

# Intereconomics

## Review of European Economic Policy

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Abstracted/Indexed in: SCOPUS, EconLit, Google Scholar, EBSCO, CSA, ProQuest, CAB International, ABS Academic Journal Quality Guide, Academic OneFile, Bibliography of Asian Studies, CAB Abstracts, CSA Environmental Sciences, ECONIS, European Sources Online (ESO), Gale, GeoRef, International Bibliography of Book Reviews (IBR), International Bibliography of Periodical Literature (IBZ), OCLC, Research Papers in Economics (RePEc), SCImago, Summon by ProQuest, World Affairs Online

# Europe's Vaccine Paradox: From Supply to Demand Issues

The collective action on vaccine procurement has attracted much criticism, but not necessarily for the right reasons. It successfully protected the internal market and EU values from vaccine nationalism. BioNTech became a European success story, and EU vaccine deliveries and vaccination are gaining speed. Yet, the demand side to vaccines brings the role of the European sectoral regulator to the forefront.

Public health is one of those policy areas in which competences remained almost exclusively with EU member states. With the exception of common safety concerns, including protection of the internal market, EU actions in public health are supportive in nature (as is the case of the EU's health strategy that complements member states' national health services and medical care).

The EU vaccine strategy was set up as a joint action at the EU level, agreed upon by the Commission and the member states, when uncoordinated member state responses to the COVID-19 crisis had repeatedly put common goods (public health, but also the internal market and Schengen) and European values (solidarity) at risk. The Commission took over the vaccine procurement initiative for the entire EU to prevent wasteful competition for scarce vaccines between member states and protect smaller ones from being charged higher prices or even losing out. A group of member states (France, Germany, Italy and the Netherlands) had started to negotiate supplies of large quantities of a given vaccine (Oxford-AstraZeneca) just for themselves in the summer of 2020. Joint procurement would protect the internal market (and with it European integration) from potentially disruptive effects of member states fending for themselves and make use of the bloc's bargaining power for the benefit of all member states in an industry characterised by a limited number of large suppliers and worldwide competition for vaccines.

The fact that the European Commission negotiated vaccines for the member states, drawing on its expertise in trade negotiations, resulted in very competitive prices internationally (as an accidentally leaked price list well illustrates). That said, the European Commission has admitted to shortcomings stemming from a lack of negotiation experience with the specific sector (pharmaceutical industry), which led it to initially underestimate supply issues and the need for production capacity building; those issues were subsequently addressed.

The EU's vaccine portfolio represents the possible common denominator. It reflects that member states harbour different preferences for national suppliers and production, the type of vaccines, prices, etc. (which explains why BioNTech-Pfizer's initial offer to supply very large quantities of its novel messenger ribonucleic acid (mRNA) vaccine was scaled down) and constraints (financial). The Commission entered advance purchase agreements with a set of six potential suppliers and two different types of vaccines (vector-based and mRNA) with the consent of all member states. Member states were entitled to buy a specified number of vaccine doses in a given time period and at given prices for their domestic vaccination campaigns and were free to decide not to make use of their pro-rata share (proportional to their population compared to the EU's).

Regrettably, this built-in flexibility has not prevented countries that have opted to buy less than their share of available vaccines to rather unethically and opportunistically blame the Commission for their own choices when AstraZeneca failed to honour its delivery commitments and to accuse other member states of failing them on solidarity grounds. The EU, a rules-based organisation and staunch defender of multilateralism, stayed true to its values. It did not succumb to European vac-

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cine nationalism even in a situation of relative vaccine scarcity, standing out as a major exporter of vaccines and contributor to COVAX.

Since the second quarter of 2021, EU vaccine deliveries and vaccination have been gaining speed thanks in part to increasing production capacity in the EU and anticipated additional deliveries from BioNTech-Pfizer. Another 1.8 billion doses of its vaccine have been secured for 2022-23.

While the collaborative action seems on track with regard to supply side issues, a demand issue arose. Vaccines are a pharmaceutical good, requiring regulatory approval. This takes time but is necessary to ensure public trust, which is essential. As vaccination is voluntary, safety and efficacy is key for the acceptance and uptake of the vaccine and the success of vaccination campaigns. The vaccines that were contracted and granted European Medicines Agency (EMA) approval not only have different cost-effectiveness properties but also vary in their efficacy against the original virus and against mutants, in the ease in updating it and, not least, in side effects.

In short, they are not a homogeneous product, which leaves the EU in a paradoxical situation. The mRNA vaccine by BioNTech-Pfizer is a European success story and at the basis of the successful early vaccination campaigns in the US and in Israel (and also the start of the UK campaign). Yet, those countries took risks that the EU, with a comparatively vaccine-cautious population, arguably could not. It is doubtful that Europeans would have been prepared to go along with emergency approvals and testing vaccines first, even less so vaccines with a novel approach untested on a large scale. It was after having witnessed the high efficacy and milder side effects that Europeans warmed to mRNA vaccines.

The rollout of mRNA (BioNTech-Pfizer and Moderna) and vector-based vaccines (AstraZeneca, later also Johnson & Johnson) introduced “competition in the market” in the EU. Consumers/citizens will make a rational choice between available vaccines, from an individual (not societal) perspective on the basis of what they consider trustworthy information. The choice before them was between mRNA vaccines, increasingly established as the vaccine “gold standard”, and AstraZeneca’s vaccine, beset by problems from the beginning (data issues, delivery failures, serious collateral effects). After insisting on nevertheless going ahead with the AstraZeneca vaccine, most EU countries have subsequently suspended its use (below a certain age, or even for all age groups) in light of rare but serious side effects.

The handling of the AstraZeneca case by the European regulator was hardly liable to build trust. EMA, which had granted AstraZeneca’s vaccine conditional approval (which the US health authorities have not to date), did not pause it to analyse reported cases of blood clots, unlike many other national regulators (and the American Centers for Disease Control and Prevention and Food and Drug Administration in the case of the Johnson & Johnson vaccine). Instead, EMA’s insistence that the vaccine was safe and that the benefit-risk profile was positive echoed that of the British Medicine and Healthcare products Regulatory Agency, although the latter eventually recommended age group limitations. EU national health authorities stepped in to analyse causality, risks, etc., and ended up deciding nationally on restrictions to the use of the vaccine.

The Commission has drawn the logical conclusion: It did not prolong the contract with AstraZeneca and will go with ‘proven reliable’ suppliers with EU production capacity in the future. In the meantime, while the US will give away mostly vector-based vaccines, in the EU politicians and some health authorities insist that vaccines that happen to be in stock are good enough to get faster (possibly illusory) herd immunity. Yet that may erode the trust of citizens concerned that societal benefits may come at an individual cost. At the end of the day, defeating COVID-19 calls for a strategic and longer-term approach on vaccines – a high level of protection, also against new variants, an ease of adaptation combined with reliable supplies – but requires a high uptake, which rests on maintaining citizens’ trust in European institutions. Citizens should thus not be denied the right to choose when there is a portfolio of vaccines.

**Annette Bongardt, CICP**  
– University of Évora; and  
Universidade Fernando  
Pessoa, Porto, Portugal.

**Francisco Torres, Católica**  
Lisbon School of Business  
and Economics, Portugal.

# The New Industrial Strategy for Europe

When President Ursula von der Leyen took the reins of the European Commission in 2019, one of her first initiatives was to propose a new growth strategy centred on the idea of “competitive sustainability”. This was followed by the announcement of the new European Green Deal and then the adoption of an industrial strategy that would promote EU competitiveness and support the Commission’s assertiveness in the “geopolitical” scene. One year after the first Communication on the industrial policy, a year dominated by the outbreak of the coronavirus pandemic, in April 2021, the European Commission published an update of the Communication. It reaffirmed its commitment to protecting the Single Market, promoting competitiveness and productivity and fostering resilience in European industry. But the document seems to fall short of the ambition set out in the first announcement. In order to contribute to the shaping of the final EU industrial strategy, the CEPS Task Force on the New Industrial Strategy for Europe attempts to lay out a few principles on how Europe could lead the way to a new industrial policy. In the context of deep ongoing changes and rethinking the role of policies, the Task Force emphasises the adoption of drastic changes. First and foremost, it calls for the definition of a real strategy with objectives, timelines and a governance framework. It highlights that a truly EU strategy should centre around the resilience and sustainability of both the EU industry and EU people. The industrial strategy should not be looked at as a standalone initiative, but should be considered along with broader EU objectives and policies. In a similar vein, the many initiatives launched to support industry at the EU level should be streamlined and consolidated. Lastly, Next Generation EU offers an unmistakable opportunity to align EU and national plans along common principles and values. The Task Force also puts forward a long list of specific recommendations from the stakeholders and experts in each of the eight thematic areas. This Forum provides an overview of a number of the Task Force’s recommendations that will help shape the new Industrial Strategy for Europe.

## The EU Industrial Strategy: Towards a Post-Growth Agenda?

**Andrea Renda**, Centre for European Policy Studies, Brussels, Belgium.

## A Social Dimension for a New Industrial Strategy for Europe

**Cincia Alcidi**, Centre for European Policy Studies, Brussels, Belgium.

**Sara Baiocco**, Centre for European Policy Studies, Brussels, Belgium.

**Francesco Corti**, Centre for European Policy Studies, Brussels, Belgium.

## EU Trade Policy in Light of the New Industrial Strategy for Europe

**Malorie Schaus**, Centre for European Policy Studies, Brussels, Belgium.

## The EU Health Union in Search of a Definition and an Open Discussion

**Agnes Sipiczki**, Centre for European Policy Studies, Brussels, Belgium.

**Karel Lannoo**, Centre for European Policy Studies, Brussels, Belgium.

Andrea Renda

## The EU Industrial Strategy: Towards a Post-Growth Agenda?

The nature and intensity of EU industrial policy has drastically changed over the past decades. As a matter of fact, rather than engaging in industrial policy on its own, in its first few months, the European Community tried to prevent its member states from using industrial policy measures that could jeopardise the Single Market. Rules on state aid, for example, saw their first application in the 1960s in an attempt to stop member states from altering the competitive playing field through export aid for intra-community trade. Concerns related to Europe's inability to keep the pace of the US led to the first attempts to coordinate industrial policy. Many of these attempts, however, failed due to tensions between member states, and an overall hesitancy when it came to abandoning national prerogatives in favour of a more coordinated policy at the EU level (Pavitt, 1971).

After this first wave, the EU entered an “industrial policy winter”: emphasis on completing the Single Market and the gradual implementation of rather *laissez-faire* economic approaches inspired by the US gradually transformed the words “industrial policy” into an oxymoron, increasingly taboo in EU-level public discourse. The Lisbon strategy set targets for R&D investment and employment, but fell short of laying the foundations of an effective industrial policy: by then, indeed, the term industrial policy had become largely *démodé*. The Lisbon strategy was critically affected by a lack of coordination and commitment by member states, leading to a significant dilution of the ambition with the “Kok report” in 2004. The following “Europe 2020” strategy, launched by the Barroso Commission in 2009, in the midst of the dramatic financial and economic crisis, refocused the EU agenda towards “smart, sustainable and inclusive growth”. The strategy was so rapidly eroded by the unfolding post-crisis events that already in 2014, the incoming Juncker

Commission decided not to review it, de facto replacing it with a more pragmatic focus on “ten priorities”, which left very little space for a coordinated and ambitious industrial policy and was rather oriented towards doing less, more efficiently. Despite the attempt to trigger an “industrial renaissance” in Europe since 2014, results have remained rather meagre.

### The von der Leyen Commission: Departing from a growth-oriented narrative?

When the von der Leyen Commission took office in November 2019, the political attention shifted towards a more assertive European Commission, focused on so-called “competitive sustainability”. Emphasis on the need to reorient policy efforts towards the Sustainable Development Goals (SDGs) resulted in the implementation of these goals in the European Semester as well as in external action, i.e. the launch of the European Green Deal, accompanied by the so-called “just transition”, which increased the salience of social impacts alongside climate targets in the EU, although with an extremely narrow focus. The objective of achieving climate neutrality by 2050, later coupled with a resounding commitment to cut 55% of emissions by 2030, became the defining trait of the EU as an internal and global change actor. This move also echoed an existing trend at the global level, i.e. the gradual transition from growth-oriented policies towards goal-based policy, centred around the SDGs. This is a fundamental shift, evoked by several governments, activists and academics around the world, but only sparsely implemented in practice. The von der Leyen Commission's bold move to put sustainability upfront raised huge expectations among those who have advocated such transitions for decades.

At the same time, the resounding announcements on the Green Deal and the Just Transition Mechanism also overshadowed the lack of bold commitments on certain aspects of the SDGs, on which EU institutions have very weak competences. These include, notably, education, health, good governance and the rule of law – all fronts on which more will have to be done in the future.

### The 2020 Communication on the Industrial Strategy

Along with the Green Deal, the von der Leyen Commission immediately started to look at how to adopt an industrial strategy that would promote EU competitiveness

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**Andrea Renda**, Centre for European Policy Studies, Brussels, Belgium; and European University Institute, Florence, Italy.

and support the Commission's self-assigned "geopolitical" role by boosting strategic autonomy. In March 2020, while the COVID-19 pandemic was already dominating the public debate, the Commission adopted a Communication on "A New Industrial Strategy for Europe". In that document, the Commission observed that the "twin transition" (green and digital) was a unique opportunity for the EU to "affirm its voice, uphold its values and fight for a level playing field", adding that this "is about Europe's sovereignty" (European Commission, 2020, 1).

The Communication also stated that "Europe's industrial strategy must reflect our values and social market traditions" (European Commission, 2020, 1), which translates into an industrial policy focused on competition and open markets, rather than a revamp of protectionism or heavy subsidies to industry. Europe's values and traditions, of course, do not end with its unique approach to competition: they also extend to innovation, contracts, corporate governance and finance, as well as the emphasis on empowering small and medium-sized enterprises (SMEs), protecting fundamental rights and mainstreaming sustainability. The 2020 Communication did not venture systematically into these areas, but constantly referred to them.

The Commission also rightly argued that industry must play a leading role in helping the EU achieve climate neutrality by 2050: all value chains are involved, including existing ones and others to be launched through proactive policy aimed at boosting lead markets. Key pillars of the Communication included actions on strengthening the EU's specialisation in critical digital technologies such as 5G, artificial intelligence and metadata analytics; deepening the Single Market by adopting an SME-centric approach; revamping competition rules, including those on state aids; transitioning towards a circular economy; boosting innovation, *inter alia*, by consolidating and re-launching the European Innovation Council, and leveraging public-private partnerships to help industry develop the technologies to meet their goals; upgrading skills available to European industry; and financing investment and innovation.

The Communication also touched upon the external dimension of the EU industrial strategy by correctly observing that ambitious goals – in terms of sustainability, climate neutrality and even social policy – cannot be obtained if Europe fails to act to establish a level playing field with other countries. Key initiatives include the development of a deeper EU industrial base in strategic areas such as critical digital technologies, defence and space, and pharmaceuticals; and adopting legal and regulatory measures to rebalance global competition, in-

cluding a screening mechanism for foreign investment, the enactment of a carbon border adjustment tax, and reinforcing customs controls.

The Communication also included a number of provisions related to governance, which, however, fell short of providing sufficient clarity on how the implementation of the industrial strategy would be ensured. The Commission announced several steps, including a focus on industrial ecosystems (14 clusters of sectors and value chains that the Commission has started to adopt as a way to "read" the European economy); the launch of a multi-stakeholder Industrial Forum, with the task of assisting the Commission in tracking the implementation of the industrial strategy and developing the work on ecosystems; and support for the instrument of industrial alliances, which already reportedly proved beneficial in areas such as batteries, plastics, microelectronics and hydrogen.

Against this background, however, the Communication fell short of laying the foundations for a complete set of governance arrangements, which would ensure at once coherence between the several actions foreseen in the strategy, and the achievement of clear, measurable and consistent impacts. The most evident gap was the lack of a set of indicators for monitoring and evaluating progress, an issue which was taken up swiftly by industry groups and associations, in an attempt to fill this gap. But beyond this, other governance challenges were left unaddressed: these include ensuring that EU lawmaking is designed to pursue the goals set by the Green Deal and the Industrial Strategy through a reorientation of the better regulation agenda; enabling a reform of corporate governance to boost systemic transformation; explaining how progress would be conceptualised and measured when adopting the "ecosystem" as the unit of analysis; and reconciling the ecosystems with the numerous other aggregations and clusters of industry actors used in the same or other areas of EU policy (e.g. data spaces, strategic value chains, alliances, Important Projects of Common European Interest, partnerships, missions, Knowledge and Innovation Communities, research infrastructures).

Some of these problems would have likely been addressed by the Commission in the months that followed the adoption of the Communication. However, a more serious set of events came to affect the agenda of the European Commission: the COVID-19 pandemic has indeed triggered a dramatic economic downturn and promises to leave an indelible mark on the future of the EU agenda, including of course the EU's industrial strategy.

### The pandemic changed everything, prompting a refocusing of the EU strategy

The European Union has already learned several hard lessons from the enduring coronavirus pandemic. It emerged quite clearly that the resilience of the Union is lowest where the competences of the EU are weakest, as in healthcare. The need to reorient the EU's action beyond areas originally identified as key priorities of the von der Leyen Commission also led to an overall shift in the focus of EU action during the first year of the pandemic.

In particular, the need to ensure greater resilience has now become the top priority for EU institutions, which has several consequences for EU industrial policy. While EU policy was aimed at “competitive sustainability” before the pandemic, the post-pandemic recovery is aiming at achieving both resilience and sustainability, which require bolder action on all fronts, including the systemic transformation of industry value chains; an ad hoc approach to digitalisation; a careful and pervasive mapping of the EU's dependencies on other powers, especially in key technologies and raw materials; and a renewed focus on mitigating the impact of the pandemic on labour markets, accelerating the up- and re-skilling of workers of sectors that are likely to experience the worst downturn.

Greater coordination, however, does not necessarily imply greater centralisation. The pandemic has also marked the rise of decentralised governance as both resilient and sustainable in many industrial settings. In particular, the decentralisation of decision-making and value distribution in complex value chains, as well as the adoption of more decentralised governance in the digital ecosystem (e.g. through edge computing) represent key new frontiers for the EU in the attempt to reconcile competition, coordination, efficiency, resilience and sustainability. Decentralised governance approaches also become an essential way to empower all those industry sectors which, with the (accelerated) digital transformation, are at risk of losing control of the value they generate. This is a concrete risk in several “ecosystems”, from agriculture and food to energy, manufacturing, automotive industry and healthcare.

Despite a recent rebound of optimism among EU leaders, the projections for the EU are worse than for both the United States and China, which seem destined for an earlier recovery from the crisis as well as sustained growth in the medium term. Without disregarding concerns about the tentative nature of these estimates (as well as the questionability of GDP as a measure of prosperity), these prospects illustrate the uphill battle the EU will face in defending its geopolitical role in the global

order. Some emphasise the danger of “scarring”, i.e. a long-term impact of the pandemic on the economy of many countries. On the other hand, the crisis is also likely to accelerate change which might improve productivity growth (Kotz et al., 2021). The key to avoiding scarring while still reaping the benefits of change seems to be to ensure the stability of the financial system. This seems to be due in large part to the determined action of the ECB and the financial supervisory bodies.

When it comes to specific industries, a peculiarity of the COVID-19 pandemic is its extremely diverse impact across and within sectors, as shown by a recent study (de Vet et al., 2021). Industries like chemicals, construction, and the food and drinks sector are likely to experience a so-called V-shaped recovery from the crisis; whereas automotive and textile industries will likely be on an earlier recovery path. The worst impacts may occur in sectors that are dependent on human contact and interaction, such as the cultural and creative industries. Faced with such gloomy prospects, the EU has a moral and political imperative to approach the recovery by triggering a deep economic transformation, and to shift the whole direction of its action towards resilience and sustainability. The cornerstone of the EU post-pandemic strategy will inevitably be found in the Resilience and Recovery Fund: the stakes could not be higher, and the multi-level, public-private effort needed to restore a path to prosperity in Europe cannot be underestimated.

### The May 2021 Communication on updating the EU Industrial Strategy

In the new Communication, the European Commission (2021) reaffirms the priorities set out in the March 2020 Communication and devotes significant attention to the measures adopted to increase the resilience of the Single Market, including accelerating the work on the forthcoming regulation on foreign subsidies; adopting a Single Market Emergency Instrument to ensure the free movement of persons, goods and services in case of future crises; taking action to improve the implementation of the Service Directive; strengthening the market surveillance of products by supporting competent national authorities; mobilising significant investment to support SMEs with a dedicated SME Envoy, support from “sustainability advisors”, alternative dispute resolution schemes and measures to address solvency risks.

Beyond the protection and enhancement of the Single Market, the Communication reports the results of a thorough mapping and analysis of Europe's strategic dependencies and “reverse dependencies”, identifying 137 products in “sensitive ecosystems”, for which the EU is highly

dependent, showing weaknesses in energy-intensive industries, health and advanced technologies. However, these 137 products represent only a small share (6%) of total imports. The Commission presents six in-depth reviews on strategic areas, i.e. raw materials, batteries, active pharmaceutical ingredients, hydrogen, semiconductors and cloud and edge technologies. The resilience objective will be pursued also by taking action to diversify international supply chains and pursue international partnerships and alliances, in particular on processors and semiconductor technologies, industrial data, edge and cloud, space launchers, and zero emission aviation.

The work on the fourteen ecosystems showed in Figure 1 is coupled with initiatives aimed at co-creating “transition pathways” with industry, public authorities, social partners and other stakeholders, where needed, starting with tourism and energy-intensive industries. This is perhaps the most ground-breaking commitment included in the Communication. However, as recalled below, the extent to which this will configure a real *modus operandi* in the Commission is unclear at the time of writing.

