to follow Hungary, Poland in raid of second-pillar pensions', *IPE Magazine*, 2014, https://www.ipe.com/bulgaria-set-to-follow-hungary-poland-in-raid-of-second-pillar-pensions/10005956.article

Kudzko, A., & Markowitz, S., *Coronavirus sees approval-rating soar for EU leaders*, EU Observer, 2020, https://euobserver.com/opinion/147994

Laeven, L. and Valencia, F., *Systemic Banking Crises Database: A Timely Update in COVID-19 Times*, mimeo, 2020

Lane, P. R., 'The European Sovereign Debt Crisis', *Journal of Economic Perspectives*, Vol. 26, No. 3, doi=10.1257/jep.26.3.49, 2012, pp. 49–68

Lane, P. R., The Resilience of the Euro, *Journal of Economic Perspectives*, Vol. 35, No. 2, 2021, pp. 3–22

Lau, S., *Lithuania pulls out of China's "17+1" bloc in Eastern Europe*, Politico, 2021, https://www.politico.eu/article/lithuania-pulls-out-china-17-1-bloc-eastern-central-europe-foreign-minister-gabrielius-landsbergis/

Lepsius, M. R., 'From Fragmented Party Democracy to Government by Emergency Decree and National Socialist Takeover: Germany'. In Wendt, C., *Max Weber and Institutional Theory*, Springer, 2017

Ligot, D. e., 'Infodemiology: 'Computational Methodologies for quantifying and visualizing key characteristics of the COVID-19 infodemic', *SSRN*, 2021

Macharzina K., 'The European Microelectronics Industry and New Technologies', *European Approaches to International Management*, 1986, pp. 241–56

Malecki, F. D. G., 'Overcoming the security risks of remote working', *Comput. Fraud Secur.*, No. 7, 2020, pp. 10–12

Mannheim, K., 'The Problem of Generations', *Essays on the Sociology of Knowledge*, Routledge, London 1928

Marcu et al., *2021 State of the EU ETS Report*, ERCST, Wegener Center, BloombergNEF and Ecoact, 2021.

Marin, D. and Vona, F., 'The impact of energy prices on socioeconomic and environmental performance: Evidence from French manufacturing establishments, 1997–2015', *European Economic Review*, 2021

Markkanen, S. and Anger-Kraavi, A., 'Social impacts of climate change mitigation policies and their implications for inequality', *Climate Policy*, Vol. 19, No. 7, 2019, 827-844

Mason, A., Narcum, J., Mason, K., 'Changes in consumer decision-making resulting from the COVID-19 pandemic', *J. Cust. Behav.*, 2020

Mavroidis, P., and Sapir, A., *China and the WTO: Why Multilateralism Still Matters*, Princeton University Press, Princeton, N.J, 2021

McCollum, D., Zhou W., Bertram, C., de Boer, H., Bosetti, V., Busch, S., Després, J., Drouet, L., Emmerling, J., Fay, M., Fricko, O., Fujimori, S., Gidden, M., Harmsen, M., Huppmann, D., Iyer, G., Krey, V., Kriegler, E., Nicolas, C., Pachauri, S., Parkinson, S., Poblete-Cazenave, M., Rafaj, P., Rao, N., Rozenberg, J., Schmitz, A., Schoepp, W., van Vuuren, D., and Riahi, K., 'Energy investment needs for fulfilling the Paris Agreement and achieving the Sustainable Development Goals', Nature Energy, Vol. 3, 2018. pp. 589-599

McDonell, S., *Biden says US will defend Taiwan if China attacks*, BBC News, 2021, https://www.bbc.com/news/world-asia-59005300

McGlade, C. and P. Ekins, 'The geographical distribution of fossil fuels unused when limiting global warming to 2 °C', Nature, No. 517, 2015, 187–190

McKinsey, 'How a post-pandemic stimulus can both create jobs and help the climate', *McKinsey Quarterly*, 2020

Mervis, J., 'Biden proposes $250 billion investment in research', *Science*, 2021

Milanovic, Branko, *Capitalism, Alone: The Future of the System that Rules the World*, Harvard University Press, 2019

Milesi-Ferretti, G. M., *A most unusual recovery: How the US rebound from COVID differs from rest of G7*, 2021, https://www.brookings.edu/experts/gian-maria-milesi-ferretti/

Mills, M., Mencarini, L., Tanturri, M.L., Begall, K., 'Gender equity and fertility intentions in Italy and the Netherlands', *Demogr. Res.*, No. 18, 2008, 1–26