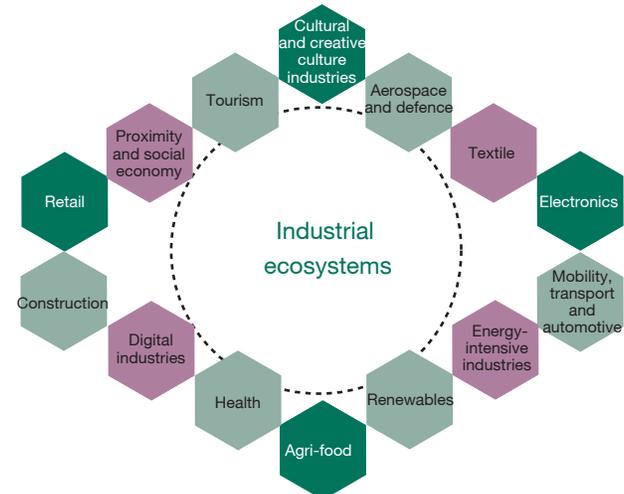
All in all, the Communication shows a remarkable commitment to protecting the Single Market and promoting competitiveness, productivity and resilience in European industry. At the same time, its ambition does not go as far as realising the systemic change that the President of the Commission Ursula von der Leyen evoked with respect to the Green Deal. On the side of governance, the Industrial Forum launched in February 2021 seems to have fallen short of acquiring the centrality in governing the transition that it seemed to have gained in the run-up to the adoption of the Communication.

### Can the EU lead the way towards a new approach to industrial policy?

The European Commission should remedy the lack of ambition of the recent Communication on the update of the industrial strategy by taking six bold steps.

First, rather than a mere update, the Commission should adopt a full-fledged strategy, with a “North Star”, i.e. a mission to be accomplished in the short and medium term and a concrete timeline, not only for the launch of specific initiatives, but also for the achievement of specific goals. Furthermore, the Commission should define concrete indicators, a governance framework and a contingency plan in case (some of the) progress towards some of the goals appears to be insufficient over time. Regarding indicators, the traditional focus on supply-side or input indicators (e.g. R&D investment as a percentage of GDP) should be complemented by a renewed attention

Figure 1  
Industrial ecosystems in Europe



Source: European Commission (2021).

to output, outcome and impact indicators, linked to the overall North Star chosen for the strategy. And on governance, clear rules of engagement with the private sector and a contingency plan appear to be essential elements of a well-drawn strategy.

Second, in choosing its North Star, the Commission should embrace (a refined version of) the Industry 5.0 paradigm currently being developed by its Directorate-General for Research and Innovation. This also means recognising that the Industry 4.0 paradigm does not, in and of itself, provide a complete blueprint for industrial transformation, due to its limited attention for sustainability, let alone resilience and workers’ well-being. The Industry 5.0 approach has the ability to potentially align industrial policy efforts with the overall agenda of the EU, surpassing the traditional separation between the state and the market, and charging both governments and the private sector with a shared responsibility to “row in the same direction”, which would make strides in three main areas: building a human-centric industry focused on well-being, in particular, that of workers; fostering sustainability from an economic, social and environmental perspective; and enhancing resilience.

Third, the EU should firmly depart from unsustainable forms of capitalism that entail shareholder primacy. Even in the US, after resounding statements by the American Business Roundtable and by BlackRock’s CEO among others, President Joe Biden openly committed to “put an end to the era of shareholder capitalism” (Plender, 2021). A new European Enterprise model should be explicitly based on the principles of fairness, resilience and sustain-

ability (Kalff, 2021). Only in this way, industry can become the real engine of the “twin transition”. More specifically: the sustainability pillar of Industry 5.0 requires enhanced corporate orientation towards the circular economy, mitigating climate impacts and ensuring fair value distribution along the value chains; and the resilience pillar requires more decentralisation in corporate organisation as well as a fairer value distribution in value chains.

Fourth, there is a need to consolidate and streamline the many initiatives launched to support industry at the EU level. At a minimum, the Commission should try to reconcile the notions of sector, ecosystem and data space to allow for a more coordinated approach to reaching medium- to long-term targets. After all, it would be very difficult to imagine a successful digital transformation in key ecosystems without a data governance strategy that matches the need, the actors and the value chains operating in those same ecosystems. Or, to put it differently, implementing a sectoral policy to achieve ecosystemic transformation would be preposterous.

Fifth, it is important to take Next Generation EU as a “once in a century” opportunity to rebuild, reshape and repurpose Europe’s industry. The unprecedented resources made available to member states to “build back better”, in the parlance of President Biden, should be used in a consistent and efficient way to avoid the aforementioned problems. System change cannot be achieved if Europe marches to the beat of two different drummers, one at the EU and another at the national level. The scrutiny, evaluation and implementation of national plans for recovery and resilience should therefore be given maximum attention and use new instruments rather than legacy, austerity-based tools. Merging abilities such as strategic foresight, knowledge on regional specialisation and the definition of pan-European industrial transformation pathways with key consequences for member states’ agendas will be key to achieving the ambitions of the twin transition, as well as the “systemic change” recently evoked by Ursula von der Leyen (Sistemiq, 2020). Unfortunately, a first analysis of the available National Plans reveals that member states have given priority to measures aimed at “protecting” the economy and society, thereby mitigating the short-term effects of the pandemic rather than creating the preconditions for change. De Vet et al. (2021) observe that “most measures consisted of horizontal support instruments without predetermined focus”; they also mention the possible confusion generated by the multiplicity of targets given to national governments, including the twin transition, resilience, consistency with the country-specific recommendations, etc.; and the lack of meta-level coordination, especially the need to reconcile national plans with

the need to proactively shape inclusive, resilient, fair and sustainable industrial value chains.

Finally, the choice of suitable indicators is of utmost importance. Continuing to track and reward corporate performance by referring to financial indicators and cost optimisation is likely to frustrate any attempt to embark on a system transformation towards Industry 5.0. Beyond the taxonomy (an essential piece of the puzzle), the EU industrial strategy and the various governance mechanisms it relies upon (Important Projects of Common European Interest, partnerships, public-private partnerships, missions, etc.) should measure progress way beyond mere inputs (e.g. R&D expenditure) and outputs (e.g. patent applications). Progress, however, is about outcomes and impacts, and EU institutions should be adequately equipped to measure those impacts on the ground, and take action when data show insufficient progress. As already mentioned, both the March 2020 Communication on “A New Industrial Strategy for Europe” and the recent update in the Communication on “Updating the 2020 New Industrial Strategy: Building a stronger Single Market for Europe’s recovery” do not contain any concrete steps towards going beyond competitiveness indicators when tracking the progress of the industrial strategy.<sup>1</sup> Against this background, the proposed indicators developed by the European Roundtable of Industrialists (2020) already took a step forward in the addition of not only impact indicators but also more traditional input and output ones. The Commission, however, will need to develop articulate and comprehensive indicators mirroring the economic, social, environmental and governance pillars of the transition towards Industry 5.0, centred on well-being (and thus, inter alia on alternative measures to GDP); on resilience (as a further elaboration on the first dashboard developed by the Joint Research Centre); and on sustainability.

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1 The Commission, in its 2021 Single Market report, announces that it will “limit” itself to tracking progress on Single Market integration; productivity growth (based on labour productivity); international competitiveness (EU’s global market share or extra-EU trade); public and private investment (as percentage of GDP); and public and private R&D expenditure (as a percentage of GDP). The Commission further announces that indicators will be monitored with specific reference to ecosystems, but does not specify how the transition from existing to new indicators will eventually take place.

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Cinzia Alcidi, Sara Baiocco and Francesco Corti

## A Social Dimension for a New Industrial Strategy for Europe

The COVID-19 pandemic has completely disrupted the European labour markets. Demand has collapsed in certain sectors, teleworking has become the norm in others, and the use of digital technologies in services and businesses has experienced a significant acceleration. While the use of short-time work schemes contributed – especially in the initial months of the crisis – to preserving employment and avoiding massive layoffs, unemployment and the inactivity rates are increasing and this course is expected to continue. Such a constellation poses significant challenges to European labour markets. Multiple questions arise around job creation and destruction, up- and re-skilling of the labour force, spatial or sectoral relocation of dismissed workers and the quality of the newly created jobs.

In March 2020, the European Commission (2020a) published a communication on the new industrial strategy for Europe. Such a strategy could play an important role in addressing, directly or indirectly, the above-mentioned challenges. It has the potential to affect the development of economic sectors, and hence job creation and destruction, the quality of jobs and the demand for skills; furthermore, it

will influence the spatial dimension, the pace and time horizon of industrial change. Against this backdrop, the new EU industrial strategy should not neglect the labour and social dimension. Lacking such a dimension would indeed not only be inconsistent with the principles of cohesion, convergence and social progress defined in the European Pillar of Social Rights, the UN Sustainable Development Goals and the EU Treaties,<sup>1</sup> it would jeopardise the relevance and the legitimacy of a strategy that aspires to have a strong EU connotation.

The present contribution aims to take stock of the main labour market trends, notably zooming into the impact of the coronavirus pandemic, and draw recommendations on how to codify the social dimension of an EU industrial strategy in line with the social objectives of the EU.

### The asymmetric impact of COVID-19

In the first half of 2020, the EU economy plunged into an unprecedented recession. Despite the deep economic contraction, the impact of the coronavirus pandemic on the labour market has been only partially visible through the usual labour market indicators. In October 2020, the EU unemployment rate was about one percentage point higher than the year before. Similarly, employment declined only to a limited extent, compared to the GDP fall,

**Cinzia Alcidi**, Centre for European Policy Studies, Brussels, Belgium.

**Sara Baiocco**, Centre for European Policy Studies, Brussels, Belgium.

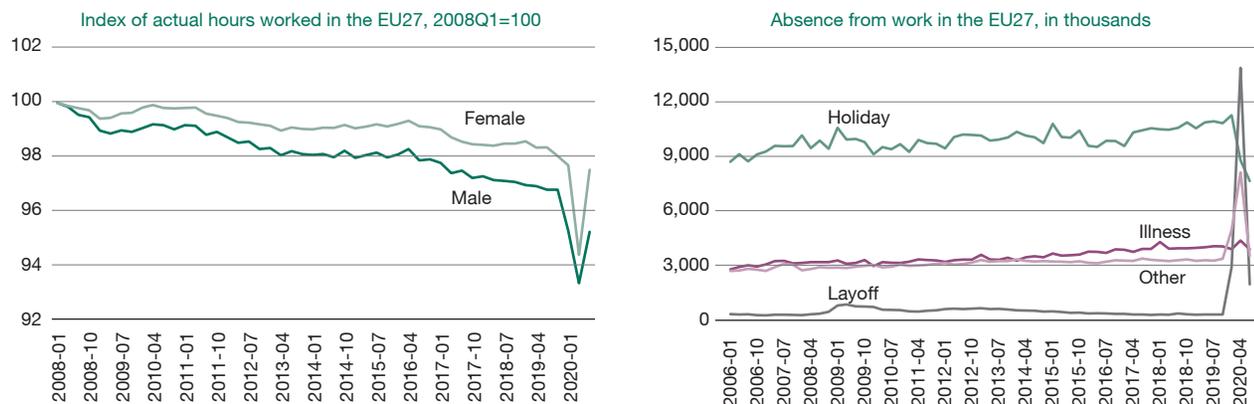
**Francesco Corti**, Centre for European Policy Studies, Brussels, Belgium; and University of Milan, Italy.

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Open Access funding provided by ZBW – Leibniz Information Centre for Economics.

1 See Articles 151, 153 and 155 of the Treaty on the Functioning of the European Union.

**Figure 1**  
**The impact of the COVID-19 pandemic on employment in the EU**



Note: The index represents quarterly changes in the actual hours worked in the main job for full time workers. It indicates the percentage of change in the total actual hours of work in the considered quarter of a year compared to the total actual working hours in 2008.

Source: Authors' own elaboration based on Eurostat.

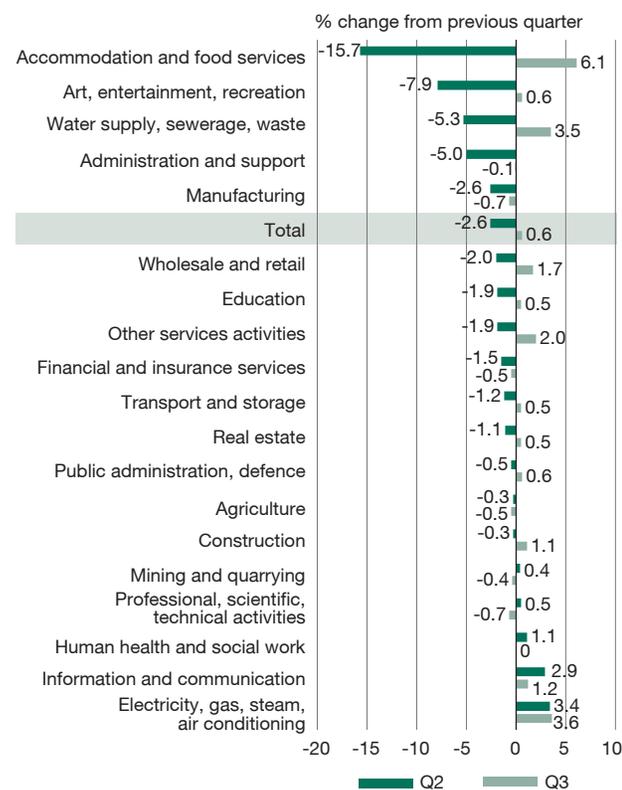
by less than 1% in the third quarter on a quarter-over-quarter basis, according to Eurostat. The fall is not very different from the one of 2009, but it appears small relative to the magnitude of the drop in GDP, which was far larger in 2020 than in 2009.

The relatively mild impact on employment should not lead to the underestimation of the pandemic's effects on labour markets. Indeed, if the number of unemployed increased by a few thousand, the drop in the active population in the second quarter of 2020 compared to the end of 2019 was around six million people (Eurostat, 2021). Similarly, actual hours worked fell abruptly in the second quarter of 2020; even though the rebound in the third quarter of 2020 has been strong, the level was well below that of late 2019 (see the left-hand side of Figure 1). EU countries also experienced a sharp rise in absences from work, associated with temporary layoffs. In the third quarter of 2020, temporary layoffs were still higher than at the end of 2019 (see the right-hand side of Figure 1).

The impact of the COVID-19 pandemic has not been equal across economic sectors, age groups, education levels and employment status.

Contact-intensive activities (e.g. food and accommodation services, art, entertainment and recreational activities) have been hit particularly hard by the pandemic, both in terms of the fall in employment and actual hours worked (see Figure 2). Workers in these occupations are often female, less-educated, low-paid and young. Among

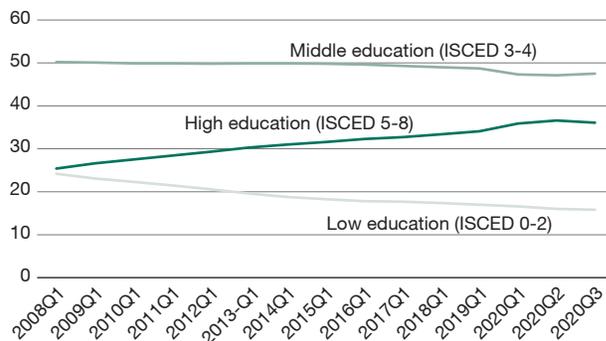
**Figure 2**  
**Quarter-on-quarter change in employment in the EU27, 2020**



Source: Authors' own elaboration based on Eurostat.

**Figure 3**  
**Employment by education level in the EU27**

percentage of total employment



Source: Authors' own elaboration based on Eurostat.

them, the young and the less-educated workers are more at risk of unemployment because they are more likely to be in temporary contracts and less likely to be in teleworkable occupations, respectively. Furthermore, the sectors mostly affected by the containment measures in the second quarter of 2020 have shown only a modest rebound during the third quarter, when the stringency measures were relaxed. This is because their capacity to fully recover to the pre-crisis levels of employment will depend not only on the duration of the containment measures, but also on potential changes in consumption patterns and in the structural features of the production system (e.g. the prevalence of small and medium-sized enterprises that are most exposed to default, automation of production systems or digitalisation of the production processes in a non-reversible way).

Because of its sectoral impact, the COVID-19 pandemic appears to have amplified pre-existing trends in skills demand and employment. Since the beginning of the pandemic, the share of highly educated workers has risen, the share of less-educated workers has fallen and workers with a mid-level education have experienced a milder decrease (see Figure 3).

By accelerating digitalisation and hitting mostly sectors where the level of education of workers tends to be low (e.g. accommodation, food and services), the coronavirus pandemic has accentuated the bifurcation in labour demand by high/low education levels. Based on the experience of the economic crisis post-2010 and the highly uncertain future of some sectors employing less-educated workers, there is a growing concern that employment of less-educated workers will not rebound strongly.

Teleworking represented an important variable in cushioning the impact of the pandemic. Sectors and occupations that could promptly adopt a teleworking regime have experienced a limited impact on employment and hours worked. According to a European Central Bank study (Anderton et al., 2020), in 2019 teleworkable jobs accounted for 33% of employees and 46% of annual earnings in the euro area. This is consistent with the fact that remote working is more prevalent in highly paid jobs. At the aggregate level, EU countries exhibit substantial differences in the share of potentially teleworkable jobs, essentially linked to the structure of the economy. It varies from above 50% in Belgium, Luxembourg and Sweden to less than 20% in Greece, Romania and Spain. That said, the percentage of people in potentially teleworkable sectors actually reporting to have worked from home either usually or sometimes in 2019 was less than 10%.<sup>2</sup> The large gap between potential and actual take-up rates for teleworking suggests a low degree of preparedness to promptly deploy remote working as a tool to cope with the pandemic in terms of both digital equipment and employment regulation. This explains why the sudden shift to telework in 2020 – even though it contributed significantly to preserving jobs – has been a dramatic change for both workers and companies. The former experienced new working conditions and had to adapt their skills quickly to the new way of working. The latter suddenly had to adapt work organisation. While the effects on wellbeing, productivity and innovation performance are still unclear, this creates the possibility of high potential cost savings that could lead to a permanent shift to telework in the future.<sup>3</sup>

Lastly, the asymmetric impact of COVID-19 on European labour markets appears to be affecting employment income inequalities. According to Eurostat, the EU median employment income (before government compensations) declined by 5% in 2020 (compared to 2019) driven by absence from work and reduced working hours (Eurostat, 2020). In 12 EU countries, the share of people working 80% or less hours was above 20% and was concentrated in a few sectors.<sup>4</sup> Eurostat estimates also suggest that young employees appear to have experienced income loss that was twice as large as older workers, and temporary workers' loss was more than six times that of permanent workers. In half of the EU member states, the income loss is three to six times higher for the low-income group than in the high-income group. Low-income earners are

<sup>2</sup> Still, significant regional differences emerge. For instance, 70% of potential teleworkers report working from home in Stockholm while less than 10% of potential teleworkers engage in remote working in Italy (Anderton et al., 2020).

<sup>3</sup> See for instance Frey (2021) and Eurofound (2021a).

<sup>4</sup> Food and accommodation registered losses of almost 20%.

also more likely to have their employment income reduced because of unemployment transitions rather than reduced working hours or absence from work.

One of the reasons behind the significant employment income loss of low-paid and young workers is related to the type of employment contract. Low-paid jobs are traditionally regulated by non-standard employment contracts (fixed and short-term contracts) or fall under a self-employment regime, which usually does not allow access to traditional social protection schemes. As stressed by Spasova et al. (2021), these workers have only benefited to a minor extent from the social protection measures put in place during the pandemic (e.g. short-time work schemes, but also sick pay and sickness benefits) or remained excluded.<sup>5</sup> Many of the measures adopted are temporary (sometimes one-off), flat rate and means-tested benefits.<sup>6</sup> Overall, even though temporary adjustments to social protection schemes have been introduced to respond to the COVID-19 crisis, these have largely benefited workers who had formal access to social protection. This aspect is important in a forward-looking perspective because these types of contracts may become even more widespread than in the past during economic recovery.

### The link between COVID-19 and the digital transition

The pandemic crisis erupted at a time when major long-term transformations are shaping the European labour markets. As observed above, COVID-19 is accelerating digitalisation by forcing an upgrade in digital skills for the development and adoption of new digital tools and platforms. It is imposing teleworking, when possible, in a way that it is likely to stay. For non-teleworkable economic activities, an accelerating of automation of production processes is considered likely to happen (Pouliakas, 2018; Chernoff and Warman, 2021).

These trends may further disrupt European labour markets by deepening sectoral and territorial asymmetries caused by the already ongoing digitalisation processes. For instance, in the case of automation, Pouliakas (2018) estimates that future job openings in the two largest sub-sectors of manufacturing will be relatively low. How fast automation happens depends on the capacity and willingness of companies to invest in new technology as well as the territorial economic structure. A recent Joint Re-

<sup>5</sup> According to Eurofound (2021b), in 2020, almost 50% of self-employed interviewed reported that their household had difficulties making ends meet and 73% considered the social protection available is inadequate. Job insecurity appeared to hit young people and women particularly harshly.

<sup>6</sup> In nearly all cases, these benefits are being paid by the state budget instead of social security contributions.

search Centre study (Arregui Pabollet et al., 2019) shows that job losses due to automation are likely to be higher in southern and central European countries, while Nordic countries seem to face a lower risk.<sup>7</sup> Depending on the degree of industrial specialisation, the impact of automation and digitalisation is likely to vary even across regions within the same country. Regions with higher innovation capacity tend to have more high-paid, in-demand jobs, while regions with a lower innovation capacity tend to have more low-paid jobs at higher risk of automation.

### The objectives of a new industrial strategy centred on quality jobs

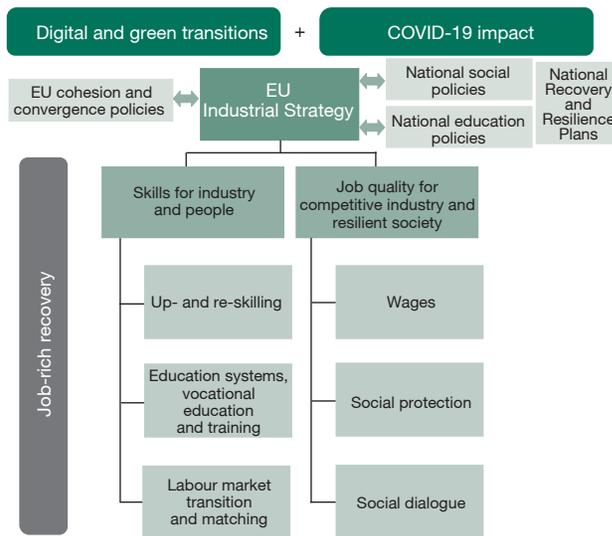
Bringing a social dimension in the new industrial strategy for Europe entails addressing two broad main challenges. The first challenge concerns skills and more specifically the transferability of skills from jobs destructed to jobs created as well as the upgrade and adaptation of skills to respond to changing job tasks following the digital transition and its acceleration induced by the coronavirus crisis. The second challenge concerns the quality of the new jobs created. The COVID-19 pandemic has highlighted the vulnerability of workers in low-quality jobs, lacking any safety net in the face of shocks, and new challenges in working conditions. The increasing resort to non-standard employment arrangements raises concerns about developments in wages, job security and working conditions.

To credibly address such challenges, a truly European industrial strategy cannot be devised in isolation from other EU objectives and policies. As observed above, COVID-19 and the digital transition are likely to have an asymmetric regional impact, possibly exacerbating disparities between prospering and declining regions. While it is not for the EU industrial strategy alone to address such an issue, it is crucial from an EU legitimacy perspective that the new EU industrial strategy is coherent and develops synergies with other EU policies and initiatives, especially the EU cohesion policy.

Similarly, member states cannot credibly subscribe to the EU industrial strategy without linking its implementation to national policies, and notably social protection and education policies. Both areas are critical for a modern and sustainable industrial development. To this end, the EU industrial strategy will have to be seconded by an EU coordinated action that aims, firstly, to develop national social

<sup>7</sup> For instance, less than 50% of non-managerial, professional and technical occupations in the French textile and leather sector could potentially be automated by 2030, whereas in Poland this figure is close to 78%.

Figure 4  
The social dimension of the EU industrial strategy



Source: Authors' elaboration.

protection systems to support those who will not be able to thrive in the transition to a sustainable and digital EU industry and may be left outside the labour market for long periods or even permanently. Secondly, coordination will be needed to transform European education and training systems in the member states to ensure the continuous supply of relevant skills and keep enhancing the competitiveness of a transformed industry. The Recovery and Resilience Facility will be the framework in which such a coordinated approach will be guaranteed and monitored. For this, it is important that the National Resilience and Recovery Plans take into consideration the objectives and measures that will define the national implementation of the EU industrial strategy. Figure 4 illustrates the linkages between all these different dimensions and the areas of policy intervention.

### Policies for an EU industrial strategy with a social dimension

With this background in mind, ten policy recommendations focussing on skills and job quality can help to define an EU industrial strategy with a relevant social dimension.

#### Skills for industry and people

A key objective of the EU industrial policy should be to develop skills. The EU industrial strategy should aim at enhancing and complementing the skill sets that can support individuals in labour market transitions and ease

skills transfers from declining to expanding sectors and occupations, as well as across regions. Enhanced and adjusted skill sets would allow workers to take up the new job opportunities that will be created and industry to count on a talented and skilled workforce during the transitions. Skills development will also support workers that stay in the same job, sector or occupation to upgrade their skills to run new tasks, addressing changing industry's skills needs in a timely manner. Ultimately, having skills among the priorities of an EU industrial policy means recognising the crucial role of human capital for the EU industry to thrive, as well as endorsing people to benefit from industrial development. The *European Skills Agenda*, published in July 2020, provides a key reference framework for the EU industrial strategy to develop policies in this area. To ensure coherence and develop synergies in EU action, it is important that the EU industrial strategy contribute to streamlining the policy discussion, measures and funds in the area of skills under the Skills Agenda's overarching umbrella. In line with actions foreseen by the Skills Agenda and in addition to them, five policy actions should be envisaged.

*Foster up-to-date and future-proof education and training.* EU industrial strategy should foster and create opportunities for industry-led foresight studies to link potential industrial scenarios to educational needs and trends. Such studies, together with constant and refined skills intelligence, should provide a compass on possible industrial developments in the next future and orient the transformation of European education and training systems.

*Incentivise firm-oriented training.* The EU industrial strategy can and should make sure that the firms leading the digital and green transition of the EU industry invest in human capital, and not only in technology or infrastructure. To this aim, it should use financial provisions to incentivise trainings in expanding and strategic sectors. Trainings should help firms to provide continuous upskilling to their employees and initial training (e.g. apprenticeships, work-based learning) to newcomers.

*Support the establishment of individual-based entitlement to adult education and training.* To support access to adult education and training opportunities and the acquisition of skills to transit across sectors and occupations, the EU industrial strategy should endorse the establishment of universal, modular entitlement to incentives for individuals to participate in education and training. This could prove especially useful for individuals managing their own labour market transitions and seeking new job opportunities in order to secure their career paths in the long term.

*Certify industry-relevant skills and make them visible.* The EU industrial strategy should favour the refinement of a transparent and detailed taxonomy of skills relevant to industrial development, especially for strategic and expanding sectors, to be used by firms, individuals and intermediary actors in labour market transitions (e.g. social partners, education and training providers, public and private employment services). Such taxonomy could start from what is already available in the European Skills, Competences, Qualifications and Occupations classification and should also be informed by the Industrial Forum and similar networks such as the Blueprint for Sectoral Cooperation on Skills.

*Manage skill-matching and labour market transitions.* The new EU industrial strategy should support the enhancement of public and private employment services by leveraging the potential of digitalised labour market services. Such services should be made available to advise firms when recruiting and to provide training for new jobs. Their role can be crucial to guiding individuals facing labour market transitions and in need of skills assessment and validation as well as up- and re-skilling.

### Job quality for a competitive industry and a resilient society

In order to ensure a competitive industry and a resilient society, a priority of the EU industrial strategy must be the promotion of job quality. Job quality is a multidimensional concept, which includes characteristics of work and employment that have been proven to have a causal relationship with workers' health and well-being. In the context of an EU industrial strategy, the concept of job quality is linked to three objectives related to its measurable dimensions: wages, social protection and social dialogue.<sup>8</sup> Fair wages, social protection and social dialogue figure as prominent features of the European social model. The European Pillar of Social Rights explicitly acknowledges that all workers have the right to fair wages that provide for a decent standard of living and adequate social protection, regardless of the type and duration of their employment relationship. In addition, the Pillar recognises the importance of social dialogue and the necessity for social partners to be consulted, to negotiate and to conclude collective agreements in matters relevant to them. Five main policy recommendations can make this happen.

*Ensure fair minimum wages.* A new European industrial strategy that aims for competitiveness and social fair-

ness should be accompanied by an initiative to ensure fair wages across the EU. The recently proposed EU Directive on adequate minimum wages (European Commission, 2020b) could help achieving such objective. It would play an important role in preventing in-work poverty and stimulate legal employment. At the same time, by ensuring compulsory implementation of fair minimum wages in a coordinated manner across the whole of the EU, it would create a level playing field and promote wage convergence, in particular between countries in Central and Eastern Europe and Western Europe.

*Promote social dialogue.* The new EU industrial strategy should ensure an inclusive governance by involving social partners in co-designing and co-creating its actions. Social dialogue, and notably collective bargaining, is a key means through which employers' organisations and trade unions can establish fair wages and working conditions. The decline in collective bargaining coverage has been associated with a downward pressure on wages, a high share of low-wage earners in a number of countries and increasing wage inequality. To guarantee that the industrial transition goes hand in hand with job quality, the EU industrial strategy should ensure effective social dialogue and guarantee workers' information and participation in the transition and restructuring processes.

*Encourage socially sustainable business models.* A forward-looking EU industrial strategy should aim to move away from a social protection system that hinges on a person's employment status and towards social protection that is neutral with regards to the forms of employment and self-employment. It should encourage a European benchmark for industrial business models that embed a new balance of the (production and market) risks borne by firms and workers. This entails ensuring neutral social protection against unemployment, sickness and other life circumstances independently of employment status (European Commission, 2019).

*Monitor, assess and evaluate job quality.* In order to adequately monitor the implementation of the new EU industrial strategy, the Commission will propose the introduction of Key Performance Indicators (KPIs) that measure the transformation of European industry and its resilience in the aftermath of the pandemic. Job quality indicators should be included in the list of KPIs. They should be coherent with the revisited Social Scoreboard within the European Semester and the new Recovery and Resilience Scoreboard. KPIs should include indicators of employment insecurity and job status insecurity, social dialogue, working time and work-life balance, autonomy, work intensity and work relationships.

<sup>8</sup> The OECD, the ILO and Eurofound have a framework defining job quality. Here we focus on few dimensions we believe are relevant in the context of the EU industrial strategy.

*Manage the transition towards structural telework.* Teleworking is expected to be used in a much larger and persistent way, but its effects are still highly uncertain. Monitoring and analysing its implications on total and sectoral employment, employment relations, working conditions, innovation and productivity should be a key priority for the new EU industrial strategy. A structural shift to telework could be informed by defined pilot programmes to understand the transformation of working environments in a blended regime of remote and office work (e.g. hot desk, open spaces) before deploying these regimes on a large scale. Social partners can play a key role in managing such a shift, as well as in better understanding its implications.

### Concluding remarks

While the pandemic is not yet under control, national governments are shifting their agendas from the emergency response to the long-term recovery. The new EU industrial strategy can play a key role in making the recovery sustainable and inclusive and contribute to shaping a new EU economic and social model. A truly European industrial strategy that in addition to fostering competitiveness of companies supports policies that foster people's skills and preserve job quality will enjoy a wider legitimacy, and hence foster EU legitimacy.

Malorie Schaus

## EU Trade Policy in Light of the New Industrial Strategy for Europe

EU trade policy, which is essential to a prosperous European economy and industry, has an important role to play in tackling the major challenges of our times relating to worsening geo-economic and trade tensions, enduring global sustainability issues and a deteriorating multilateral order. The attempt to surmount these issues requires the adoption of a non-protectionist and peaceful approach to the benefit of the EU industries, consumers and citizens, and more generally, the world.

In this respect, the European Commission recently released a Trade Policy Review that responds to these numerous challenges by promoting an open, sustainable and assertive trade policy. This policy is in line with

**Malorie Schaus**, Centre for European Policy Studies, Brussels, Belgium.

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the EU's fundamental treaty commitment to free and fair trade<sup>1</sup> as well as the overarching green and digital transitions as supported by the EU New Industrial Strategy. In this respect, open strategic autonomy becomes the new horizon towards which the EU trade policy is directed. It is aimed at balancing the benefits of trade openness and competitiveness with strengthened resilience, sustainability, a more assertive stance towards unfair trade practices, and rules-based cooperation.

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<sup>1</sup> In the Treaty of the European Union, the EU commits itself to contribute to the sustainable development of the Earth, free and fair trade, as well as to the observance and development of international law, including the principles of the United Nations Charter (Article 3(5) of the TEU).

The EU trade policy's new model of open strategic autonomy should be generally understood and implemented as uniquely supportive of emerging or new forms of trade openness rather than as a buttress for protectionism. These forms of trade openness should therefore essentially be founded on and contribute to sustainability, fair conditions of competition and a level playing field, security and predictability, multilateral trade cooperation to the greatest extent possible, and legal and economic grounds.

### Sustainable trade

Trade and sustainability must be compatible, even though they are not necessarily so automatically. In this respect, diverse EU policies may contribute to sustainable trade, including EU environmental and social policies, as well as EU trade policy whose main perspective relates currently to its Trade and Sustainable Development (TSD) chapters in its new generation free trade agreements (FTAs).

Domestic environmental and social policies are generally considered first-best policies to correct market failures, while trade policies are generally qualified as “blunt and rarely, if ever, efficient when addressing market failures” (Mavroidis, 2016, 414). EU trade policy should therefore be applied for sustainable trade purposes only to the extent that it improves the impact of international trade on the environmental or social realities. This transition towards a more sustainable economy and trade creates new market opportunities and increases employment.

Furthermore, EU trade policy should contribute to sustainable trade through concrete, measurable and direct instruments addressed primarily or at least ultimately to companies, being the core actors in this transition towards sustainability.

Against this background, the following specific trade policy instruments should be adopted by order of preference:

1. trade liberalisation in environmental goods at the multilateral level
2. mandatory EU system of due diligence with international private certification
3. one-topic sustainability agreements
4. improved EU free trade agreements in terms of both substance and enforcement.

### Trade liberalisation in environmental goods at the multilateral level

Trade liberalisation in environmentally related goods (EGs) at the multilateral level represents the first-best trade policy option to contribute to sustainable trade in

facilitating the access – at lower cost – to EGs. On the one hand, as shown by the OECD (2019a) set of trade and environmental indicators, international trade in EGs has more than doubled over the period 2003-2016. This growth may relate in part to domestic environmental policies (Sauvage, 2014). On the other hand, Shapiro (2020) shows that in most countries, import tariffs and non-tariff barriers are substantially lower on dirty (more upstream) than on clean (more downstream) industries. The limitation of greater protections for clean industries could help address climate change and increase welfare.

Trade liberalisation in environmental goods and services would be best approached in a holistic manner at the World Trade Organization (WTO) by reviving the currently suspended Environmental Goods Agreement (EGA) negotiations. The latter should proceed on a plurilateral agreement's basis, cover the majority of international trade in EGs and be extended to include developing countries. The targeting of the elimination of tariffs on EGs would benefit all WTO members on a most-favoured-nation basis.

As the EGA represents a paradigm shift by integrating the environmental policy purpose in the international trade agenda, its scope should first cover the most obvious EGs that directly contribute to climate change mitigation in a measurable way, that already greatly benefit from domestic environmental policies, and for which consensus by participating WTO members may be more easily found. The scope of the EGA should then be incrementally extended to progressively cover all EGs of a value chain based on a periodic review mechanism.

### Mandatory EU system of due diligence with international private certification

The European Commission is expected to release a proposal for a directive on mandatory corporate due diligence later this year, which is a welcome initiative. Compared to voluntary due diligence and reporting systems, mandatory due diligence requirements may contribute to the reduction of adverse human rights and environmental impacts of businesses' activities and supply chains in a more positive way, thereby rendering them more resilient (European Commission, 2020a).

The EU-wide mandatory due diligence system should be based on an obligation of conduct in the form of a context-based legal standard of care, according to which undertakings have to adopt all objectively necessary and sufficient measures to identify, prevent and mitigate the most severe or likely adverse corporate-related impacts on human rights and the environment throughout the supply chains. In this respect, the applicable standard of care

should vary according to the size and means of the undertakings, as well as to their sector of activity and the context of operations, in order to guarantee the effectiveness of the due diligence system as well as legal certainty.

The EU mandatory due diligence requirements should be applicable to all EU undertakings and non-EU undertakings that operate in the internal market in order to foster both a European and a global level playing field. Access to the EU internal market should be conditioned or be made more tariff advantageous (e.g. based on a future WTO EGA) based on compliance with the due diligence obligations.

Beyond an appropriate standard of care, the effectiveness of the EU mandatory due diligence system also depends on its consistent and coordinated monitoring and enforcement by the European Commission and the EU member states. As this will entail significant costs (European Commission, 2020a, 22), it is important to review the compliance with the mandatory due diligence requirements. This could be done through reference to internationally recognised private conformity assessment systems based on internationally recognised standards (e.g. international product-related standards, including standards related to conformity assessment, developed by the International Organization for Standardization).

The EU-wide cross-sectoral due diligence system should thereby also contribute to the further development of international private standards and conformity assessment systems into a private world agreement, that would in turn support other relevant international treaties (e.g. UN Treaty of Business and Human Rights; WTO TBT-plus and SPS-plus agreements).

### One-topic sustainability agreements

The EU should privilege the development of dedicated sustainability agreements with its trading partners with a wider multilateral perspective. The unique example in this respect is the Agreement on Climate Change, Trade and Sustainability (ACCTS) between Costa Rica, Fiji, Iceland, New Zealand, Norway and Switzerland.

### Improved EU FTAs in terms of both substance and enforcement

To enhance the effectiveness of the TSD chapters in the EU's FTAs, they need to comprise more concrete and targeted rules on various sustainable trade-related topics, beyond the currently covered areas. These rules should all be legally binding. Flexibility is necessary due to the ambition of the TSD commitments; however, they should

vary according to the EU's trading partner in order to ensure the continued conclusion of FTAs with future EU's trading partners that are not necessarily like-minded.

The TSD chapters in the new generation of the EU's FTAs are limited in the effectiveness of their enforcement. The appointment of a Chief Trade Enforcement Officer and the establishment of a Single Entry Point therefore represent worthwhile initiatives. The specific dispute settlement mechanisms based on a panel of experts should still be rendered more operational, notably in providing for economic or trade sanctions in case of non-compliance, which should be made contingent upon a 'competitiveness test' (e.g. Article 9.4 of the level playing field chapter under the Trade and Cooperation Agreement between the EU and the UK).

### Fair trade

Europe's traditional openness to trade and investment firmly underpins its economic competitiveness and resilience (European Commission, 2020b, 4). In this respect, foreign investment in the EU economy has become increasingly more important over the last ten years. In this respect, foreign investment in the EU economy has become increasingly important over the last ten years. This may be explained by the rise in value chain production (OECD, 2013). Related trends point to the greater prominence of new foreign direct investment (FDI) providers with more investment from emerging economies and state-owned enterprises, as well as the growing presence of "offshore investors" (European Commission, 2019).

This increasing openness towards foreign investments represents a great economic opportunity for Europe. It may, however, also raise concerns about certain foreign investments and other trade practices, which may represent important challenges to public security and the level playing field in the EU's Single Market. On the one hand, foreign direct investments in the EU internal market have increasingly concerned foreign investors with close ties to their home governments that strategically target European companies involved in the development of critical technologies or in critical infrastructures (e.g., energy). Other critical assets that could be strategically targeted by FDIs relate to critical inputs, or access to sensitive information. These trends and potential risks relating to FDIs warrant a more comprehensive approach at the EU level given the operation of firms over several EU member states, the importance of the proper functioning of the Single Market, and the necessity of a greater leverage over foreign countries.

On the other hand, with the generally low tariff levels, subsidies are being increasingly used by governments in

both high-income and emerging economies as a substitute for protection (Evenett, 2019; Hoekman and Nelson, 2020). Most importantly, the increase in value-chain-based production and trade that is highly correlated with an expansion in FDIs (OECD, 2013) is expected to limit the incentives to use traditional trade policy instruments such as tariffs, and to increase the incentives to use subsidies (Hoekman, 2016). However, subsidies will generally have spillover effects on trade that may even be intended so. While subsidies are presumed to be first-best instruments to address market failures implying positive spillover effects, they may also be adopted based on other rationales, such as an industrial policy-driven objective, that can imply negative cross-border spillover effects. More specifically, in a value chain world, negative spillovers can and will occur (Hoekman, 2016). Against this background, foreign subsidies can, through their negative effects, distort the competition and challenge the level playing field in the EU's Single Market. Indeed, the EU State aid rules, that are aimed at preserving such a LPF in the internal market, are solely applicable to subsidies provided by EU member states. Moreover, in this context of increasing importance of subsidisation and global value chains, the WTO legal disciplines on subsidies have to be adjusted and extended to cover services and investments. However, this endeavour is expected to be a long-term exercise.

In the absence of negotiated solutions at the multilateral level, the EU initiatives relating to the recent EU framework regulation for the screening of FDIs in critical assets that may affect the security or public order (Regulation (EU) 2019/452, 2019) and the European Commission's (2021a) proposal on foreign subsidies should be supported. This more assertive legal stance by the EU is genuinely aimed at contributing to fair conditions of competition and a level playing field in the Single Market as well as public security, beyond any form of protectionism, based on legally predictable rules founded in economics.

### The EU FDI screening regulation

The EU regulation for screening of foreign direct investments establishes a framework for the screening by member states of FDIs into the EU on the grounds of security or public order and for a mechanism for cooperation and information sharing. Despite its contribution to enhanced legal certainty and transparency, the EU FDI screening regulation provides for an incomplete and imperfect system at the EU level that may compromise the achievement of a properly functioning and open Single Market.

On the one hand, the EU FDI screening regulation relies essentially on national proceedings that are typically confidential. The EU-wide cooperation and information-sharing

mechanism also shows limited transparency in some respects. Furthermore, investors may still continue to face multiple parallel national (formal and informal) investment screening proceedings within the Single Market. Against this background, the European Commission should propose, as part of its five-year review, the establishment of an EU-wide investment screening mechanism on grounds of security or public order with respect to at least projects or sectors of Union interest based on the EU's exclusive competence regarding the common commercial policy.<sup>2</sup>

On the other hand, despite the list of factors on critical assets and foreign investors provided for in the EU FDI screening regulation, there is a risk that national investment screening authorities expand the interpretation on security and public issues in order to cover other hidden issues, in particular economic issues. To overcome this risk, the EU should adopt complementary legislative instruments founded in economics and make full use of its competition policy<sup>3</sup> with the objective of ensuring fair conditions of competition and a level playing field in the Single Market.