Mills, M., Täht, K., 'Nonstandard Work Schedules and Partnership Quality: Quantitative and Qualitative Findings', *J. Marriage Fam.*, Vol. 72, No. 4, 2010, pp. 860–75

Mills, M.C., Blossfeld, H-P., Klijzing, E., 'Becoming an adult in uncertain times', *Glob. Uncertain*, 2005a

Mills, M.C., Blossfeld, H-P., 'Globalisation, Uncertainty and the Early Life Course: A Theoretical Framework', *Glob. Uncertain. Youth Soc.*, 2005b, pp. 1–24

Mills, M.C., Ding, X., Brazel, D.M., *Inequalities in COVID-19 mortality linked to physical proximity of occupation*, medRxiv Prepr., 2021

Mills, M., Präg, P., *Gender Inequalities in the School-to-Work Transition in Europe: Short Statistical Report No. 4*, RAND Corporation, 2014

Mills, M.C., Praeg, P., Tsang, F., Begall, K., Derbyshire, J. et al., *Use of childcare in the EU Member States and progress towards the Barcelona targets*, RAND Corporation, 2014

Mills, M.C., 'People struggle to assess risk, especially in a pandemic', Financ. Times, 2021, p. 12

Ministers of Telecommunications of the European Union, *Declaration: A European Initiave on Processors and semiconductor Technologies*, 2021

Mungiu-Pippidi, A., *Public Integrity and Trust in Europe*, Hertie School of Goverance, Berlin, 2015

Molnar, A., Miron, G., Elgeberi, N., Barbour, M.K., Huera, L., et al., *Virtual Schools in the US*, 2019

Morandini, MC., Thum-Thysen, A., Vandeplas A., 'Facing the Digital Transformation: are Digital Skills enough?', *European Commission Economic Brief*, No. 054, 2020, https://ec.europa.eu/info/sites/default/files/economy-finance/eb054_en.pdf

Moreno, A., Ongena, S., Ventula Veghazy, A. and Wagner, A.F., 'Misfortunes never come alone: From the financial crisis to the COVID pandemic', *COVID Economics*, No. 71, 2021, pp. 59-82

Mortera-Martinez, C., The EU's Troiubled Leaderhip: You Get What you Pay For, *Insight*, Centre for European Reform, 2021, https://www.cer.eu/insights/eus-troubled-leadership-you-get-what-you-pay

Mudde, C., *The Populist Zeitgeist. Government and Opposition*, 2004, https://www.cambridge.org/core/journals/government-and-opposition/article/populist-zeitgeist/2CD34F8B25C4FFF4F322316833DB94B7

Munoz, J., Torcal, M. and Bonet, E., 'Institutional Trust and Multilateral Government in the European Union: Congruence or Compensation?', *European Union Politics*, No. 12, 2011, pp. 551-574

Nic, M., 'The Visegrád Group in the EU: 2016 as a turning-point?', *European View*, 2016, pp. 281–290

Álavarez-Martínez, M., Barrios, S., d'Andria, D., Gesualdo, M., Nicodem, G., Pycrift, J., 'How Large is the Corporate Tax Base Erosion and Profit Shifting? A General Equilibrium Approach', *Economic Systems Research*, 2019

Niemi, R. and Sobieszek, B., 'Political Socialization', *Annual Review of Sociology*, No. 3, 1977, pp. 209-233

Nijp, H.H., Beckers, D.G.J., van de Voorde, K., Geurts, S.A.E., Kompier, M.A.J.., 'Effects of new ways of working on work hours and work location, health and job-related outcomes', *Chronobiol. Int.*, Vol. 33, No. 6, 2016, pp. 604–18

Nivakoski, S., *AstraZeneca Controversy and Trust in National Governments and the EU*, unpublished manuscript, EUROFOUND, 2021

NL Times, *Dutch bank ING plans to keep work-from-home going after pandemic*, NL Times, 2020, https://nltimes.nl/2020/11/26/dutch-bank-ing-plans-keep-work-home-going-pandemic

Nordhaus, W., 'An Optimal Transition Path for Controlling Greenhouse Gases', *Science*, Vol. 258, No. 5086, 1992, pp. 1315-1319

Nordhaus, W., 'Climate Clubs: Overcoming Free-riding in International Climate Policy', *American Economic Review*, Vol. 105, No. 4, 2015, pp. 1339–1370