### European Commission's proposal on foreign subsidies

The recent European Commission's (2021b) proposal for a regulation on foreign subsidies distorting the internal market aims at establishing new rules with respect to subsidies received from third countries by undertakings active in the EU. In this respect, it emphasises and targets the distortive effects that foreign subsidies may cause in the EU Single Market. As mentioned above, this can in fact be the case. The European Commission's proposal proceeds on the basis of indicators to identify the distortive effects of foreign subsidies on the internal market and it importantly mentions the relevance of the purpose of the foreign subsidy. The latter translates itself however in the determination of the potential positive effects of the subsidy. In that regard, we observe that the balancing test in the proposal has become wider, less specific and gives broad discretionary power to the Commission, compared to the EU interest test in the White Paper (European Commission, 2020b). This lack of specificity with the ensuing risk that the European Commission does not recognise positive effects of foreign subsidies clearly creates legal uncertainty and may dissuade companies and operators from investing in the Single Market at the expense of its competitiveness. Instead of contributing to fair competition in the internal market, the proposal risks promoting protectionism. Against this background, the European Commission should base its actions on the theory of economic policy

<sup>2</sup> Article 3(1)(e) TFEU.

<sup>3</sup> See e.g. Case T-102/96 Gencor Ltd v Commission of the European Communities [1999] ECR II-759.

and develop guidance or further rules providing for safe harbours regarding foreign subsidies. More generally, the regulation on foreign subsidies and its application should not be more restrictive than the State aid rules applicable to EU member states. Importantly, all necessary measures should be taken to ensure WTO compliance with the proposal.

### Multilateral trade

Major challenges that our world is facing would be best addressed through solutions negotiated at the multilateral level, and importantly at the WTO, even if they require strenuous medium- to long-term efforts. The General Agreement on Tariffs and Trade (GATT) and the WTO have indeed proven to be indispensable to the operation of the global economy, ensuring openness and development, as well as security and predictability to the multilateral trading system. They have thereby also contributed to peace-keeping.

For these reasons, it is of the utmost importance to restore and improve the multilateral rules-based trading system through the modernisation of its rules and the reform of its dispute settlement system. In this respect, it is important to note that the EU strongly supports the reform of the WTO, as evidenced by the Annex to the Trade Policy Review “Reforming the WTO: Towards a sustainable and effective multilateral trading system” (European Commission, 2021c).

### Functioning WTO dispute settlement system

The restoration of a fully functioning WTO dispute settlement system, and in particular the Appellate Body, should be given priority on an independent basis as part of the WTO reform. It is crucial for the core existing WTO legal disciplines to be completely effective and modernised. Indeed, the WTO dispute settlement system has proven to be an essential element of the multilateral rules-based trading system. Its restoration will help promote its core characteristics relating to its binding nature, the independence of WTO adjudicators, as well as the WTO dispute settlement system’s fundamental contribution to the security and predictability of the multilateral trading system.

Some aspects of the WTO adjudicative system, however, deserve to be improved and clarified. First, the 90-day time limit for the issuance of Appellate Body reports, which was constantly exceeded by an average duration of 395 days in 2018 (WTO, 2020, 180), should be extended to a more realistic mandatory time period estimated at an average of six months; the possibility to extend beyond

this period should be rendered more difficult. In fact, the 90-day time limit imposed by US negotiators in 1993 was already widely criticised for being an unreasonably short time frame given the practices of other courts. Second, given the nature of WTO law and the claims, arguments and evidence provided by litigant parties, a certain number of panellists and Appellate Body members should be requested to have demonstrated expertise in economics, in particular econometrics (Mavroidis and Neven, 2017, 195). Third, the Appellate Body’s mandate limited to issues of law covered in the panel report and legal interpretations developed by the panel should be clarified. In this respect, an Understanding to Article 17.6 of the Dispute Settlement Understanding providing for general guidance as to the required degree(s) of correspondence between facts and law for the meaning and operation of domestic law to be subject to appellate review should be adopted. It should notably be determined according to the type of WTO covered agreement or legal obligation at stake, and the type of claim (*de facto* vs *de jure* cases) (Schaus, 2020).

### International code of conduct on state-owned enterprises

In addition to the adjustment of the WTO rules to the climate and environmental challenges, an international code of conduct on state-owned enterprises should be adopted. In fact, state-owned enterprises (SOEs) are used in numerous countries, and they may sometimes create market-distortive effects. For instance, SOEs are quite present in the European economies (Amatori, 2017); and state-led economies generally heavily rely on SOEs that may have differing characteristics (Pelkmans and François, 2018).

Since the GATT 1947, WTO law comprises some disciplines regarding SOEs, including Article XVII of the GATT, which disciplines the behaviour of state trading enterprises (STEs) in their commercial activities. It should, however, be clarified and expanded with respect to its covered obligations. It provides, on the one hand, that STEs shall act in a non-discriminatory manner in their commercial activities, and, on the other hand, that STEs shall act solely in accordance with commercial considerations and shall afford the other enterprises adequate opportunity to compete for participation in their commercial activities. In the context of divergent WTO case law, these obligations should be understood as independent obligations (Mavroidis and Sapir, 2021). In fact, SOEs may contribute to market distortions based on behaviour that is not consistent with commercial considerations, while perfectly non-discriminatory. In this respect, an Understanding to Article XVII of the GATT based on the relevant disciplines

developed in the EU's FTAs (e.g. EU-Vietnam FTA) and beyond should be adopted.

Second, subsidies are also often granted through sometimes opaque systems of SOEs. Under the WTO Agreement on Subsidies and Countervailing Measures (SCM Agreement), a subsidy is established based notably on the existence of a financial contribution provided by a government or a public body, or by a private body entrusted or directed by the former. As such, the SCM Agreement should be clarified and reinforced through the development of an illustrative list of SOEs, annexed to the SCM Agreement that would *presumptively* qualify as public bodies (Mavroidis and Sapir, 2021) based on one or two criteria referred to in WTO case law with respect to the entity-based public body enquiry and typically included in the definition of SOEs in EU FTAs and beyond. This includes majority government ownership, governmental appointment of the majority of board members, governmental control over strategic decisions, the exercise of governmental functions, or the pursuance of government policies.

## Conclusion

The EU trade policy, essential to a prosperous European economy and industry, can play an important role in tackling the major challenges of our times relating to sustainability and fair trade issues.

Solutions negotiated at the multilateral level, and importantly at the WTO, such as the trade liberalization in environmental goods, an international code of conduct on SOEs and improved WTO legal disciplines on subsidies, would most probably best address these challenges on a lasting basis. These negotiations will however require strenuous medium- to long-term efforts, that should also importantly encompass the restoration of the WTO dispute settlement system.

Therefore, the EU trade policy initiatives with respect to sustainable trade and fair trade are welcome to the extent they are effectively and genuinely aimed at achieving these goals and remain WTO-compliant. Additional actions should also be taken by the EU, such as sustainability agreements. Finally, further improvements are needed with respect to the EU's currently main sustainable trade perspective relating to its TSD chapters, and to the recent EU FDI Screening Regulation.

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Agnes Sipiczki, Karel Lannoo\*

## The EU Health Union in Search of a Definition and an Open Discussion

More than other EU 'Unions', the proposed Health Union requires proper definition because the EU's competences are limited in this domain. The COVID-19 crisis has highlighted the hazardous inefficiency of piecemeal national responses. It has also shown that individual member states cannot tackle the challenges of cross-border health threats alone.

Creating more unity in public health policy will be an uphill battle, however. Sensitivities about privacy and the General Data Protection Regulation (GDPR) are a major barrier, even at the national level. A 'taxonomy' is therefore needed to gather comparable EU-wide data held in national systems.

For the pharmaceutical sector, the vaccine debate has shown that the lack of a single capital market and delays to a truly single patent law or a single EU legal framework are major stumbling blocks, even if the industry is essential to Europe's economy.

### Upgrading existing agencies while creating a new one

The European Commission is rapidly advancing in the public health space, but a proper analysis of the room for manoeuvre and parameters, for example within the treaties, has not yet been carried out. The Commission has proposed an upgrade of its core agencies, the European Medicines Agency (EMA) and the European Centre for

Disease Prevention and Control (ECDC), and the creation of a new one: the European Health Emergency Preparedness and Response Authority (HERA). It has increased the amount of funds available for health research in the Multiannual Financial Framework (2021-27) under different budget lines and is starting to adopt a harder stance towards the pharma industry in meeting public demands. But the policy expertise comes from the member state or local level, and the data required for good policymaking is missing at all levels. The GDPR hampers the collection and sharing of European citizens' health data; healthcare systems' data are not standardised, and aggregate data on R&D at the public and private levels are not available for national or for EU use.

Strictly speaking, the EU only has a supplementary and coordinating competence in public health policy because it is a core member state or regional responsibility. With the EMA, the European Commission has shaped the Single Market with a common commercial framework for healthcare products, covering intellectual property, R&D support and open markets. The EU can intervene in emergency situations to combat major cross-border health threats (on the basis of Article 168(5) of the Treaty on the Functioning of the European Union, TFEU) and stimulate cross-border cooperation. Yet the Commission did not make joint advance purchases of COVID-19 vaccines on this basis; rather, it relied on an emergency support mechanism designed for humanitarian assistance in the event of natural disasters (Article 122 TFEU).

Advancing further without treaty amendments or an open debate about competences, as the Commission is doing implicitly, has raised a number of problems that demonstrate the importance of a more carefully planned expansion in the area of public health. The Commission is creating expectations that are difficult to fulfil given the limited expertise, data, means and capacity in this domain. It cannot realise a Health Union without a proper democratic process and the express political support of member states. A more open debate is therefore required, without hasty moves that may backfire or bring the Union's legal or structural limitations to the fore.

The Commission is using the urgency of the health crisis as an argument to advance amendments to the EMA and ECDC regulations (as stated, without carrying out an in-depth impact assessment) and to create HERA. Both the

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Open Access funding provided by ZBW – Leibniz Information Centre for Economics.

\* This contribution draws on a report for a Healthcare and Pharmaceuticals Working Group of the CEPS Industrial Policy Task Force.

**Agnes Sipiczki**, Centre for European Policy Studies, Brussels, Belgium; and European University Institute, Florence, Italy.

**Karel Lannoo**, Centre for European Policy Studies, Brussels, Belgium; and European University Institute, Florence, Italy.

EMA and ECDC will receive additional tasks and responsibilities under the draft regulations, which, in the case of the ECDC, should have started with a proper fact-finding inquiry into why the agency was entirely behind the curve of the pandemic in early 2020. This could reveal problems of competence and related issues of inadequate data. This same question could be raised for HERA: due to the fact that it is very difficult to gather data and member states are unwilling to share competences in healthcare, should a thorough assessment be required before creating a new agency? An in-depth debate on these matters can avoid future problems (and one that goes beyond the online consultation that ran until 12 May).

### The vaccine debate

The joint procurement by the EU of COVID-19 vaccines through Advance Purchase Agreements (APAs) was announced already in August 2020. The procurement process is run by the Commission on behalf of all participating member states, following a 2013 EU decision, with a budget of €2.7 billion (Decision No 1082/2013/EU, 2013).<sup>1</sup> The liability for the deployment and use of the vaccine remains with the purchasing EU member states. The ensuing discussion, above all in early 2021, however, raised many questions about the negotiation tactics used by the EU Commission, the price setting and the lack of transparency. The impression emerged that the Commission had limited expertise in dealing with large pharma groups, and in the understanding of the business models, as evidenced by the way the UK, even though it is dependent on imports, managed to get better deals and a quicker delivery. This led to the adoption of an export authorisation scheme (Commission Implementing Regulation (EU) 2021/111, 2021) by the EU in January 2021, which has caused a great deal of controversy. The EU's intention is to ensure that European citizens get access to vaccines that have been funded by EU money, and that pharmaceutical companies respect their contractual commitments. But instead, the situation raised the spectre of industry re-localisations out of the EU for an industry that is the main EU exporter.

The EU agreed upon prices with manufacturers, which vary with a factor of eight. The Belgian state secretary for the budget mistakenly released the prices agreed with manufacturers (see Table 1), which make one wonder why the EU paid so much to certain manufacturers in the first place. One would expect much smaller price differences in a competitive market, or more flexible prices. Price elasticity could be expected to be high, certainly in the

**Table 1**  
**Vaccines prices and quantity for Belgium**

Company	Price in €	Number (in mn)
AstraZeneca	1.78	7.70
Johnson & Johnson	7	5.17
Sanofi-GSK	7.56	7.74
Pfizer-BioNTech	12	5.10
Curevac	10	5.80
Moderna	15	2.10

Source: Belgian state secretary for the budget, December 2020.

early days of the vaccination, and would be a good incentive for producers. This pricing agreement, however, excluded it. Additionally, leaving the liability with the member states is an unclear and unworkable structure.

The recent European Commission (2021) proposal for Digital Green Certificates, which would facilitate the free movement of vaccinated or otherwise protected (i.e. recovered) persons by creating an interoperable framework for vaccine certificates, also raises a number of sensitive questions about the collection, processing and retention of digital health data. It is essential to ensure the sufficient protection of citizens' personal data on their vaccination status or previous COVID-19 infections, as the Secretary General of the Council of Europe, Marija Pejčinović Burić, reminded the 47 member states in a recent statement (Council of Europe, 2021). According to the proposal, this data would be stored on the certificates and would be accessible to national authorities across the Union. During the negotiations, the Council proposed including further details related to the collection of personal data, such as the possibility of it being processed for purposes other than exercising free movement rights.

### A pharma sector policy

Similar concerns arise around the EU's pharma sector strategy, for which much more data of a macro and micro nature is needed. The European Commission wants to have more say over big pharma but lacks information and understanding of the industry. Given the critical importance of pharma and its participation in publicly funded research, consolidated information on the strengths and weaknesses of the industry, and its structure and orientation should be publicly available. The EU should have an aggregate view of all the forms of R&D support for the sector at the national, European and international levels. This would allow for better targeted public spending in

<sup>1</sup> A proposal to update the 2013 decision was presented by the European Commission (2020) on 11 November 2020.

this domain. Today, it is unevenly spread over many different programmes or is uncoordinated. To our knowledge, nobody has the aggregate picture.

The competitiveness of the pharma sector in Europe is conditioned by other factors that have languished on the EU's agenda. Indeed, the COVID-19 crisis has highlighted the urgent need to increase the resilience of pharmaceutical and healthcare supply chains and to achieve some strategic autonomy in the sector. Europe still has no single patent law or single capital market – two factors crucially important for pharma and biotech companies – and lags far behind the US in its number of patents, while China is catching up rapidly. The problem is the lack of a unitary patent, or the presence of a hybrid model in which national and Union law coexist. A Unified Patent Court for the EU is only starting to function. This increases the costs for biotech firms and reduces the solidity of research frameworks.

On the capital markets side, the lack of a single market sends all successful biotech companies to the US, to the extent that 98% of follow-up offerings by European biotech firms have been on US rather than European exchanges (Le Deu and Santos da Silva, 2019). The broader problem is again the lack of a truly single legal framework with strong enforcement. The lack of a unitary patent system also prevents a quick decision over an EU-wide waiver of intellectual property rights for COVID-19 vaccines, as is being discussed now.

Europe has been successful in its public-private partnerships to stimulate R&D in pharma, but the amounts involved are one-tenth of what is spent by the US Biomedical Advanced Research and Development Authority, and there is insufficient follow-up and coordination between the European and national R&D programmes. Increasing research and innovation capacity in Europe's pharmaceutical sector, combined with a more robust production capacity, would not only make the industry more competitive globally, it would also strengthen the EU's capacity to manage future pandemics and health threats.

The next seven year EU budget (2021-27) increased core health R&D funding from €7.4 billion to €8 billion, but more is available through other budget lines. The last Horizon programme (2014-20) had assigned €2.1 billion for the funding programme in the domain of vaccines, through vaccination research and through support for the Innovative Medicines Initiative (IMI), which is co-funded 50%-50% with the private sector. The new MFF has a budget of €3.6 billion for IMI and its successor, the Innovative Health Initiative, in order to create an EU-wide health research and innovation ecosystem that facilitates the translation of scientific knowledge into tangible innovations.

The new EU budget has enhanced facilities for supporting equity financing and risk capital of high growth enterprises. This will help prevent strong European biotech firms from moving to the US for the next stage of funding. The EU has addressed this problem in the InvestEU programme (the Juncker plan), which also includes budget lines for public-private partnerships in biotech, and has been amplified by the von der Leyen Commission as well as under the new EU budget. The new budget also has a strong increase for the EU4Health programme, with a budget of €1.8 billion to strengthen health systems and the healthcare workforce, to support integrated and coordinated work between the EU member states, to offer a sustained promotion of the implementation of best practices in (global) data sharing, to reinforce the healthcare workforce and to tackle the implications of demographic challenges.

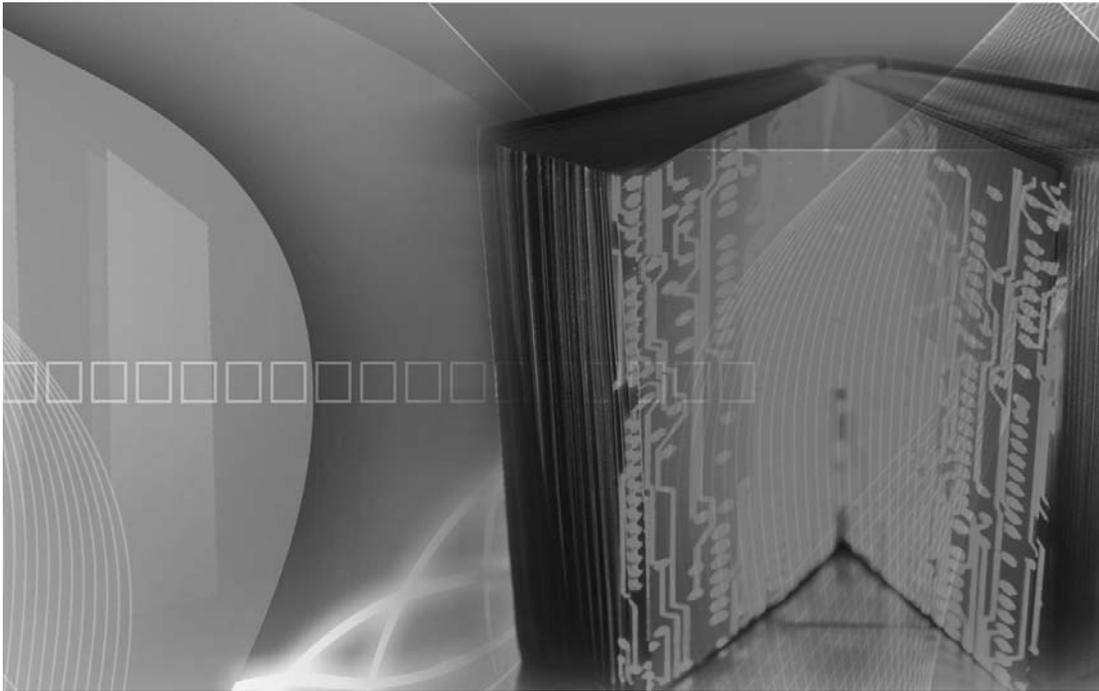
### The road ahead

For a Health Union to work, a candid and ambitious debate is needed on what the EU wants, how the competences will be shared with member states, and how it will improve on all the deficiencies revealed during this crisis. More data is needed to formulate a better view on where the EU stands in public health policy and in health research. The sensitive issue of personal health data must also be addressed. More unity is needed in intellectual property regulation and in capital markets. A long-term agenda needs to be set without hasty decisions and with a proper debate, which is an issue that can be raised at the Future of Europe conference.

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Christian Pfister and Natacha Valla\*

# Financial Stability Is Easier to Green Than Monetary Policy

In the face of mounting evidence of global warming, which is an irreversible process, central banks, as other policymakers, have to play their part. They need to consider climate risks not only in their internal management, but also when they devise their strategies, conduct their policies and implement their decisions. This article examines the possible impacts of climate risks on the two main variables of interest for monetary policy, economic growth and inflationary pressures. On that basis, it infers the potential consequences for the objective of monetary policy, its conduct and its implementation.

What can central banks do to help fight climate change? Like any other body, they can first improve their own functioning and incorporate climate change risk considerations in the drawing and the implementation of their projects. Central banks may also consider climate change risks when making decisions about their own funds investment policy (Cœuré, 2018). Above all, they can examine the extent to which they can incorporate these risks when pursuing their two main missions: defining, conducting and implementing monetary policy, and preserving financial stability. The case for doing so appears easier in the latter.

## A likely limited impact on monetary policy in the short to medium term

This article first examines the possible impacts of climate risks on the two main variables of interest for monetary policy, economic growth and inflationary pressures. On that basis, the potential consequences for the objective of

monetary policy, its conduct and its implementation are inferred.

The focus of this article is on the case of the most developed economies. For the sake of simplicity, we distinguish between two extreme scenarios. In Scenario 1, or the “cooperative scenario”, governments act jointly, rapidly and forcefully against climate risks and accordingly raise carbon taxation. We assume that this allows avoiding “tipping points”, i.e. situations where climate change is likely to have irreversible effects with the breach of biophysical thresholds. In Scenario 2, or the “free-riding scenario”, governments try to free-ride on the efforts made by their international partners, procrastinate and do not act in a significant manner. Table 1 summarises the results, focusing on the signs of expected changes rather than their intensity, which is more uncertain. We distinguish between consequences in the medium term, which is the relevant time horizon for monetary policy, and consequences in the longer term, in which all components of monetary policy, including strategy, can be adapted. We also distinguish between the expected effects on both levels and volatility of the variables of interest.