Norris, P., & Inglehart, R., *Cultural Backlash: Trump, Brexit, and Authoritarian Populism*, Cambridge University Press, 2019

Novak, S., 'The Opacity of Consensus: Decision-Making in the EU Council', *The Economy Journal*, 2021, https://www.theeconomyjournal.eu/texto-diario/mostrar/715479/opacidad-consenso-toma-decisiones-consejo-ue

Oakman, J., Kinsman, N., Stuckey, R., Graham, M., Weale, V., 'A rapid review of mental and physical health effects of working at home: how do we optimise health?', *BMC Public Health*, Vol. 20, No. 1, 2020, pp. 1825

Obama, B., *Remarks By President Obama to the Australian Parliament on November 17, 2011*, The White House – President Barack Obama, 2011

OECD, *OECD Economic Outlook, Interim Report September 2021: Keeping the Recovery on Track*, OECD Publishing, 2021, https://www.oecd-ilibrary.org/economics/oecd-economic-outlook/volume-2021/issue-1_490d4832-en

OLAF, *The OLAF Report 2019*, 2019, https://ec.europa.eu/anti-fraud/sites/default/files/olaf_report_2019_en.pdf

Omelicheva, M. Y., 'Natural Disasters: Triggers of Political Instability?', *International*, 2011, pp. 441-465.

Ornell, F., Moura, H.F., Scherer, J.N., Pechansky, F., Kessler, F.H.P., von Diemen, L., 'The COVID-19 pandemic and its impact on substance use: Implications for prevention and treatment', *Psychiatry Res.*, No. 289, 2020, pp. 113096

Ovide S., 'Back to Work the Google Way', *New York Times*, 2021, https://www.nytimes.com/2021/05/03/technology/back-to-office-google.html

Passari, E., 'The Great Recession and the Rise of Populism', *Intereconomics*, 2020, pp. 17-21

Pellenyi, G. M., Pinelli, D. a., ‚Regional Dynamics in EU11', In Landesmann, M. and Székely, I.P., *Does EU Membership Facilitate Convergence? The Experience of the EU's Eastern Enlargement*, Vol. I, Palgrave Macmillan, 2021, pp. 123-148

Politico, *Poll of Polls*, 2021, https://www.politico.eu/europe-poll-of-polls/czech-republic/

PRRI, *Competing Visions of America: An Evolving Identity or a Culture Under Attack?*, 2021, https://www.prri.org/research/competing-visions-of-america-an-evolving-identity-or-a-culture-under-attack/

Pullela, P., *Italy's 5-star wants vote on euro, joining wave of referendums*, Reuters, 2016, https://www.reuters.com/article/uk-italy-euro-referendum-idUKKCN0Z80VZ

Republic of Poland, *Convergence Programme 2020 Update*, 2020, Warsaw, https://ec.europa.eu/info/sites/default/files/2020-european-semester-convergence-programme-poland_en.pdf

Reuters, *Czech government rejects president's call for referendum on EU, NATO*, 2016, https://www.reuters.com/article/us-britain-eu-czech-president-idUSKCN0ZH4C8

Reuters, *Romania's top court overturns criminal code changes*, 2019, https://www.reuters.com/article/us-romania-politics-law-idUSKCN1UO1G3

Revoltella, D. and de Lima, P. J. F., *Thriving in a post-pandemic economy*, VoxEU.org, 2020, https://voxeu.org/article/thriving-post-pandemic-economy

Rigaud, K.K., de Sherbinin, A., Jones, B., Bergmann, J., Clement, V., Ober, K., Schewe, J., Adamo, S., McCusker, B., Heuser, S., Midgley, A., *Groundswell : Preparing for Internal Climate Migration*, World Bank, 2018, https://openknowledge.worldbank.org/handle/10986/29461, License: CC BY 3.0 IGO

Ritter, T., Pedersen, C.L., 'Analyzing the impact of the coronavirus crisis on business models', *Ind. Mark. Manag.*, No. 88, 2020, pp. 214–24

Roth, F., Nowak-Lehmann, F. and Otter, T., *Has the Financial Crisis Shattered Citizens' Trust in National European Governmental Institutions? Evidence from the EU Member States, 1999-2010*, CEPS, Working Document, No. 343, 2011

Roth, F. and Otter, T., 'Crisis and Trust in National and European Union Institutions – Panel Evidence for the EU, 1999 to 2012', *European University Institute*, RSCAS Working Paper 2013/31, 2013