The possible impacts with regard to economic growth, in the long term, are clearly negative on the level and positive on volatility in Scenario 2, as climate risks materialise and intensify.<sup>1</sup> The policies implemented in Scenario 1 help to avoid this impact. This is not necessarily the case in the medium term if the government does not use the proceeds

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Open Access funding provided by ZBW – Leibniz Information Centre for Economics.

\* The views expressed are those of the authors and do not commit Paris 1 Panthéon-Sorbonne or Sciences Po.

**Christian Pfister**, Sciences Po, Paris; and Paris 1 Panthéon-Sorbonne, France.

**Natacha Valla**, Sciences Po, Paris, France.

<sup>1</sup> In the opposite direction, in some developed economies, such as the Nordic countries or Canada, global warming could lead to an increase of productivity in agriculture. There could also be migration flows to these and other developed economies that would support growth in these economies.

**Table 1**  
**Possible impacts of climate risks**

Variables of interest		Time horizon	Scenario 1 (cooperative)	Scenario 2 (free-riding)
Economic growth	Level	Medium term	- or =	-* or =
		Long term	=	-
	Volatility	Medium term	= or +	= or +*
		Long term	=	+
Inflationary pressures	Level	Medium term	+	= or +*
		Long term	+	+
	Volatility	Medium term	= or +	= or +*
		Long term	=	+

Note: \* refers to the possibilities of “tipping points” in developed economies.

Source: Authors’ elaboration.

of the carbon tax efficiently or if growth becomes more volatile in emerging economies, a risk that is present in both scenarios, since these economies are likely to be affected by climate change earlier than developed ones.

With regard to inflationary pressures, the standard inverse relationship in the medium term between the levels of growth and inflation in the case of supply shocks, such as those resulting from climate change and policy responses to address them, would prevail. In Scenario 1, the increase in energy prices induced by carbon taxation also fuels inflationary pressures. In the long term, the lower global supply and higher growth volatility imply increased and more volatile inflationary pressures in Scenario 2. Conversely, in the long term, the increase in the relative prices of energy becomes embedded in expectations in Scenario 1, helping to stabilise inflationary pressures.

### Underlying and overall inflation

Would targeting price stability become significantly more difficult because of climate change and the policies implemented to address the risks in Scenario 1? Should central banks target a “green” inflation rate, excluding items directly causing climate risks rather than overall inflation, as suggested by Rey (2020) to avoid that they try to offset the increase of energy prices by putting pressure on other prices, thereby conducting too restrictive a monetary policy? The answers to these questions should consider the following factors.

First, based on the indications provided by the International Monetary Fund (2019), we estimate that the direct impact on overall inflation in the euro area of a tax rate of \$75 per

tonne of CO<sub>2</sub> in 2030,<sup>2</sup> in line with the objective of keeping global warming to two degrees Celsius, would be below 1.5% over ten years. Even if one allows a doubling of the overall impact, in order to consider propagation effects, this would imply a contribution of less than 0.3% to the average year-on-year overall inflation rate over that period.

Second, in the medium term, the underlying and overall inflation coincide. After a supply shock, overall inflation converges towards underlying inflation if monetary policy is credible (the increase in energy prices, for instance, is then no more than a relative price shock). Conversely, underlying inflation converges towards overall inflation if inflation expectations are not well anchored. If anything, the low levels of inflation experienced in developed economies since 2008, as well as those embedded in market or professional forecasters’ expectations, tend to show that inflation expectations are anchored at low levels in these countries. In the case that a significant carbon tax is implemented, overall inflation would converge towards underlying inflation, keeping both of them low in the medium term.

Third, the positive impact of carbon taxes on energy prices could be partly neutralised in the medium term by a positive supply shock if the proceeds of carbon taxes are used to lower other, more distortionary, taxes.

At this stage, there do not appear to be reasons to change the formulation or the level of the inflation target in order to accommodate policies addressing climate change risks. In that regard, it is worth noting that in Sweden, the country where the carbon tax was the highest in the world in 2020, the central bank did not change its inflation target. However, central banks in most developed economies could give more prominence to underlying inflation measures in their assessment of inflationary pressures and their communication, in both Scenario 1 and 2, insofar as these measures would be less volatile than the one of overall inflation.

### Demand and supply shocks

Concerning the conduct of monetary policy, a textbook issue in monetary economics is how to respond to demand and supply shocks. Demand shocks do not pose a specific problem since they move inflation and growth in the same direction. This is not the case for supply shocks,

<sup>2</sup> We use France, Germany and Italy as a proxy for the euro area, and the impact of a \$75/tonne carbon tax provided in Table 1.3 of *Fiscal Monitor: How to Mitigate Climate Change* (International Monetary Fund, 2019, 9) on coal, natural gas, electricity and gasoline prices, as well as the weight of energy in the euro area overall Harmonised Index of Consumer Prices (10%). The report supposes that this policy applies globally, in combination with investment policies aimed at promoting energy saving and climate-friendly technologies.

such as those created by the materialisation of climate change risks or the implementation of policies to address these risks. The standard prescription is that monetary policy should not react to price increases driven by supply shocks unless second round effects (e.g. the incorporation of higher inflation expectations in wage negotiations) risk materialising. Such episodes could become more frequent in the future, particularly in Scenario 2.

Conversely, monetary policy should do its best to stabilise the economy in the face of supply shocks, provided this does not cause a “de-anchoring” of inflation expectations. In that regard, one concern is that the combination of a lower and more volatile rate of growth (see Table 1) could reduce the “policy space” to stabilise output in most developed economies (Network for Greening the Financial System, 2020). However, this would just make a problem already affecting the conduct of monetary policy (i.e. the fall in the natural rate of interest) more acute (Pfister and Valla, 2018; Pfister and Sahuc, 2020). The only durable remedy to such a problem is the implementation of supply-side policies that support the rate of growth in the longer run, hence raising the natural rate of interest. Regarding climate change policies, this means that they should be implemented as early as possible (Scenario 1), as any delay weighs on longer-term economic growth.

The impact of climate change on asset valuations and the effect on the balance sheets of banks could also affect the transmission channels of monetary policy. This would call for a strengthening of the analytical toolkit (macroeconomic models and forecasting tools) that central banks have at their disposal in order to take climate risks into account (Villero de Galhau, 2019). However, acting more forcefully to avoid possibly deflationary scenarios could be particularly problematic in a situation where “policy space” would be slimmer.

### Monetary policy implementation

The central bank might consider introducing some discrimination in its collateral and asset purchase policies in order to limit climate change risks (Schnabel, 2020; Weidman, 2020). This could be achieved through various channels, for instance by excluding some bonds or issuers and/or favouring some others or by differentiating haircuts,<sup>3</sup> penalising “brown” assets and favouring “green” ones. However, without prejudging the decision the European Central Bank (ECB) will take when it finalises the review of its monetary policy, expected by the end of 2021, the room for manoeuvre

in implementing such measures might be limited both from a technical point of view and as a matter of principle.

From a technical point of view, the distinction between carbon-intensive and low-carbon financing is not straightforward, especially when the metrics are lagging. In the process of drawing such a distinction, upstream and downstream carbon emissions should also be considered, as well as the presence or not of energy substitutes and, most importantly, changes (as proposed by Villero de Galhau, 2021) vs levels of emissions. There could also be legal issues. Indeed, Article 18.1 of Statutes of the ECB and European System of Central Banks (ESCB<sup>4</sup>) foresees that, when conducting their credit operations, the ECB and national central banks shall base their lending on “adequate collateral”. This phrase is usually understood as aiming to protect the lenders to the full extent possible, thus a priori reducing the possibility of a differentiation. Furthermore, Mäkinen et al. (2020) show that, on average, there is no impact of corporate bond eligibility for central bank purchases on yield spreads.

This casts doubt on the possible impact of a differentiated access to central bank refinancing, although one cannot preclude that the “shaming” impact of a “black-listing” could be powerful. In fact, the risk of runs on “brown” assets that would be excluded from investors’ portfolios may on the contrary justify creating a liquidity backstop in their favour (Jondeau et al., 2021). Nevertheless, since the beginning of 2021, in order to limit its exposure to risk, the Riksbank has been purchasing only securities issued by firms that it assesses as complying with international standards and norms of sustainability (Andersson and Stenström, 2021). As this decision, however, applies in a country (Sweden) that is exemplary in its fight against climate change (see above), it should affect very few firms. In addition, although the ECB does not accept as collateral or purchase bonds the coupon of which is uncertain because of a “step-up” clause, it has made an exception from September 2020 in favour of “sustainability bonds”. However, this decision, too, should probably apply in very few cases.

As a matter of principle, one may wonder whether it is legitimate for a central bank to try to influence factor allocation and thus risk creating market distortions (Cœuré, 2018; Villero de Galhau, 2019; Weidman, 2020).<sup>5</sup> In that

3 A haircut is a reduction applied to the market value of an asset in the framework of a collateralised credit operation in order to protect the lender against an unforeseen change in the value of the collateral.

4 The ESCB is made of the ECB and the national central banks of the EU, including those of countries not participating in the euro area.

5 During the press conference following the December 2020 Federal Open Market Committee meeting, Chair Powell, when asked about the decision of the Fed to join the Network of Central Banks and Supervisors for Greening the Financial System, also declared, “We’ve historically shied away strongly from taking a role in credit allocation. I would be very reluctant to see us moving in that direction, picking one area as creditworthy and the others not.”

regard, Article 2 of the Statutes of the ECB and the ESCB states: “The ESCB shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources”. More broadly, the point has been made that the counterpart to the independence that central banks enjoy is a narrow mandate (Landier and Thesmar, 2020).

Finally, the question arises about who is to blame for neglecting climate change risks. If it is governments because they do not enact adequate legislation or do not implement it properly, should, for example, the share of Bunds in the Eurosystem asset purchases be reduced because the share of coal and lignite in the production of electricity in Germany still stood at 28% in 2019? Conversely, should Bunds be favoured because the share of renewable energies in the production of electricity was 40% in the same year? Both policy options would obviously be excessive, since they would likely have wide repercussions on financial markets and the economy that could in turn disrupt the monetary policy transmission mechanism.

### A more significant impact on financial stability

As explained by de Bandt et al. (2021, 348-352), the slow-down in economic growth has an indirect impact on the financial system, and hence financial stability, as it implies lower demand for financial services. However, climate change also has a direct impact on financial stability, creating new risks for financial institutions and markets.

#### Climate change risks to financial stability

Since Carney (2015), it is common to distinguish between physical and transition risk. Physical risks, on the one hand, are the economic costs and financial losses due to the increasing frequency and severity of climate-related weather events (e.g. storms, floods or heat waves) and the effects of long-term changes in climate patterns (e.g. ocean acidification, rising sea levels or changes in precipitation; Bolton et al., 2020). While insurance providers traditionally offer catastrophe or weather-related insurance and banks factor some physical risk in loan contracts, the nature and the dimension of climate change, as well as further unexpected climate change related shocks, imply a dramatic change in the way financial institutions conduct their business, with short- and medium-run adverse consequences on financial institutions’ profitability. This includes, as discussed in Bolton et al. (2020):

- the losses incurred by firms across different financial portfolios (e.g. loans, equities, bonds) following climate change related events, which can make them more fragile

- the impact on real estate exposures, in particular for long-term mortgage loans in coastal areas following rising sea levels or in more regularly flooded areas along rivers.

As natural catastrophes become more frequent, world-wide, non-insured losses can threaten the solvency of households, businesses and governments, and therefore financial institutions.

Transition risks, on the other hand, are the policy-induced risks that are associated with the impact that could result from a rapid low-carbon transition, but they include also reputational impacts, technological breakthroughs or limitations, and shifts in market preference.<sup>6</sup> In particular, a rapid and ambitious transition to lower emissions means that a large fraction of proven reserves of fossil fuels would not be extracted, becoming “stranded assets” (de Bandt et al., 2021). As these assets appear in the portfolio of banks, insurers or asset managers, these institutions would face asset depreciation and possibly losses, eventually transmitted to their customers and shareholders. As Carney (2016, 1) puts it: “too rapid a movement towards a low-carbon economy could [...] spark a pro-cyclical crystallisation of losses and lead to a persistent tightening of financial conditions: a climate Minsky moment”.

De Bandt et al. (2021) note that physical and transition risks are actually interrelated: a swift policy action to mitigate climate change, embedded in Scenario 1, would increase transition risks and limit physical risks, but they would remain existent. In contrast, delayed and weak action to mitigate climate change, as in Scenario 2, would lead to more severe physical risks.

#### The current situation in the euro area

According to a joint report by the ECB and the European Systemic Risk Board (2020), based on available disclosures, euro area banks’ exposures to high-emitting firms, hence part of transition risks, appear limited on average. Furthermore, the CO<sub>2</sub> intensity of exposures appear to have declined by 20% in the three years preceding the publication of the report. However, exposures are concentrated in a few large exposures for some banks. The report also provides the results of two forward-looking scenarios.

First, sharp policy tightening of climate change policies would imply costs that would be manageable and temporary for banks and insurers, as the negative impact on

<sup>6</sup> Liability risk is often considered a third additional risk. It can also be seen as part of transition risks.

GDP would be limited. Bank capital losses would amount to 0.8 percentage points following the shock, and this effect would gradually fade, halving at a five-year horizon.

Second, technology-related shock, in which the share of renewable energy would increase across sectors, would be approximately GDP neutral. Bank capital losses would be temporary and limited (less than 0.2 percentage points in the first two years) and banks' solvency ratios would even be 0.2 points higher than in the baseline at a five-year horizon.

The report concludes that these transitory losses are paltry compared with the potential economic losses associated with the manifestation of potentially broad physical risk over the medium term, suggesting that early action to tackle climate risks should have net benefits.

On a less positive note, the ECB (2020a) has assessed the comprehensiveness of climate-related and environmental risk disclosures of 107 significant institutions (those it supervises directly) and 18 less significant institutions in the reference year 2019. It finds that virtually none of the institutions assessed would meet a minimum level of disclosures set out in the *Guide on climate-related and environmental risks* (ECB, 2020b). In particular, only 8% of the institutions assessed and that consider the climate change risks immaterial provide substantiation. Furthermore, statements by banks are too rarely supported by quantitative information, with only 37% of the assessed institutions disclosing at least one metric and one target. Finally, less than one in three of the institutions assessed disclose the potential impact of transition risk on their business model in the short and long term and this proportion is even less than one in four for physical risk.

### Policy responses

We distinguish between the actions undertaken, those contemplated in the near future, and further actions. So far, the work undertaken is mainly of a fact-finding and methodological nature. However, the top French banks and insurers were already running the first pilot exercise on stress tests of exposures to climate change risks in autumn 2020 (Villerooy de Galhau, 2020). In the euro area, the ECB (2020b) has published its guide on climate-related and environmental risks in November 2020. The guide explains how the ECB expects banks to prudently manage and transparently disclose such risks under current prudential rules. Inter alia, for the purposes of internal reporting, institutions are expected to report aggregated risk data that reflect their exposures to those risks, in order to enable the management body and relevant sub-committees to make informed decisions.

At the global level, the Task Force on Climate-related Financial Risks (TCFR) established in February 2020 by the Basel Committee on Bank Supervision has conducted a survey among its members, the results of which were published in April 2020 (Stiroh, 2020a). Respondents identified a number of operational challenges in developing a robust framework to assess climate-related financial risks, including data gaps, methodological challenges and difficulties in mapping the transmission to the banking system. Two-fifths of members had issued, or were in the process of issuing, more principle-based guidance regarding these risks. Finally, the majority of members had not factored, or had not yet considered factoring, the mitigation of such risks into the prudential capital framework. From autumn 2020 on, the TFCR has focused on understanding the transmission channels of climate risks as well as devising methodologies for measuring and assessing these risks (Stiroh, 2020b). It has received help from the Network for Greening the Financial System, which has proposed to the community of central banks and supervisors a common framework, published in June 2020, to devise stress test scenarios and evaluate climate-related financial risks (Després and Allen, 2020). This should ensure some consistency and comparability of the results. It should also avoid financial institutions that have a large international presence being submitted to unnecessarily different approaches.

Following up on the publication of its guide on climate-related and environmental risks, the ECB asked banks in early 2021 to conduct a self-assessment in light of the supervisory expectations outlined in the guide and to draw up action plans on that basis. The ECB will then benchmark the banks' self-assessments and plans, and challenge them in the supervisory dialogue. In 2022, it will conduct a full supervisory review of banks' practices and take follow-up measures where needed. As far as it is concerned, building on the analytical work it has undertaken and that it plans to complete by mid-2021, the TFCR intends to consider the extent to which climate-related financial risks are incorporated in the existing Basel framework and to identify effective supervisory practices to mitigate such risks (Stiroh, 2020b).

Further, supervisors intend to conduct full stress tests of exposures to climate change risks. In that regard, bank supervisors have repeatedly indicated that they do not intend so far to use the results of climate stress tests to size institutions' capital buffers (Bailey, 2020; Stiroh, 2020a, 2020b). However, there could be a "double dividend" in doing so, as addressing the possible impact of climate change on financial stability should contribute to improving the efficacy of monetary policy, in particular by securing the transmission mechanism, on top of strength-

ening the financial intermediaries' balance sheets. Conversely, just as central banks might consider introducing some discrimination in their collateral and asset purchase policies in order to limit climate change risks when implementing monetary policy, supervisors might bias Pillar 1 of the Basel requirements. This would mean penalising high CO<sub>2</sub> emission assets, and/or softening solvency requirements for exposures to low CO<sub>2</sub> emission assets (a "green supporting factor"). In that regard, one could draw a parallel with the "supporting factor" introduced in 2014 with the implementation of a Capital Requirement Directive that granted banks a 25% reduction in their own fund requirements against their loans to small and medium-sized enterprises (SMEs). However, lower capital requirements on loans to SMEs may appear more justified from a risk-based perspective, inter alia because these loans allow a better risk diversification than loans to large firms (Dietsch et al., 2020). In the case of "green loans", it would need to be demonstrated that they are effectively "green" (which raises the issue of appropriate measurement tools) and that they are associated with lower risk-taking, for instance because they would reduce liability risks. Conversely, a "brown penalising factor" could be set, just as central banks could apply higher haircuts to "brown" assets in monetary policy operations due to the liability risk they might create, if this was the case and market prices did not incorporate this risk.

## Conclusion

In the face of mounting evidence of global warming, which is an irreversible process, setting a social price of carbon at the global level (Nordhaus, 2019) and devising appropriate metrics to assess climate risks at the micro-economic level are currently priorities. Central banks, as other policymakers, have to play their part and thus consider climate risks, not just in their internal management, but also when they devise their strategies, conduct their policies and implement their decisions. At this stage, this seems to require some limited adaptations of their monetary policy frameworks rather than profound changes. Climate change risks, however, are bound to play an increasingly important role in the conduct of financial stability policies in the coming years.

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Daniele Archibugi and Vitantonio Mariella\*

## Is a European Recovery Possible Without High-Tech Public Corporations?

Pervasive new technologies associated with information and communication technologies and software are dominated by a restricted oligopoly of US-based corporations. The challengers are no longer European firms, but rather Japanese or Chinese companies. The actions taken by the EU to fill this technology gap, including the Framework Programmes for research and technological development, are beneficial but still insufficient in terms of the resources committed. This article argues that the EU urgently needs to add another economic policy instrument to defy these incumbent firms, namely to create a few publicly supported large corporations in the areas of greater scientific and technological opportunities. This will be complementary to the already ongoing mission-oriented innovation policies. While there are the political and economic difficulties of implementing such a strategy, one recalls the pioneering venture of Airbus, established more than 50 years ago that has successfully managed to challenge the dominant US-based passenger aircraft producers despite several economic and political controversies. Could similar attempts be replicated for green technologies, healthcare services and artificial intelligence?

There is a consensus that Europe will start a solid recovery after the COVID-19 crisis only if supported by remarkable direct government intervention. The existing policy instruments at the national and European levels, and

most notably those made available with the Recovery Fund, support and boost economic, technological, social and cultural development.

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Open Access funding provided by ZBW – Leibniz Information Centre for Economics.

\* Preliminary versions of this paper were presented at the webinars organised by the Birkbeck College's Centre for Innovation Management Research, University of London, 20 May 2020 and at the Forum "The New European Industrial Strategy after The Great Financial Crisis and the Covid Crisis", 4 February 2021. We wish to thank the participants and Andrea Filippetti, Andrea Guido, Margarita Estevez-Abe and Carlo Milana, for their comments. Grants from the School of Business, Economics and Informatics of Birkbeck, University of London, and the financial support of PRIN (Projects of National Interests promoted by the Italian Ministry for University and Research) Innovation and Global Challenges Prot. 20177J2LS9 are gratefully acknowledged. Usual disclaimers apply.

### Can the European economic recovery be knowledge-intensive?

One of the key priorities aimed at enhancing the European economy is that of bridging the scientific and technological gap of the EU vis-à-vis the United States and Japan, as these competencies are needed to sustain rising industries. We know that the EU is composed of very heterogeneous countries; while research and development (R&D) intensity, i.e. R&D expenditure as a percentage of GDP, is high in some member states, others are lagging. Overall, the EU has a lower R&D intensity than the US and Japan and it is now challenged by emerging countries such as China (see Figure 1).

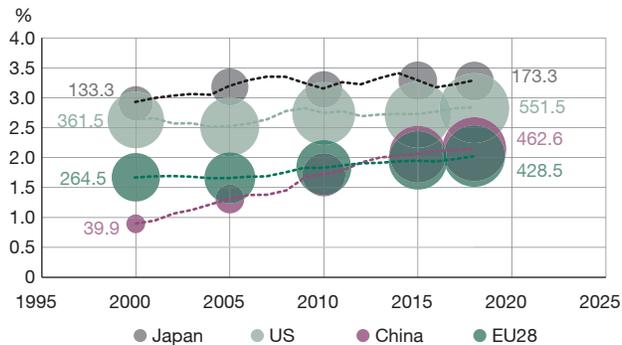
For several decades, the EU has carried out a battery of actions to enhance education, science, technology and innovation. Specifically, the EU Framework Programmes started in 1984 and tried to foster European capabilities in promising technological areas. Among them, a crucial role has been devoted to supporting information and communication technology (ICT) clusters, perhaps because they were considered an enabling technology on which the overall economic prosperity depended. How-

**Daniele Archibugi**, IRPPS – Italian National Research Council, Rome, Italy; and Birkbeck, University of London, UK.

**Vitantonio Mariella**, IRPPS – Italian National Research Council, Rome, Italy.

**Figure 1**  
**R&D intensity and gross domestic expenditure in**  
**China, Japan, the EU and the US, 2000-2018**

percentage of GDP; and total amount in billions of US dollars (size of the circles)



Source: Elaboration on OECD, Main Science and Technology Indicators, 2020.

ever, the gap with the US is still substantial. The Framework Programmes have played a crucial role in creating capabilities across the old continent, also allowing integration and intra-European collaboration among firms and universities, but they have not managed to close the gap, nor could they have achieved such a demanding task on their own.

The overall economic consequences of the 2008 financial crisis have also affected science and technology. The EU level of investment – one of the main engines of innovation – was still below its 2008 level when the COVID-19 crisis broke out. In many EU member countries, public investment, rather than acting anti-cyclically, decreased even more than the business investment. The EU tried to sustain the total level of investment with the European Fund for Strategic Investments, but this also proved to be insufficient (Archibugi et al., 2020).

The current and post-COVID-19 instruments, including the European Recovery Fund, will eventually provide massive resources to support public investment plans and a substantial part will be devoted to R&D and innovation. But the bulk of these resources will be managed by national authorities under European Commission supervision and not, like the Framework Programmes, directly by the European Commission.

This article asks the question: Can the EU fill the technology gap through public investments and incentives to R&D and innovation without also attempting to create enterprises in high-tech industries? We doubt it. Our view is that the interventions aimed at financing and supporting the activities of the existing institutions and firms are certainly useful, yet this may not be enough. We suggest

that a cluster of new firms that are able to contribute to the generation of technological opportunities and, above all, the capacity to transform them into viable commercial products, processes and services, may be needed.

To prove our point, a comparison with China is certainly instructive. China has substantially increased the resources devoted to education, R&D and innovation; but to exploit this investment economically, it is bolstering new companies able to compete with big tech American corporations, especially in new strategic industries. In comparison, the EU response is much feebler.

The following section briefly outlines the EU strategies and efforts aimed at enhancing technological capabilities. The possibilities for Europe to set up large public corporations to enable technologies are then explored, including two previous experiences, the Concorde and the Airbus cases. Finally, the article explains how to identify the most promising emerging sectors, with a special focus on the European Battery Alliance.

### The EU regional dimension in scientific and technological capabilities

The EU's problem is that it is a highly heterogeneous area. It differentiates from the US or China in that it does not have the powerful governance devices that characterise nation states yet. The various Framework Programmes were forced to balance two opposite objectives. On the one hand, their goal was to enhance the scientific and technological competencies of the core areas to support European industry's competitiveness against foreign countries. On the other hand, they aimed to foster the development of competencies in the catching-up areas.

Regional imbalances in technological capabilities in the EU are very severe. Whereas some timid signs of convergence have occurred because of the Framework Programmes, regions' contributions to the overall generation of new knowledge are very asymmetric (Archibugi et al., 2021). Eastern European countries, despite their attempt to better integrate into the overall EU scientific and technological communities, have registered small signs of progress in enhancing their innovative capacity. This indicates that the transition from a planned to a market economy has been harder than expected, especially concerning technological developments. Southern European regions continue to lag behind the Northern European countries and have accumulated increased delays in the aftermath of the 2008 crisis.

Furthermore, it has been demonstrated that having a strong, influential network position in collaborative EU

Table 1

**Top corporations' R&D expenditure in 2018 compared to Horizon 2020 average budget**

Rank	Company	Country	Industry	R&D expenditure (€ billion)	Employees (thousand)	Market cap (€ billion)
1	Amazon		General retailers	21.20	647.50	773.52
2	Alphabet	US	Software and computer services	18.27	98.77	321.57
3	Samsung Electronics	South Korea	Electronic and electrical equipment	14.83	309.63	243.46
4	Microsoft	US	Software and computer services	14.74	144.00	752.29
5	Volkswagen	Germany	Automobiles and parts	13.64	664.50	40.81
	Horizon 2020	EU		13.26		
6	Huawei Investment & Holding Co.	China	Technology hardware and equipment	12.74	188.00	
7	Apple	US	Technology hardware and equipment	12.43	132.00	960.21
8	Intel	US	Technology hardware and equipment	11.83	107.40	19.50
9	Roche	Switzerland	Pharmaceuticals and biotechnology	9.8	944.42	150.05
10	Johnson & Johnson	US	Pharmaceuticals and biotechnology	9.4	135.10	315.58

Sources: Elaborations on the EU Industrial R&D Investment Scoreboard (2019) and EU Expenditure and Revenue 2014-2020. For Amazon, we use the data provided by Skillicorn (2020).

research greatly affects participation in Horizon 2020 projects (Enger, 2018). The presence of these “closed clubs” has often been at the expense of the less influential higher education institutions located predominantly in the periphery of Europe, leading to a vicious spiral in which established institutions have acquired more funds and re-inforced their position.

The EU has a tough choice to make. On the one hand, it should foster EU scientific excellence and technological capabilities vis-à-vis a fiercer global competition with established countries like the US and Japan and emerging countries like China and India. On the other hand, it should also increase EU cohesion by reducing technological disparities across its regions and industries. The two objectives are somehow in conflict with each other. While the former may require a further concentration of competencies in the most emancipated areas to compete with leading technological hubs such as Silicon Valley, Route 128, Samsung town or Shenzhen, the latter may nurture capabilities of the least developed regions and sectors.

What are the instruments available at the EU level? One of the most relevant is certainly the Framework Programmes and it is very likely that the coming Horizon Europe (2021-27) will have to ponder two choices:

- reduce disparities by fostering the distribution of knowledge in peripheral areas and comparatively weaker sectors

- challenge the dominance of the US and China by enhancing the excellence of selected players and areas.

The Horizon 2020 project, which just ended, was one of the world's largest public schemes supporting new knowledge development. Despite the massive resources made available by the EU to enhance scientific and technological capabilities, especially in enabling technologies, they merely corresponded to the yearly equivalent budget of the R&D investment of large corporations. While the Horizon 2020 yearly budget was about €13.2 billion, large corporations such as Amazon (€21.2 billion), Alphabet (€18.3 billion), Samsung (€14.8 billion), Microsoft (€14.7 billion), Volkswagen (€13.6 billion) or Huawei (€12.7 billion) alone spend more or comparable amounts (see Table 1).

Horizon Europe is an excellent financial instrument to generate and disseminate competencies across the EU, however, it will not be able to single-handedly create a genuine industrial capacity to allow the EU to be a world-leading player in emerging technologies.

### Can the EU set up large corporations in enabling technologies?

There is widespread consensus that the state should be a vigilant referee of the competitive process through regulations and antitrust policies. In contrast, there is much more debate on its role as a direct economic player in a

market economy. A daring perspective is that European governments should actively participate in the decisions concerning industrial policy strategies, rather than simply act as a regulator (see for example Cimoli et al. (2015) and the other contributors to the same *Intereconomics* Forum). There are several industrial policies that governments carry out to reinforce the presence in innovative industries (Edler and Fagerberg, 2017). But the EU as a whole, with the support of national governments, should attempt to add another economic policy instrument, namely the generation of new firms in the emerging and enabling technologies.

“National champions”, i.e. large corporations able to compete in the global markets, need the support of a proper national government to survive (Strange, 1991), especially if they are associated with complex knowledge infrastructures (Mazzucato, 2013). But fresh national champions would have insufficient strength to compete with the incumbent American and Chinese corporations, particularly because they may receive political protection from the government of their country only. Fast-growing European companies and start-ups, especially in the ICT and related sectors, could easily be acquired by the biggest companies in terms of market capitalisation (market value) and liquid assets (see Rikap and Lundvall, 2020). American Big Tech have already acquired promising European start-ups, a strategy that is widely used to obtain quick and easy access to new technologies and retain market dominance (Marks, 2017). If new start-ups are acquired by foreign big-tech firms, they will indirectly provide public support for the technological advancement of foreign competitors. As shown in Table 1, none of the largest spenders on R&D with gigantic market capitalisation are based in Europe.

The policy implication is quite straightforward: To become a challenger in high technology, we need new publicly supported corporations at the continental level. Have European countries ever joined forces to create companies able to enter new industries and compete with the US? Rarely, but there are two important cases to recall: Concorde, which started as a French-British venture in 1969, and Airbus, which began as a French-German venture also in 1969.

### Lessons from the past: Concorde and Airbus

In the 1960s, European governments decided to produce airplanes as a third player to challenge their two dominant rivals, the US and the Soviet Union. The two superpowers developed competitive airplanes for military purposes and subsequently adopted them to civilian transportation. Since European countries were no longer mili-

tary leaders, they lacked this capacity. The vulnerability of the European industry, specifically in aircraft, created the political environment to build up such new ventures. Many commentators believed that without them, Western Europe would have been marginalised in the international division of labour (see, for instance, the influential book by Servan-Schreiber, 1968).

The launch of the Concorde by Aerospatiale (France) and BAe (UK) – a jet engine passenger aircraft developed during the 1960s and introduced in 1969 – was one of the first-ever collaborations within the European context, even if it took place outside the institutions of the European Economic Community (in 1969 the UK was not yet a member of the European Economic Community). The Concorde was born because the French and British empires joined their forces to compete with the Soviet Tupolev Tu-144 to produce supersonic transport aircraft. This collaboration is indeed an example of a combination of two existing national trajectories. At the time, France was specialised in jet technology (for military purposes) and the UK had a long record in the passenger market.

While Concorde was a technological success, it ended up being an economic failure. Only 20 airplanes were manufactured, seven of which were acquired by British Airways and seven by Air France, the respective flag carrier airlines. Although the product was well designed and prestigious, it turned out to be a commercial fiasco, mainly due to its impressive consumption and maintenance costs.

The second example is the European Airbus consortium, which started developing aircraft in the 1970s. Airbus has been economically successful and, after half a century, has managed to create a dominant European firm in the industry. Set up as a French-German venture in 1969, Airbus rapidly became a transnational consortium involving Aerospatiale and BAe, the German firm DASA and the Spanish firm CASA. Even this venture developed outside the institutions of the European Economic Community. Its success has paved the way for new European networks, such as Avions de Transport Regional, and recently Aero International Regional.<sup>1</sup>

Airbus challenged the American incumbent airplane manufacturers, all subsidised for military purposes (Boeing, Lockheed and McDonnell Douglas). Similarly, European governments responded with subsidies for R&D, fiscal in-

<sup>1</sup> In military aircraft, European collaborations date back to Panavia, established in 1969, and extended to Eurofighter and Europatrol. Similarly, European Helicopter Industry and Eurocopter have become prominent leaders in the European helicopter industry.

centives and political support to urge airline companies to purchase from Airbus rather than US producers. This led to a fierce Atlantic commercial rivalry between the European Union and the US as the governments of each side supported their companies.

Airbus's rivalry with Boeing and McDonnell Douglas led to intense debates in the GATT about the role of public funding in generating "unfair" competition. These cases were later discussed at the WTO, with the US government complaining about the European R&D subsidy to Airbus and the EU equally upset about the US military procurement to Boeing. Eventually, focusing on the civilian component, Airbus managed to generate and maintain cheaper and more consumer-friendly airplanes. In 1994, Airbus sold more commercial aircraft than Boeing for the first time and in 2016 became the first in the world in the sector. Without Airbus, currently, the world market in civil airplanes would be a monopoly in the hands of a single US corporation, Boeing.

Aviation has witnessed a rapid acceleration in transnational networks among firms developing high-risk innovations, and other knowledge-intensive industries have followed the same route. The question here is why countries ought to collaborate. From an evolutionary perspective, one expects that countries in cross-border collaborations recombine their national specialisation pattern. To the extent that two countries are specialised in different technology/market combinations globally, they can collaborate in two ways. Either they recombine the technology in which they are specialised with the market in which the other country is specialised or vice versa. The recombination of specialisation patterns allows partners to explore new technology/market trajectories collectively.

When Airbus began, France had just switched its technological base from jets to turbofans, while the UK was already specialised in passenger aircraft (Frenken, 2000). Hence, previous patterns of expertise reflect the technoeconomic specialisation of the transnational network. Germany, however, had lost its expertise in aircraft after WWII, and Spain had little experience. For these countries, Airbus provided an opportunity to leave their old specialisation pattern and enter a new market segment using state-of-the-art technology. Airbus's entry into the aircraft passenger market may be conceived respectively as a reshuffle of competencies for some countries and a developing strategy for others. Overall, governments provided the political support, the financial resources and the expertise, but without a company, it would have been impossible to enter into such a complex and protected market. This demonstrates that when entrepreneurs are

not willing to bear risks, the government should intervene directly.

While there was an initial underestimation of the benefits of Airbus's entry into the aviation market (Neven and Seabright, 1995), after half a century it can be considered a vital political and economic choice that produced benefits not only for Europe, but for the whole world – the US included. A new venture in a fast-growing industry prevented the sector from becoming a worldwide monopoly.

### Choosing the new emerging industries

The current American-dominated oligopoly in ICTs bears a strong resemblance to the situation of commercial aircraft in the 1960s. But ICTs today are much more relevant for current and future economic development. Not only are nations that depend on foreign corporations in strategic areas such as communications, satellites, data, social networks and artificial intelligence more vulnerable, but they also lose their technological sovereignty (Edler et al., 2020).

It is certainly not easy to identify the crucial sectors which will be indispensable for future economic, social and political life. One may wonder why shoes and champagne are less relevant than satellites and vaccines, provided that the former are as lucrative as the others. And the fact that the EU has a persistent commercial surplus with the US, even though there are no Big Tech companies located in Europe, may negate the urgency to enter these high-tech sectors. Some sectors, however, are likely to play a paramount role in future economic competitiveness.

There are many ways in which economists can contribute to identifying the strategic industries of the future. The first is to consider the growth rate of production and productivity. But when statistics show that production starts increasing exponentially, the position of nations in the international division of labour has already been established and it is difficult to revert it. For this reason, one may need to use indicators that anticipate upcoming scientific and technological opportunities. By looking at the degree of dynamism and the level of pervasiveness of scientific and technological sectors, it is possible to anticipate which industries will be dominant in the future. The rapidly growing academic literature and patents often indicate the most rewarding scientific and technological areas (Meliciani, 2001). The level of pervasiveness – defined by the variety of users across industries – indicates those enabling technologies that will be necessary for the delivery of most products, processes

and services (Evangelista et al., 2018). These areas are likely to have innovations that lead to organisational and social changes to the extent that they can be seen as the backbones of a new techno-economic paradigm (Freeman and Louçã, 2001).

Policymakers do not necessarily wait for experts' recommendations to decide where to invest. It is self-evident that in crucial areas, such as computers and smartphones, the market share of EU corporations is tiny. EU citizens rely on American social networks, while European institutions have serious difficulties obtaining regulations to protect their data and ensure that proper tax is paid. While China has succeeded in entering new lucrative fields such as smartphones with Huawei and social networks with Tik Tok, the EU has lost its competitive companies (such as Olivetti for computers or Nokia for cell phones) and not even tried to enter into the market of social networks. Similar problems apply for e-commerce: Amazon dominates the European market without being challenged, while China has maintained at least its internal market through Ali Baba. In new enabling sectors like artificial intelligence, the EU investment rate is much below not only that of the US but also that of Japan and China, and, above all, it does not seem that there will be an EU company to gain prominence in the near future (Zachary et al., 2020).

We are not arguing that generating new continental public corporations should be the only industrial policy response to affirm the EU presence in the world economy. In other cases, different attempts could be more fruitful to generate successful industrial capacity in emerging areas (for an overview, see Edler and Fagerberg, 2017). A case in point is the timely venture of the European Battery Alliance.

### Capacity building in an extended industrial network: The case of the European Battery Alliance

In Europe, within this decade, where it is technologically and economically viable, everything that can be electrified will be electrified, thus making battery technology one of the most important key enablers for the green energy transition facilitating existing and new technologies. (European Commission, 2020, 6)

It is difficult to disagree with such a statement, especially since the European Commission's target is to achieve a successful transition to a fossil-free society, as contemplated by the Green Deal.

In 2017, the European Commission launched the European Battery Alliance (EBA) in the spirit of one of its mis-

sion-oriented public programmes (Kattel and Mazzucato, 2018; Mazzucato, 2018, 2019).<sup>2</sup> Industrial alliances allow the facilitation of tighter cooperation and joint action among interested actors, bringing together a wide array of players in a given industry or value chain, including public and private players and civil society. The battery industry does not necessarily require large producers. The common knowledge base is applied to very different products and markets that include specialised operators, general-purpose users and consumers. To catch up, a laggard economic area should carry out a variety of actions; the EU has used several integrated instruments to develop prominence in this specific industry.

The first EU decision in this area is allowing national governments to provide up to €2.9 billion in state aid. Like any custom union, EU institutions are mandated to prevent member state aid that could alter competition. But when state aid is directed towards capacity building, especially in emerging areas in which the EU is lagging behind its competitors, the resources provided by national authorities could be advantageous to all members, and they deserve benevolent consideration.

The second decision is to promote the widespread collaboration and dissemination of knowledge generated across a wide range of players across countries. This was carried out by fostering cooperation and also by dedicating targeted resources within the Horizon 2020 scheme "Next-generation batteries" and similar actions contemplated in Horizon Europe. These ventures will, at the same time, contribute to both collaborative research and innovation ventures as well as the dissemination of knowledge across players.

The third decision focuses on providing loans at negligible interest rates for the battery value chain ventures through the European Investment Bank (EIB). Since 2010, battery projects financed by the EIB totalled €950 million and fostered €4.7 billion of overall project costs. The EIB involvement has significantly stepped up the financing of all the battery value chain stages, ranging from R&D, raw material extraction and processing to battery production, e-charging infrastructure and recycling.

The combination of grants, collaborative ventures, advantageous loans and regulations, together with the commitment to support the industry for several years, will hopefully make the EU a world leader in batteries. But

<sup>2</sup> The other EU mission-oriented public programmes are the European Raw Materials Alliance, European Clean Hydrogen Alliance and Circular Plastics Alliance.

such a strategy could be less effective when there is the need to affirm a remarkable fresh presence in restricted oligopolistic markets. In such cases, if the EU wishes to enter into the market dominated by US Big Tech, a more active role is needed, namely the creation of European public corporations.

### The need to add another arrow to EU economic policy instruments

The exogenous crisis represented by COVID-19 will certainly accelerate the global productive organisation. The EU risks falling behind unless its economic activities are adequately supported by government intervention and steered towards the emerging sectors. Horizon Europe will continue to be a crucial policy instrument both to enhance scientific and technological capabilities and to facilitate their dissemination across a rather heterogeneous economic fabric, going from Lisbon to Tallinn. But the Horizon Europe budget is comparable to one of the top high-tech corporations and cannot alone change the landscape.

The massive resources made available through the Recovery Fund are needed to sustain the long-term drop in investments in the EU, which has been especially detrimental for the innovative component. These resources will be administered by national authorities under the European Commission's supervision. However, it is less likely that they will lead to large-scale intra-European technological projects.

Other industrial policy instruments are needed. We have suggested the launch of proper continental public corporations replicating what has been done with Airbus more than half a century ago. It is not difficult to identify those areas where there are greater scientific and technological opportunities and where the EU has either an advantage, such as green technologies and healthcare services, or where it is lagging behind and a gap needs to be filled with the incumbent and challenging nations, such as ICTs and artificial intelligence. These are the areas where genuine European champions could hopefully sustain a solid continental economic recovery.

Although the endorsement of the European Council is certainly needed, these ventures could be initially pioneered by some governments only, in the hope that with time all EU members will join them. They will require building competencies, patient money, entrepreneurship and leadership. These are all resources that are available in the EU that will need to be channelled in new daring routes.

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Miguel Viegas and António Dias

## Country-by-Country Reporting: A Step Towards Unitary Taxation?

Multinational companies are now obliged to deliver an annual report to the tax authorities with information disaggregated by country (country-by-country reporting) in order to show where the assets and workers are allocated, how profits are distributed and to whom taxes are paid. Unfortunately, these reports are not made public in the European Union, thus preventing public scrutiny about the strategies used by multinational companies to displace profits to tax havens. This article applies the Unitary Taxation regime proposed by the European Commission to US multinational companies. The results confirm a strong bias among the profits distribution towards countries with lower corporate tax rates. Likewise, they confirm the capacity of the Unitary Taxation to promote a fairer distribution of tax revenues. These results can be a good contribution to the current Portuguese presidency of the European Union, which managed to gather important support to move forward with the European public country-by-country reporting directive.