Ruchir, A. and Gopinath, G., *A Proposal to End the COVID-19 Pandemic*, IMF, IMF Staff Discussion Note, 2020

Ruiz Jiménez, A. M., 'National Identities in Troubled Times: Germany and Southern European Countries after the Great Recession', *Genealogy*, 2021, https://www.mdpi.com/2313-5778/5/2/40

Russon, M-A., *Uber drivers are workers not self-employed, Supreme Court rules*, BBC News, 2021, https://www.bbc.co.uk/news/business-56123668

Saeed, S., *Transparency International*, 2021, https://www.transparency.org/en/blog/cpi-2020-malta-lost-in-corruption

Sapir, A., *Why has COVID-19 hit different European Union economies so differently?*, Bruegel, Policy Contribution, No. 18-2020, 2020

Sapir, A., 'Growth and competitiveness: An elusive European quest?', In Helen Wallace, Nikos Koutsiaras, and George Pagoulatos (eds.), *Europe's Transformation: Essays in Honour of Loukas Tsoukalis*, Oxford University Press, Oxford, 2021, pp. 35-50

Sardeshmukh, S.R., Sharma, D., Golden, T.D., 'Impact of telework on exhaustion and job engagement: a job demands and job resources model', *New Technol. Work Employ.*, Vol. 27, No. 3, 2012, pp. 193–207

Scharpf, F., *Governing in Europe*, Oxford University Press, Oxford, 1999

Schraff, D., 'Political Trust during the COVID-19 Pandemic: Rally around the Flag or Lockdown Effects?', *Europe Journal of Political Research*, 2020, https://ejpr.onlinelibrary.wiley.com/doi/10.1111/1475-6765.12425

Schröder, V., *Weimarer Republik 1918-1933*, 2014, https://www.wahlen-in-deutschland.de/wReichstagFraktionen.htm

Schwab, K., & Malleret, T., *COVID-19: The Great Reset*, Forum Publishing, 2020

Schwarzer, D., ‚Europe's Geopolitical Moment', *Internationale Politik Quarterly (IPQ)*, 2021, https://ip-quarterly.com/en/europes-geopolitical-moment

Sevastopulo, D., 'China warns of risk of military conflict with US over Taiwan', *Financial Times*, 2022, https://www.ft.com/content/5e2ac2b5-47c5-4f8d-8a57-17bf26d5fc8d

Seiler, P., 'Firms' investment decisions in response to the COVID pandemic: Causal evidence from Switzerland', *COVID Economics*, No. 73, 2021, pp. 81-136

Sevilla, A. and Smith, S., 'Baby steps: the gender division of childcare during the COVID-19 pandemic', *Oxford Review of Economic Policy*, Vol. 36, No. S1, 2020, pp. S169–S186

Shahbaz, A., *Freedom on the Net 2018: The Rise of Digital Authoritarianism*, Freedom House, 2019, https://freedomhouse.org/report/freedom-net/2018/rise-digital-authoritarianism

Shanmugaratnam, T., *A perfect long storm. Keynote speech at the conference: New World, new rules: collective Action Repurposed,* European Union Institute, Florence, 2021

Sheth, J., 'Impact of COVID-19 on consumer behavior: Will the old habits return or die?' *J. Bus. Res.* No. 117, 2020, pp. 280–83

Sibley, C. et al., 'Effects of the COVID-19 Pandemic and Nationwide Lockdown on Trust, Attitudes toward Government, and Well-Being', *American Psychologist*, No. 75, 2020, pp. 618-630

Somsen, G.A., van Rijn, C., Kooij, S., Bem, R.A., Bonn, D., 'Small droplet aerosols in poorly ventilated spaces and SARS-CoV-2 transmission', *Lancet Respir. Med.*, Vol. 8, No. 7, 2020, pp. 658–59

Sorace, M., 'The European Union Democratic Deficit: Substantive Representation in the European Parliament at the Input Stage', *European Union Politics*, No. 19, 2018 pp. 3-24

Sostero, M., Santo Milasi, J.H., Fernández-Macías, E., and Bisello, M., *Teleworkability and the COVID-19 crisis: a new digital divide?*, EUROFOUND, Working Paper WPEF20020, 2020

Spear, L., 'Neurobehavioral Changes in Adolescence', *Current Directions in Psychological Science*, Vol. 9, No. 4, 2000, pp. 111-114