According to the European Commission's latest summer forecast, the economic recession caused by the COVID-19 crisis will be even worse than predicted in previous reports. In 2020, the EU economy experienced a deep recession despite the rapid and comprehensive response from the EU and each of its member states. In addition to the effects on the economy, the budgetary consequences will be equally severe. Not by chance, the European Commission proposed, and the Council accepted, the activation of the general escape clause of the Stability and Growth Pact. This clause will provide member states with greater budgetary latitude to better respond to the ongoing economic and social crisis. This clause was introduced in 2011, in the wake of the 2008 financial crisis. However, as stated by the European Commission, the activation of this general escape clause cannot jeopardise the sustainability of public finances. It only allows a temporary deviation from the medium-term objectives to deal with serious

events that governments cannot control and that have a strong impact on public finances.

Therefore, the need to find budgetary resources to boost the economy and balance public finances is now more prominently placed on the agenda than ever before. According to conservative estimations from the European Union, revenue losses due to corporate tax avoidance in the EU could amount to around €160–€190 billion annually.<sup>1</sup> In addition to this breach in public accounts, tax fraud and tax evasion distort competition in favour of large multinational companies, whose tax bill is 30% lower than that of small and medium-sized enterprises. Quoting the figures from the European Commission, a fairer tax collection would allow for the easing of income of 80% of families. In light of the current crisis, but also keeping in mind the challenges that remain on the climate agenda, combating corporate tax evasion and tax avoidance should be a top priority.

The fight against fraud and tax evasion within the European Union was greatly boosted by the Luxleaks scandal in 2014. This investigation revealed the tax rulings set up between Luxembourg's government and over 300 multinational companies and strongly affected the credibility of the European Commission and its President, Jean-Claude Juncker.<sup>2</sup> The most important measures against fraud and

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Open Access funding provided by ZBW – Leibniz Information Centre for Economics.

**Miguel Viegas**, University of Aveiro, Portugal.

**António Dias**, University of Trás-os-Montes and Alto Douro, Portugal.

<sup>1</sup> <https://www.europarl.europa.eu/legislative-train/theme-deeper-and-fairer-internal-market-with-a-strengthened-industrial-base-taxation/file-quantification-of-the-scale-of-tax-evasion-and-avoidance>.

<sup>2</sup> Jean-Claude Juncker was Minister of Finance and Prime Minister of Luxembourg for 21 years.

tax evasion were guided along three main axes: improving international cooperation, increasing transparency and combatting aggressive tax planning.<sup>3</sup> This article explores two comprehensive measures: country-by-country reporting and the creation of a unitary taxation framework.

Country-by-country reports (CbCR) were incorporated into European legislation in 2016. Since then, it has been revised with the intent of increasing transparency. However, a European agreement for its public disclosure has not yet been possible. The public disclosure is necessary to allow real scrutiny of how multinational companies distribute their assets across nations, where they carry out their activity, declare their profits and pay their taxes. Unlike the European Union, the CbCR of US multinational companies is publicly disclosed by US tax authorities. The aggregated and properly treated information from the CbCR has been available on the Internal Revenue Service's (IRS) website since 2016.<sup>4</sup>

In this article, we use this database containing information on 1,205 multinationals headquartered in the US and with branches in the EU. The data includes information on the activity of the companies for 2016 and 2017. The delivery of CbCRs by multinational companies started in 2016 and these are, so far, the only data available. Crossing profits with indicators of physical presence of these companies, we conclude that there is a clear concentration of the taxable profits in countries with lower corporate tax rates. The application of a unitary taxation framework results in a substantial redistribution of declared profits from the fiscally attractive countries to the countries where the multinationals operate. Therefore, a new unitary taxation regime would contribute to OECD objectives and its Base Erosion and Profit Shifting (BEPS) project, ensuring that profits are taxed where economic activities are performed and where added value is created.<sup>5</sup> At the same time, it would give member states more tax revenue to help relaunch their economies and avoid over-penalising household disposable income.

### The EU's proposals for country-by-country reporting and the conception of a unitary taxation

The CbCR were created to strengthen the cooperation between tax administrations. Directive 2011/16/EU, known as the Directive of Administrative Cooperation (DAC 1) established the legal basis for the administrative cooperation in the field of taxation within the European Union. This directive has been revised several times:

- Directive 2014/107/EU (DAC 2) introduces the automatic exchange of information;<sup>6</sup>
- Directive 2015/2376/EU (DAC 3) includes transfer pricing agreements in the automatic exchange of information;
- Directive 2016/881/EU (DAC 4) includes the CbCR in the automatic exchange of information;
- Directive 2016/2258/EU (DAC 5) provides access to information on anti-money laundering measures;
- Directive 2018/822/EU (DAC 6) includes tax rulings in the automatic exchange of information.

The directive was later revised to broaden the field of information included in these automatic exchanges of information. The CbCR were formally created in the third review (DAC 4).

According to Directive 2016/88, all companies with total consolidated group revenue of at least €750 million are required to report detailed country-by-country information on revenues, profits, taxes paid, capital, earnings, tangible assets and the number of employees. Any multinational company – European or not – that is currently active in the EU's Single Market with a permanent presence must comply with these additional transparency requirements. The directive implemented Action 13 from the OECD BEPS project.<sup>7</sup> The CbCR must be included in the automatic exchange of information between all member states where the multinational company has reported activity. However, CbCR information cannot be disclosed to the public as was initially proposed by the European Commission.

CbCR were then seen only as a tool by the tax authorities to infer eventual abuses of the transfer pricing system with the purpose of draining profits into tax havens. Their scrutiny by political representatives, journalists, NGOs and the academic community was never considered socially relevant. However, after the successive fiscal scandals that followed Luxleaks, the atmosphere changed. Public opinion began to demand greater transparency in the way multinationals are taxed. The proposal to make the CbCR public re-entered the European Commission's agenda, and Portugal's EU Presidency recently achieved a broad consensus among EU countries to move the proposal forward.

In 2016, the European Commission re-launched a proposal made in 2011 to create a unitary taxation for multinational companies within the EU. The Commission proposal (Common Consolidated Corporate Tax Base, CCCTB) was presented as the most ambitious corporate tax reform

3 For a review of the fight against fraud and tax evasion in the European Union since Luxleaks, see Viegas (2018).

4 The IRS is the agency of the United States Treasury Department responsible for tax collection.

5 <https://www.oecd.org/tax/beps/beps-actions/>.

6 The exchange of information between governments normally proceeds in three different ways: exchange of information upon request, spontaneous exchange of information and automatic exchange of information.

7 <https://www.oecd.org/tax/beps/beps-actions/action13/>.

## Box 1

## Unitary taxation

There is nothing new about the concept of unitary taxation. The United States has extensive experience with this type of taxation going back to the 1930s when the California state government prevented large companies linked to film production from draining their profits through branches located in the state of Nevada where taxation was lower (Wiederstein, 1992; Picciotto, 2012). Unitary taxation was also applied to the extractive industry (Agostini, 1988). This application was always very controversial and was never imposed outside the US due to strong opposition from big multinational companies and their powerful lobbies. Thus, what prevailed as the internationally accepted standard was the so-called arm's length principle and the separate entity, according to which every entity (including each enterprise within the multinational enterprise group) is considered a separate and independent taxpayer. Moreover, a transaction respects the arm's length principle when both parts act as if they are completely independent with no relationship to each other. The concept is used to ensure both parties in the deal are acting in their own interest and are not subject to any pressure from the other party. In other words, the branch separation of multinational companies is accepted, but the principle of free and fair competition is applied to intra-group transactions to avoid artificial profit relocations for tax savings purposes. The prices practiced in such intra-group transactions must not deviate from the value practiced in the free market between independent companies.

The arm's length principle and the separate entity approach adopted by OECD member countries are, in some cases, difficult to apply. Associated enterprises frequently engage in transactions with no comparable terms in free markets, such as those dealing with highly specialised goods, unique intangible assets or specialised services.

The application of a unitary taxation must be based on three fundamental principles (Picciotto, 2012). First, it must establish the perimeter of the multinational company subject to taxation. This implies the determination of criteria that establishes the degree of ownership of the assets and the chains of control and subordination of the various entities in different countries. Second, common accounting rules should be established for calculating the tax base. Third, a formula must be established to distribute the taxable profit across the various tax jurisdictions where the multinational company operates. The most common elements of weighting are sales, number of workers (or labour costs) and tangible assets.

The unitary taxation allows for the overcoming of the great difficulties of application of the arm's length principle. It saves tax authorities' resources and ensures that profits are actually taxed where they are created. It also has the advantage of promoting international accounting harmonisation, easing international trade and investment (McGaughey and Raimondos, 2019).

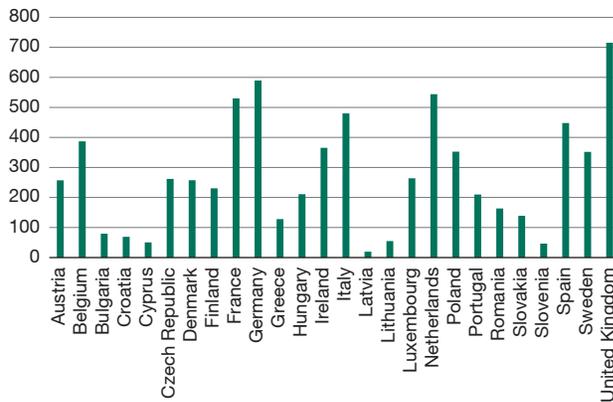
ever proposed in the EU (see Box 1 for an account of a unitary taxation approach).<sup>8</sup> The CCCTB will be mandatory for all groups with global consolidated revenues of more than €750 million. The new proposal is split into two proposals which can be implemented in two stages. Firstly, member states must agree on the common corporate tax base (CCTB). The CCTB proposal provides the single set of rules to calculate the company's tax base with the harmonisation of various exemption and deduction regimes. This means that companies will only have to refer to one set of rules when calculating their taxable profits and the calculation will be uniform throughout the EU. These common rules for taxing companies in the EU would remove the loopholes and mismatches in the current corporate tax frameworks that enable aggressive tax planning. These new rules support research and development (R&D) de-

duction and remove the incentive for debt accumulation (through interest deduction limits). Secondly and after the tax base has been established, the company's consolidated taxable profits are split between the member states in which the company is active using an apportionment formula. This formula is based on three equally weighted factors: the assets, labour and sales that the company has in each member state. The member states can then tax their share of the company's profits applying their own national rate. According to Morgan (2016) the creation of a unitary taxation represents the only way to face the new segmentation of multinational companies and guarantee the principle according to which profits should be taxed where they are generated.

The CCCTB proposal to create a unitary tax in the EU imposed on multinationals could benefit from a new impetus in the context of the ongoing discussion on how to pay the €750 billion loan made on behalf of the EU to finance

<sup>8</sup> [https://ec.europa.eu/taxation\\_customs/business/company-tax/common-consolidated-corporate-tax-base-ccctb\\_en](https://ec.europa.eu/taxation_customs/business/company-tax/common-consolidated-corporate-tax-base-ccctb_en).

Figure 1  
Multinationals per member state



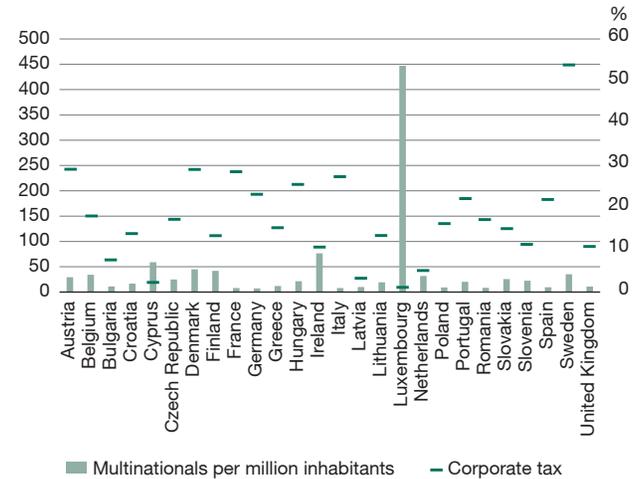
Source: Internal Revenue Service (2019).

the Next Generation EU recovery fund. New resources are needed to prevent member states from being called upon to repay the loan from 2028 onwards. The European Commission has put several proposals on the table to feed the EU budget. The list of possible new revenues includes a common consolidated corporate tax base, taxes on digital services, a financial transaction tax, taxes on the EU Emissions Trading Scheme, a levy on plastics and on products imported to the EU that were produced under lower CO<sub>2</sub> emissions standards than in the EU. This new tax on large multinational companies with a turnover above €750 million would be obtained from a fraction (3%) of the consolidated common tax base resulting from the application of the European Commission’s CCCTB proposal. According to the European Court of Auditors’ (2018) calculations, this proposal would represent an annual revenue of €12 billion.

### Country-by-country reports of US multinationals

In the US, the CbCR is mandatory for multinational enterprises with more than \$850 million of revenue since 2016. The report must include sales, assets, taxes paid and other indicators of economic activity on a country-by-country basis. The data are communicated to the Internal Revenue Service using a specific form. The information is subsequently processed by the IRS and publicised through its internet portal. The database used in our exercise contains information on 8,975 multinational enterprise residents in the US and refers to the period 2016-2017. The information, disaggregated by countries, covers sales volume, taxable profits (or losses), taxes paid, the number of workers and fixed assets.

Figure 2  
Multinationals per million inhabitants and corporate tax rate

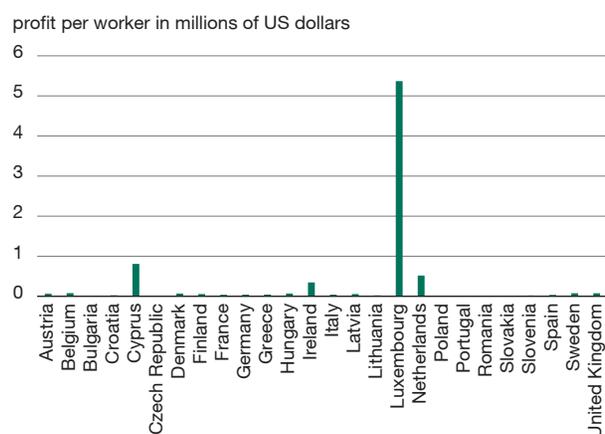


Source: Internal Revenue Service (2019); and authors’ calculations.

We start by analysing the location of multinationals within the European Union. Figure 1 illustrates the number of multinationals present in each member state. The two countries with the largest presence of multinational companies in their territory are the United Kingdom and Germany. However, if we look at Ireland, the Netherlands and Luxembourg, we observe a disproportionate number of multinationals present for the size of these countries, whether in terms of physical, economic or demographic dimension. If we calculate the number of multinational companies per million inhabitants, we see that this ratio is seven in Germany, eight in France, 32 in the Netherlands, 77 in Ireland and 447 in Luxembourg. It seems clear that there is a strong attraction to multinational companies for specific countries.

Figure 2 introduces a first clue by comparing the real income tax rate on profits with the ratio of multinational companies per million inhabitants. The curve of the corporate tax rate shows a pattern inversely proportional to the intensity of the presence of multinational companies. Looking left to right, we identified a first break with Cyprus, which has 59 multinationals per million inhabitants and a real tax rate on profits of 1.76%. The second case is Ireland with 77 multinational companies per million inhabitants and a real tax rate of 10.92%. The third case corresponds to Luxembourg and the Netherlands where the tax rates are 0.92% and 5.16%, respectively. Finally, we have the United Kingdom, the country with the largest presence of multinational companies in absolute values (716 multinational enterprises operating in the UK although only 11 per million inhabitants) and with a real tax rate of 10.35%. The average corporate tax rate in the sample is 21.30%. These results clearly indicate a pref-

Figure 3  
Productivity of multinational companies per worker



Source: Internal Revenue Service (2019); and authors' calculations.

erential location for multinational companies in countries where the fiscal framework is more favourable.

Another way of showing the location bias of multinational companies towards most favourable tax jurisdictions is to study the distribution of profits before tax. The so-called profit shifting is a well-known practice used by multinationals to drain taxable income towards jurisdictions with low or even zero tax rates. Through their numerous subsidiaries or shell-companies, multinational companies use internal transactions to claim expenses and losses in high-tax countries while profits are declared in low-tax jurisdictions. Today, more than two-thirds of world trade takes place within multinational enterprises (Garbarino, 2012). Transfer pricing manipulation, used by multinational companies to shift profits from places where they are produced towards low-tax territories, has received significant attention from the OECD. In the BEPS plan, several actions are dedicated to preventing and combatting abusive practices in terms of transfer prices (Actions 8, 9 and 10).

Figure 3 illustrates the productivity (profit) of multinational companies per worker in each member state. Once again, the chart identifies a small group of countries where this productivity is significantly higher relative to other countries. Luxembourg, Ireland, the Netherlands and Cyprus are among the most representative examples. According to the figures, we could conclude that a worker in Luxembourg produces 312 times more than a Portuguese worker on a daily basis. Similarly, a Cypriot, Dutch or Irish worker would produce, respectively, 47, 30 and 20 times what a Portuguese worker produces in the same period. Obviously, these disparities do not reveal any incapacity for Portuguese

Table 1  
Tax base redistribution across EU members with unitary taxation, in millions of US dollars

Country	Profit before tax	Profit with unitary tax	Gain/loss
Austria	1,404.14	1,983.24	579.10
Belgium	6,623.22	12,944.01	6,320.80
Bulgaria	234.98	864.20	629.23
Croatia	111.23	215.39	104.17
Cyprus	1,112.48	105.19	-1,007.29
Czech Republic	1,172.13	4,007.33	2,835.20
Denmark	1,584.92	1,958.35	373.43
Finland	958.29	1,609.83	651.54
France	9,140.92	19,544.58	10,403.66
Germany	17,022.11	32,860.18	15,838.07
Greece	449.73	644.65	194.92
Hungary	4,816.56	3,764.72	-1,051.84
Ireland	39,571.39	26,328.82	-13,242.58
Italy	6,029.04	12,191.13	6,162.09
Latvia	34.31	31.94	-2.37
Lithuania	172.67	327.57	154.90
Luxembourg	41,879.60	21,537.69	-20,341.91
Netherlands	57,771.97	22,430.86	-35,341.11
Poland	2,707.22	9,872.79	7,165.57
Portugal	566.62	1,699.84	1,133.22
Romania	561.76	2,710.28	2,148.52
Slovakia	536.42	1,913.98	1,377.56
Slovenia	74.22	217.24	143.02
Spain	5,021.42	10,338.54	5,317.12
Sweden	3,024.96	3,353.82	328.86
United Kingdom	65,916.09	75,042.21	9,126.12

Source: Authors' calculations based on Internal Revenue Service (2019).

workers or any miracle in the capacity of workers in the other four countries. These disparities simply reveal the existence of aggressive tax planning schemes used to divert taxable profits from less fiscally attractive countries to territories where taxation is low or even zero. This evidence of profit shifting is well described in Garcia-Bernando et al. (2021).

### The opportunity to create a unitary taxation regime

Table 1 exhibits the outcome of the Commission's CCCTB proposal applied to the IRS database. The apportionment formula is applied to the 1,205 US multinationals operating in EU countries. In the first column, we see the pre-tax profits reported by multinational companies in each of the member states (including the United Kingdom). Estonia and

Malta are not on the list as none of the multinationals under study registered any physical presence in these two member states. In the second column, we can see the simulation of what the tax base distribution would be, as proposed by the Commission, with the apportionment formula based on sales volume, number of workers and fixed assets. In the third column, we can see the taxable base gains or losses resulting from the application of the apportionment formula.

Unsurprisingly, the results confirm the existence of a small group of member states that have the power to concentrate taxable profits using a political framework based on fiscal extortion. Applying the allocation formula proposed by the European Commission, six countries are worse off. Leading the countries with the greatest losses is the Netherlands with a shortfall of \$35 billion taxable profits, followed by Luxembourg, Ireland, Hungary, Cyprus and Latvia. This new apportionment represents a zero-sum game between EU countries. Therefore, 22 countries will be better off with this new tax base distribution. Among the winners we have Germany in first place, earning almost \$16 billion of taxable profits, followed by France, the United Kingdom, Poland, Belgium and Italy. Overall, there are almost €71 billion of taxable profits that return to the countries where they were generated. The dispersion of the tax base distribution, measured by the standard deviation, falls by 13%, thus indicating a more equitable distribution.

Empirical exercises using unitary taxation within the European Union are not abundant in the literature. In an excellent article, Cobham and Loretz (2015) test several formulas of profit redistribution using the Orbis database, provided by the Bureau van Dijk.<sup>9</sup> It is not possible to compare results since the authors use different apportionment formulas. The criteria are the same: assets (total and intangible), sales and workers. However, the weighting is different. The distinction between total assets and fixed assets is useful. It allows highlighting the use of intangible assets as a strategic weapon to relocate profits artificially towards tax havens. Considering the different formulas used in Cobham and Loretz (2015), we find that in all the results, Luxembourg and the Netherlands systematically appear as the countries most penalised by applying the unitary taxation principle. Losses of taxable profits for those countries range from 40% to 80%. These results exhibit the same magnitude as those obtained in our exercise. In the case of Luxembourg and Ireland, according to our calculations, the decrease rates of taxable income caused by the apportionment formula proposed by the European Commission are 48.6% and 61.2%, respectively.

9 <https://orbis.bvdinfo.com/>.

The convergence of corporate tax rates between member states remains a priority for many specialists and authorities. This convergence is necessary to stop the current race to the bottom caused by fiscal competition. However, considering the unanimity rule prevailing in the community decision-making process in tax affairs, this proposal is today considered to be unattainable by the European Commission.<sup>10</sup> When the Commission launched its new proposal to create a tax system based on unitary taxation in 2016, the harmonisation of corporate tax rates was intentionally left out of the proposal because the necessary consensus for its approval had not yet been reached. However, the proposal assures the principle according to which profits should be taxed where they are generated. After a fairer distribution of the tax base, it is up to each member state to apply the tax rate in force in their country. Applying the apportionment formula to the tax base of US multinational companies, we recorded a total redistribution of €71 billion of taxable profit. Applying the average corporate tax rate in force within the European Union (21.30%), we obtain a tax revenue slightly above €15 billion per year, to be distributed among the 22 member states where multinationals are located and operate. This figure gives us a dimension of the ongoing fiscal injustice generated by the current status quo and the benefit that could arise for many EU countries with a new unitary taxation regime.

## Conclusion

Current corporate tax systems and institutions for international cooperation in tax matters were created in the early 20th century. Since then, the process of economic globalisation has completely changed the production and marketing chains. The companies have gained scale and internationalised their business. Taking advantage of digitalisation, companies have branched out, dividing themselves into multiple distinct entities spread across several continents. Today, multinational companies have become the main locomotive of international trade and investment. The current tax system has proved to be unfit for this new reality and unable to promote fair and efficient corporate taxation (Ting and Gray, 2019). The application of the paradigm of separate entities and the arm's length principle has resulted in a complex set of rules that are difficult to apply and has cast doubt on their effectiveness.

The obligation of large multinational companies to disclose their results disaggregated by country is an important step towards more transparency. Contrary to what happens in the European Union, these CbCR are publicly disclosed in the US, thereby allowing for scrutiny of how

10 For a good review about this issue, consult Bettendorf et al. (2010).

US multinational companies allocate their assets, their workers, where they declare their profits and where they pay their taxes. The IRS database referring to the CbCR of 1,205 US companies confirms the existence of aggressive tax planning schemes prescribed by the biggest accounting firms and used to direct profits artificially towards more tax-attractive member states.

This result, affecting only multinational companies based in the US, underlines once again the injustices of the current tax system and emphasises the opportunity to create a unitary taxation regime. Applying the apportionment formula proposed by the European Commission in 2016 results in a substantial redistribution of the tax base across the EU member states (including the United Kingdom). As expected, this redistribution strongly penalises the “usual suspects”: the Netherlands, Luxembourg and Ireland, among others. Overall, €71 billion of taxable profit returns to the countries where it was generated.

The unitary taxation regime, which considers the multinational company as a whole, has several advantages over the current dominant paradigm of separate entities and the principle of full competition (Picciotto, 2012). With a unitary taxation regime, it is not necessary to know all the details of the companies’ internal accounting and the respective transfer pricing system applied to intra-group exchanges. The complex anti-abuse laws to combat aggressive tax planning schemes (interest deductions, R&D expenses, etc.) cease to be the principal focus of tax administrations. Finally, disputes over the recognition of the status of permanent establishment are also less important.

This tax reform is controversial within the European Union. This article offers a concrete application of a unitary tax on a small sample of multinational companies and allows us to better understand the opposition of several member states that are, today, the main beneficiaries of the status quo. Public disclosure of CbCR could contribute to breaking the current impasse in the Council. In the last few years, several tax scandals have shaken public opinion (Luxleaks, Swiss Leaks, Panama Papers, etc.), revealing the tax impunity of multinational companies in contrast to SMEs and most European citizens. Following the Panama Papers, the European Commission proposed a directive to impose a CbCR for big multinational companies from all branches of activity, with public disclosures of the information. This proposal is not without criticism. It only covers companies with a turnover of more than €750 million. It only requires information about activities within the European Union and in the countries included in the so-called third-country black list, which covers about a dozen countries. Therefore, this proposal

leaves out a significant part of multinationals that sell less than €750 million. Moreover, it gives the possibility for multinational companies covered by the Directive to export profits to a wide range of third countries not covered by the black list.

This proposal has been blocked in the Council. Recently, the current Portuguese presidency of the European Union obtained the support of the main member states to unblock the situation. However, its approval implies unanimity, and therefore, it is not yet guaranteed. Despite the criticism of the proposal, its approval and application would expose to civil society the unfair consequences of aggressive tax planning schemes of multinational companies. Moreover, it would also expose the role of certain member states that encourage these schemes embedded in a model of tax predation. This public scrutiny, coupled with the growing need for public resources required to face the current economic crisis caused by the COVID-19 crisis, could be the catalyst for a comprehensive reform of the international tax system with the implementation of a unitary taxation regime for multinational companies. We hope that this article will be a contribution in this direction.

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Karl Aiginger

## A Deeper Union: From a Failed Project to the European Quality Lead

After President Trump's departure, many expected that the transatlantic partnership would return to its previous state with the US playing a leading role. This article challenges that view. Instead, a new world order is foreseen, with different partnerships and spheres of influence. Europe can decide whether it wants to remain small and homogeneous or a larger but also more heterogeneous Union that leads in welfare indicators such as life expectancy, fighting poverty and limiting climate change. Expanding this lead and communicating its uniqueness can empower Europe to combine enlargement and deepening, which appears unlikely without changes in governance and self-confidence.

The COVID-19 crisis brought about new challenges and opportunities for the European Union, as it did for the entire world. After decades of eradication of extreme poverty and limiting inequality through taxes, transfers and cohesion policy, inequality between the periphery and the centre is again increasing and some regions feel forgotten. The population is ageing in many countries, and this is often exacerbated by the emigration of young people, making the regions they leave less attractive to new firms.

New technologies and digital transformation stimulate firm growth and could make life easier, but Europe lags in research and development (R&D) relative to the US and to the Asian tigers. Europe is still not attractive for the best brains due to the limited number of top universities.

The access to health services is easy, but coordination between member countries is limited, as demonstrated by emergency units and reserves in essential supplies. Testing procedures for new medications are accurate, which is extremely important for the quality of medicines

and healthcare, but there should be a fast-track system in case of emergency, as has been painfully demonstrated by the current coronavirus pandemic.

Europe benefits from globalisation but is reluctant to fight to make it more socially and environmentally responsible so as to fit the European model. It has not set rules of responsibility for firms' suppliers (chain responsibility).

Additionally, the EU is lacking an immigration strategy. There is no blue card systems to make Europe attractive to top-qualified Indian or Chinese citizens. The EU does not seek to limit disruptive immigration through education and peace-building in Africa. Border countries take on a disproportionate burden of this disruptive immigration.

A strong position in the new world order requires a deeper Union to boost the EU's lead in sustainability, one that does not interfere but rather empowers and coordinates local solutions.

### Game changers on the road to a deeper Union

The following ten points of a reform agenda envisage a double strategy for deepening the Union as well as offering partnership with neighbours. This needs ambitious goals but empowering local innovations (Aiginger, 2017, 2021; Ketels and Porter, 2020).

### Dynamics

Economic growth is rather low in Europe. The EU failed at using information and communications technology to accelerate dynamics and was slow to recover from the financial crisis. During the COVID-19 crisis, the decline in

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Open Access funding provided by ZBW – Leibniz Information Centre for Economics.

**Karl Aiginger**, Policy Crossover Center: Vienna – Europe, Vienna; University of Economics and Business Vienna, Austria.

GDP in the first year was stronger than in the US. This is also predicted for the combined loss and expected gain in 2021 and 2022, while China's economy is expected to expand in both years. The GDP per capita in the EU is one-third lower than in the US, and the catching-up process in labour productivity stopped in the last decades of the past century. Europe should not mimic the US model; income dynamics make it easier to prioritise equality and decarbonisation.

### Closing the research deficit

Modern growth theory tells us that insufficient research is a root cause of lacklustre growth. R&D expenditure as a share of GDP in the EU is about one-quarter lower than in the US. R&D spending should have been raised to 3% of GDP, according to the Lisbon 2000 strategy, which intended to make Europe the “most competitive region of the world”. As this did not materialise, the EU 2020 programme tried to enforce a “national ownership of the strategy” by demanding that members set national targets. But, first, the sum of the national R&D goals did not amount to the EU target, and second, member countries failed to reach their own goals. Actual expenditure remained slightly above 2%, now trailing not only the US at 3%, but also the Asian tigers and, since 2012, China (OECD, 2014).

### Redirecting productivity

Productivity growth allows for the same output with less input. It is important to distinguish, however, which partial productivity increases: it can be labour productivity or energy and resource productivity.<sup>1</sup> These possibilities have different policy implications (for more details, see Aiginger, 2021).

Booming labour productivity exacerbates the growth imperative; if labour productivity grows by 3%, output must increase at the same rate. Otherwise, unemployment will increase and low-skilled workers will lose their jobs. Increasing energy and resource productivity also reduces inputs and stimulates cost competitiveness, while at the same time limiting emissions. Achieving the climate targets requires a reduction in greenhouse gases of 80% to 95%.

Redirecting productivity from its current focus does not represent an unjustified interference in a market economy. On the contrary, the current dominance of labour pro-

ductivity follows from high taxes on labour and low taxes on energy and transport.

### Reducing inequality

Europe has to reduce inequality within countries, across regions, and – an aspect of increasing importance – between the core and the periphery (Aiginger and Kreuz, 2020), which would in turn limit nationalism. “Forgotten regions” are a powerful source of populism and illiberal democracy. This creates opposition to a deepening of the EU and its ability to cope with new challenges.

Traditional policy instruments are needed to limit inequality, since the bulk of taxes are levied on wages (where extremely high rates limit formal employment) or on consumption. This could take the form of a combination of standardising tax bases for corporate or inheritance taxes and pricing emissions, fighting base shifting and tax evasion. New taxes on financial speculations, plastic or platforms would also reduce inequality. To achieve this goal, member states must engage with each other, since taxes are a national matter.

### Reforming governance: Deepening and empowering

The request for unanimity of decisions in the European Council has to be removed. The agreement of a subgroup on an issue (enhanced cooperation) should be used more often and welcomed by all European institutions (today it depends on the pre-approval of the European Council).

The right of the European Parliament to start the legislative initiative should be established. For European elections, political parties at the European level should be given preference.

Member countries that defy European decisions and international compacts, or that do not respect human rights and waive the division of power between the executive and legislative power or limit the freedom of the media and universities should not receive substantial European grants and subsidies.

Reforms should target problems with common interests, strong external benefits and a high impact on future well-being. However, it is important to distinguish between principles and targets on the one hand and implementation on the other. Innovation is a process in which local initiatives reveal unexpected gains. Thus, a deeper Union that sets targets together and encourages bottom-up solutions is better than central planning, and also preferable to ambivalent, partly conflicting local priorities.

<sup>1</sup> For the sake of simplicity, we put aside capital productivity (both human and physical capital).

To limit global warming, goals must be set and their implementation requires national and local initiatives. The central authority must request local plans, monitor their implementation and inform about best practices. It cannot be acceptable that some regions use renewable energy while other countries build new coal plants. Even cleaner heating with oil and gas is not compatible with climate neutrality in 2050. Massive investment in energy productivity and renewable energy, as well as better insulation of buildings, must occur in all regions.

A deeper Union in the sense of common goals is not the opposite of local initiatives; rather, it can encourage such initiatives and make them more effective. And a larger Union can gain the support of citizens, if they know that European leverage on a global scale depends on Europe negotiating together.

#### From size to impact: Media and external communications

The visibility of Europe in international meetings and organisations should be heightened. A European seat in the UN, the WTO, the IMF or the WHO would first necessitate coordination between European countries, but then increase their impact on global decisions and the adherence of European countries to global decisions.

#### From size to impact: Promoting the euro as a transaction currency

The EU should promote the use of the euro as a reserve currency alternative to the dominant dollar before the renminbi assumes this role. The share of transactions in euros is far lower than the trade volume of euro area members.<sup>2</sup> The creation of a euro debt market with high liquidity would provide for international investors looking for alternatives to the dollar, a process that began with the European Stability Mechanism. European safe assets should be promoted and the financing of the Recovery and Resilience Facility, with the same small common liability of all countries for new debt, is a small first step.

Currently only 23% of international loans are in euros (more than 50% are in dollars); the market share for the euro is at 16% of global foreign exchange turnover, and the share of the euro in global foreign exchange reserves is 20% (Baldwin and Weder di Mauro, 2020).

<sup>2</sup> The euro has made inroads as a global payment currency, but its share of 40% is still five percentage points below that of the dollar, though Europe's trade share is nearly twice as high as that of the US (European Commission, 2018; European Central Bank, 2020).

#### From size to impact: Neighbourhood policy

A geopolitical role starts in the neighbourhood. Europe has to build partnerships with neighbours in the East and the South (Aiginger and Handler, 2018). Even if we argue that the share of Europe in GNP, exports and manufacturing is larger than perceived, it will shrink for a given geographical size. The EU can offer partnerships to its neighbours since it is a continent with soft power that does not intervene by military force. Europe's leading role in fighting climate change offers important technologies that "rising Africa" can adapt to local needs, such as digital payments and remote healthcare consultations, which have already been used successfully. European engagement in Africa is regarded with scepticism due to Europe's colonial past, and therefore the European Commission and members without former colonies will have to lead.

#### The Recovery and Resilience Facility as a reform engine

The new Multiannual Financial Framework, as well as the Recovery and Resilience Facility (RRF), could boost reforms. The latter is partly financed by new European Safe Assets, with common guarantees. The European budget and the new facility should be used to increase dynamics (as measured by GDP), productivity and research, but even more support sustainability, energy and resource conservation, and new clean technologies. To achieve this, EU funding and national public expenditures have to coordinate their goals, given that the EU budget amounts to only 1% of GDP, while the national public expenditures amount to 40%. The additional expenditures via RRF increase the share of European expenditures for some years to 1.8%.

The RRF is a combination of mandatory national planning and supranational control. It demands a focus on reforms, decarbonisation and digital transformation. Member countries have to present regional plans in the first half of 2021 revealing national priorities. Fresh money cannot be used for old projects. Together with reforms in the European budget, this could redirect European policy.

#### Changes have started

The new European Commission intends to reinforce Europe as a stronger partner at the global level and at the same time increase the commitment and responsibility to European citizens. The first has been stressed by Commissioner Ursula von der Leyen's intention to promote a "geopolitical Commission" and "a Europe closer to citizens, by supporting local led development strategies... across the EU" (von der Leyen, 2019).

## The new world will not be bipolar

The new world order will be different post-COVID-19. New challenges have come up gradually and have become more visible during the pandemic. Crises should make firms and governments rethink their position and investments. Changes that are not made today will be delayed for a long time. This year is a watershed moment.

Analysts predicting the future world order concur that it will be dominated by China and the US, but both countries have demonstrated their limits as of late. China is seen in a much more critical light due to domestic issues, but also because it extends its borders clandestinely and uses its investments to grab resources and create dependencies. The US plans to return to its former position, intent on assisting its firms so they can vanquish the competition, contrary to WTO rules. The US lags in most Sustainable Development Goals and in energy productivity. The Biden Administration cannot change this in the next two years since it may lose its majority in the mid-term elections.

The power of the EU in world politics can only be achieved by deepening the Union. This starts by defining the topics that can best be solved together (and maybe those that can be returned to members). Climate change, digitalisation, ageing, migration and the health crisis all need to be and can be addressed more efficiently if the European governance system accelerates decisions, sets common goals and monitors adherence. The details need not be fixed centrally. On the contrary, due to new member countries, the heterogeneity of the EU is increasing and preferences become less homogeneous with rising incomes. The optimal strategy will therefore be to set goals centrally and with global perspectives, while operationalisation is organised in the member countries if not in the regions. This dual strategy will also help curtail populist and nationalistic backlashes motivated by a neglect of regional diversity in the larger Union.

The autocratic tendencies in China and the political divide in the US should effectively encourage Europe to become more ambitious and self-confident. A deeper Union that at the same time encourages regional initiatives could allow Europe to take more responsibility for climate concerns, while limiting income differences and boosting cooperation with its buoyant neighbourhood. The result could be a multi-polar world, with Europe as a quality player that offers its model to its neighbours while learning from them.

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# US Support for a WTO Waiver of COVID-19 Intellectual Property

On May 5, 2021, United States Trade Representative (USTR) Katherine Tai announced that the U.S. would support the “waiver of IP [intellectual property] protections on COVID-19 vaccines” that was introduced at the World Trade Organization (WTO) in October 2020 by the governments of India and South Africa. The announcement came as a surprise to many, as it represents a reversal of the strong stance that the U.S. has taken on patents and other intellectual property issues since at least the Reagan Administration. As such, the move was cheered by proponents of broader access to medicines around the world, while the bi-pharmaceutical industry, along with the governments of Germany and France, warned of dire economic consequences that could follow the elimination of patents on critical medical technologies. But what, precisely, does U.S. support for this global IP waiver mean, and what are its likely effects?

The WTO is the treaty organization under which the principal international agreement concerning intellectual property was adopted in 1995 – the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. The TRIPS Agreement requires WTO member states to enact laws protecting various forms of intellectual property including patents, copyrights and trade secrets, and to impose minimum levels of protection for these rights (e.g. a 20-year term for patents). If a country is believed to have violated the TRIPS Agreement, another WTO member state, or an aggrieved private company, may bring a claim to the WTO. Though the WTO itself has no authority to impose penalties for violation of its agreements, a finding of liability by a WTO tribunal is usually viewed as justifying the imposition of trade sanctions by the complaining party’s country.

Though the TRIPS Agreement requires WTO member states to issue patents for eligible inventions and to give national treatment to all patent applicants, it also permits states to authorize third parties to operate under issued patents to ensure the domestic supply of a patented product, provided that the patent owner is paid adequate remuneration. This practice is called “compulsory licensing”. In 2001, a group of member states adopted the supplemental “Doha Declaration” that permits states to grant compulsory licenses for the export of pharmaceutical products to meet public health needs in other countries. Over the past 30 years, countries including India, South Africa, Brazil and Thailand have issued compulsory patent licenses under these TRIPS flexibilities to increase local supplies of drugs for HIV/AIDS, cancer and heart disease. In most cases, the U.S. and other Western states have opposed these measures.

Beginning in March 2020, countries including Chile, Ecuador, Canada, Germany, France and Israel enacted, or seriously considered, compulsory licensing and access measures to address the emerging COVID-19 pandemic. Indonesia and Brazil have more recently taken such measures. Then, in October, the governments of South Africa and India requested that the WTO issues a waiver providing that countries not be deemed to violate TRIPS for suspending, in their countries, the enforcement of patents, copyrights, industrial designs, and trade secrets “in relation to prevention, containment or treatment of COVID-19.” In effect, if enacted, the waiver would prevent other WTO member states from bringing trade-related challenges against these countries at the WTO.

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Open Access funding provided by ZBW – Leibniz Information Centre for Economics.

**Jorge L. Contreras**, University of Utah, Salt Lake City, USA.

The proposed WTO waiver is notable because it would expand existing TRIPS compulsory licensing flexibilities beyond patents by authorizing compulsory licensing of copyrights, industrial designs and trade secrets for any use relating to COVID-19. This expansion is viewed as critical because vaccines are complex and volatile products, so patents alone are generally not sufficient to enable a manufacturer to reproduce another company's product. Trade secrets and manufacturing know-how, as well as raw materials and suitable production facilities, are essential. The proposed WTO IP waiver would allow a country that wished to suspend trade secret protection for COVID-19 technology to do so without violating the TRIPS Agreement and incurring international trade sanctions. Such a country could also, presumably, mandate that foreign companies disclose their proprietary manufacturing and testing information to local producers under a compulsory license. The details of this disclosure requirement, and any compensation payable to the originator of the information, would need to be worked out in whatever waiver is eventually adopted by the WTO, but the prospect of a mandatory trade secret transfer – something that would be unprecedented in the international arena – is potentially significant. At the moment, Brazil is the only major country that has proposed such a scheme, though the passage of a WTO waiver could encourage other countries to do so.

The USTR's statement indicates that the U.S. will negotiate at the WTO for a broadly acceptable waiver of COVID-related IP rights and, if such a waiver is approved at the WTO, the U.S. will not pursue trade sanctions against countries issuing COVID-related compulsory licenses. However, this commitment would have little effect on U.S. vaccine producers that do not, themselves, have material operations overseas. A state's authority over a private company is only effective to the extent that the company possesses assets within the state. Only the U.S. government could require a U.S.-based company to disclose its trade secrets, and the prospect of this happening is slim. It is one thing for the U.S. to agree not to seek sanctions against other countries that impose COVID-19 compulsory licensing regimes, but a very different thing for the U.S. to issue a compulsory licensing order of its own, particularly in the area of trade secrets, where it would be met with significant internal opposition. In the end, it is likely that, even if the WTO does adopt an IP waiver, only a handful of countries with domestic generics industries – Brazil, India, Thailand, South Africa, Canada – are likely to avail themselves of the opportunity to impose compulsory licensing regimes that include both patents and trade secrets.

In the end, the impact of a WTO IP waiver on international vaccine supplies will depend in large part on how other countries elect to implement compulsory licensing rules under the waiver, and whether they can effectively require the transfer of confidential manufacturing, testing and safety information to local producers. Ultimately, the threat of such governmental action could encourage companies to engage in voluntary knowledge transfer to alleviate global supply shortages, which might be the greatest benefit of the WTO IP waiver. After all, even if a company is legally required to "share" its proprietary trade secrets and manufacturing know-how with others, there are countless ways to delay and subvert the effective transfer of knowledge. In practice, the most effective technology sharing programs are supported by voluntary action rather than governmental compulsion.

Nevertheless, U.S. support for an international IP waiver is an important gesture toward global cooperation in a time of crisis. It represents a significant reversal of prior U.S. policy under both Republican and Democratic administrations, which roundly condemned the compulsory licensing of IP under most circumstances. As such, the USTR's statement should be applauded.

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