Stantcheva, S., *Inequalities in the Times of a Pandemic*, Paper presented at the 73rd Economic Policy Panel Meeting, 2021

Statista, *AfD party membership development*, 2021, https://www.statista.com/statistics/957361/afd-party-membership-development/

Stephany F., 'One size does not fit all: Constructing complementary digital reskilling strategies using online labour market data', *Big Data Soc.*, Vol. 8, No. 1, 2021

Stockholm International Peace Research Institute, *World military spending rises to almost $2 trillion in 2020*, 2021, https://www.sipri.org/media/press-release/2021/world-military-spending-rises-almost-2-trillion-2020

Stratfor, *Portfolio: Slovakia's Fall and its Impact on the Eurozone*, 2011, https://worldview.stratfor.com/article/portfolio-slovakias-fall-and-its-impact-eurozone

Subramanian, A., and Kessler, M., 'The Hyperglobalization of Trade and Its Future', *Peterson Institute for International Economics*, Working Paper No. 13-6, 2013

Suessmuth, R., 'Ethnic Minorities in the Labour Market: An Urgent Call for Better Social Inclusion; Report of the High Level Advisory Group of Experts on the Social Integration of Ethnic Minorities and their Full Participation in the Labour Market', *EU information campaign "For Diversity. Against Discrimination"*, 2007

Suh, A., Lee, J., 'Understanding teleworkers' technostress and its influence on job satisfaction', *Internet Res.*, Vol. 27, No. 1, 2017, pp. 140–59

Susskind, D., Vines, D., 'The economics of the COVID-19 pandemic: an assessment', *Oxford Rev. Econ. Policy*, No. 36 (Supplement_1), 2020, pp. S1–13

Szczerbiak, A., *Should the EU be concerned about a possible 'Polexit'?*, LSE, 2017, https://blogs.lse.ac.uk/europpblog/2017/09/08/should-the-eu-be-concerned-about-a-possible-polexit/

Székely, I. P., and M. Ward-Warmedinger, "Reform Reversals: Areas, Circumstances and Motivations," Comparative Economic Studies, Vol. 60 No. 4, 2018, pp. 559-582

Székely, I., 'Climate Change and EU Membership: The Journey of Central and Eastern Europe Towards a Carbon-Free World', in Landesmann, M. and Székely, I. P. (eds.), *Does EU Membership Facilitate Convergence? The Experience of the EU's Eastern Enlargement - Volume II, Studies in Economic Transition*, Springer, 2021

Székely, I. P., and Kuenzel, R., 'Convergence of the EU member states in Central-Eastern and South Eastern Europe: a framework for convergence inside a close regional cooperation', in Landesmann, M. and Székely, I. P. (eds.), Does EU Membership Facilitate Convergence? The Experience of the EU's Eastern Enlargement - Volume I, Studies in Economic Transition, Springer, 2021, pp. 27-87

Täht, K., Mills, M., ;Nonstandard Work Schedules, Couple Desynchronization, and Parent–Child Interaction', *J. Fam. Issues*, Vol. 33, No. 8, 2012, pp. 1054–87

Taneja, S., Mizen, P., Bloom, N., *Working from home is revolutionising the UK labour market*, VoxEU/CEPR, 2021, https://voxeu.org/article/working-home-revolutionising-uk-labour-market

Taiji, R., Mills, M.C., 'Non-standard Schedules, Work-Family Conflict, and the Moderating Role of National Labour Context: Evidence from 32 European Countries', *Eur. Sociol. Rev.*, Vol. 36, No. 2, 2020

Terzi, A., *The 'Roaring Twenties': Revisiting the evidence for Europe*, VoxEU column, 2021

Than, K., ‘Hungarians march to protest PM Orban's anti-Roma campaign’, 2020, https://www.reuters.com/article/us-hungary-roma-idUSKCN20H0GB

The Economist, ‘What history tells you about post-pandemic booms’, *The Economist*, 2021, https://www.economist.com/finance-and-economics/2021/04/29/what-history-tells-you-about-post-pandemic-booms

The Times, ‘Slovakia finally falls into line over bailout’, 2011, https://www.thetimes.co.uk/article/slovakia-finally-falls-into-line-over-bailout-hmxrkrsznhh

Thompson, C., ‘The secret history of women in coding’, *New York Times*, 13 February 2019 http://www.science.smith.edu/dftwiki/images/a/af/SecretHistoryOfWomenInCoding_NYT_02032019.pdf

Timmermans, F., *Letter to H.E. Mr Klaus Iohannis et al.*, 2019, https://cdn.g4media.ro/wp-content/uploads/2019/05/Scrisoare-Timmermans-Rule-of-law-Framework.pdf

Tørsløv, T. Wier, L., Zucman, G., *The Missing Profits of Nations*, NBER, 2018

Transparency International, Corruption Perception Index, 2020, https://www.transparency.org/en/cpi/2020/index/nzl

Treaty of the European Union, Consolidated version, 2012, https://eur-lex.europa.eu/resource.html?uri=cellar:2bf140bf-a3f8-4ab2-b506-fd71826e6da6.0023.02/DOC_1&format=PDF

UNDP & University of Oxford, *People’s Climate Vote*, New York, NY, 2021

UNESCO, *Science Report: The Race Against Time for Smarter Development*, 2021

United Nations, *What is rule of law?*, 2021, https://www.un.org/ruleoflaw/what-is-the-rule-of-law/

United States Senate, *Report of the Select Committee on Intelligence, United States Senate on Russian Active Measures Campaigns and Interference in the 2016 U.S. Election. Volume 1: Russian Efforts Against Election*, 116Th Congress, 1st Session, 2019, https://www.intelligence.senate.gov/sites/default/files/documents/Report_Volume1.pdf

Urse, D., ‘Romania’s new law on pensions: addressing inequities or deepening gaps?’ European Commission, *European Social Policy Network: Flash Report*, No. 2019/14, 2019

Urzi Brancati, M.C., Pescole, A., Fernandez Macias, E., *New evidence on platform workers in Europe*, EUR 29958 EN, Publications Office of the European Union, 2020, ISBN 978-92-76-12949-3, doi:10.2760/459278, JRC118570

US Department of State, *Blue Dot Network*, U.S. Department of State, Washington D.C., 2021, https://www.state.gov/blue-dot-network/

Verhagen, M.D., Brazel, D.M., Dowd, J.B., Kashnitsky, I., Mills, M.C., ‘Forecasting spatial, socioeconomic and demographic variation in COVID-19 health care demand in England and Wales’, *BMC Med.*, Vol. 18, No. 1, 2020, pp. 203

Victor, D.G., Geels, F.W., Sharpe, S., *Accelerating the Low Carbon Transition: The Case for Stronger, More Targeted and Coordinated International Action*, 2019

von der Leyen, U., *Speech in the European Parliament Plenary Session on 27 November 2019*, European Commission, Brussels, 2019, https://ec.europa.eu/info/sites/default/files/president-elect-speech-original_1.pdf

Vona et al., *Distributional effects of a post-pandemic green fiscal stimulus: skills, employment and wage of low-skilled manual workers*, draft, 2021

Vorländer, H., Herold, M., & Schäller, S., *PEGIDA: Entwicklung, Zusammensetzung und Deutung einer Empörungsbewegung*, Springer-Verlag, 2015

Vries, C. D., 'The Cosmopolitan-Parochial Divide: Changing Patterns of Party and Electoral Competition in the Netherlands and Beyond', *Journal of European Public Policy*, 2017, pp. 1541-1565.

Wainer, D., 'More Nations at UN Line Up to Criticize China's Xinjian Moves', *Bloomberg*, 2021, https://www.bloomberg.com/news/articles/2021-10-21/criticism-of-china-s-actions-in-xinjiang-grows-at-united-nations

Watt, S., 'A curated guide to major national security news and developments over the past 24 hours, Early Edition: May 27, 2021.' *Just Security.* https://www.justsecurity.org/76660/early-edition-may-27-2021/

Way, R., Mealy, P. and Farmer, J. D., *Estimating the costs of energy transition scenarios using probabilistic forecasting methods*, INET Oxford, Working Paper, No. 2021-01, 2020

Welsby, D., Price, J., Pye, S. and P. Ekins, 'Unextractable fossil fuels in a 1.5 °C world', *Nature*, 2021

World Bank, *GPD Growth (annual %)*, 2009 https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=LV

World Bank, *GPD Growth (annual %)*, 2020 https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=LV

World Bank, *World Development Report 2020: Trading for development in the age of global value chain*, World Bank, Washington, D.C, 2020

Zerka, P., *Europe's underestimated young voters*, 2019, https://ecfr.eu/article/commentary_europes_underestimated_young_voters_elections/

LIST OF GRAPHS AND TABLES