ASSESSING THE OPPORTUNITIES AND LIMITS OF A REGIONALIZATION OF ECONOMIC ACTIVITY

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“Assessing the opportunities and limits of a regionalization of economic activity”
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Project “Increasing resilience and security of supply of production post-COVID-19: from global to regional value chains?”

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EXECUTIVE SUMMARY

Amongst many other repercussions, the COVID-19 pandemic has exposed the fragility of global production processes in medical goods and pharmaceuticals. Over the last twelve months, and in particular during the initial phase of the pandemic, the media have featured many reports on supply shortages for face masks, protective gear, respirators and similar products. Governments and public bodies in the EU have been struggling to secure the quantities of these goods required for public health systems to stay operational. World market prices for these goods skyrocketed, and in some instances orders received did not conform to required quality standards. Consequently, both local companies and governments in the EU and also in Austria, have started to organize local production of these goods.

Against this background, the prevailing and largely globalized production of these and other goods has become increasingly scrutinized by both policy-makers and the public. Calls for geographically more diversified production chains and for more local production, respectively, have intensified, as security of supply concerns have regained in importance relative to efficiency and cost considerations. Both the sectoral coverage and the instruments applied to support such a reorganisation of production remain however contested. Some commentators go so far as to actively promote across-the-board de-globalisation of production in the aftermath of the COVID-19 crisis, while others argue for a more nuanced approach according to the strategic importance of a sector, involving a mix of policy instruments including local production, tighter mandatory storage policies, public procurement conditionalities for companies to diversify their sourcing strategies, and other instruments.

In this report, our assessment of the potentials and limits of employing different policy approaches to promote security of supply emphasizes that it is not sufficient to consider the immediate concerns in the context of the COVID-19 pandemic. Instead, the broader context of both the geopolitical reordering of the international system and the grand societal challenges posed by climate change must also be considered. Increasing the resilience of global supply chains by mitigating sourcing bottlenecks and promoting geographical diversification, as promoted by the liberal economic mainstream, can be part of the solution, but it will not suffice. Given heightened geopolitical rivalries, the weak institutionalization of multilateral rules, as well as the historical experience with state behaviour during previous episodes of crisis, the responsibility for managing security of supply ultimately rests with national governments. Thus, local/regional production will have to be contemplated as an important element in any strategy towards promoting security of supply, including in the European Union. The incipient debate in the EU so far has remained stuck between competing programmatic visions and a highly complex system of multi-level governance. Only under the pressure of the sudden and deep economic crisis triggered by the COVID-19 pandemic, have first policy steps towards a more strategic trajectory become possible in the EU, notably with the EU recovery plan and the European Green Deal.

In the current conjuncture, the debate on security of supply must incorporate a more strategic outlook. Supply bottlenecks will not originate from natural disasters only – though in all likelihood the latter will become more frequent in the future – but will also result from strategic rivalry and political conflict. The pronounced import dependencies of the EU with respect to minerals, pharmaceuticals and other products invite other states to exert political pressure. On the other hand, in their quest for technological superiority both the US and China have resorted to more aggressive actions, including takeover of foreign high tech companies, reshoring of production capacities and restrictions targeting individual
companies. This might have repercussions on the EU’s ability to maintain the technological capabilities and capacities necessary for tackling the grand societal challenges of the 21st century, in particular the socio-ecological transformation necessary in response to the climate crisis. The debate in the EU – centred upon the vague concept of “strategic autonomy” – is still at an early stage and impeded by conflicting interests and the existing legal and institutional structure.

What is thus necessary is a more systematic and comprehensive concept of regionalization, that is, of a regional system of production for the EU. This system should be based on four principles: (i) satisfying basic needs by promoting a foundational economy based on public and not-for-profit production; (ii) safeguarding and expanding the productive and technological capacities and capabilities of European economies to tackle the grand societal challenges; (iii) promote the circular economy and local production of high-quality food; and (iv) establish an external economic and trade policy based on fair trade principles.

Implementing a more regional production system will entail the application of a wide portfolio of economic policies at different territorial levels. Given the legal framework at the international level, the available policy space remains circumscribed. Nonetheless, within certain limits instruments such as subsidies, public procurement, strategic stockpiling or tax incentives can be used, while more interventionist industrial policies such as local content and joint venture requirements, or caps on foreign ownership of companies are conflicting with World Trade Organization (WTO) law and/or International Investment Agreements (IIAs). In practical terms, however, the empirical record suggests that even such measures have often not been subjected to a legal challenge. Moreover, against the backdrop of a weakened WTO dispute settlement and a general move towards more active economic policy in many countries, the policy space de-facto available to the EU is arguably higher than previously assumed.
ZUSAMMENFASSUNG


Notwendig ist daher ein systematischeres und umfassenderes Konzept der Regionalisierung, d.h. eines regionalen Produktionsystems für die EU. Dieses System sollte auf vier Prinzipien beruhen: (i) Befriedigung der Grundbedürfnisse durch Förderung einer auf öffentlicher und gemeinnütziger Produktion basierenden Ökonomie des Alltagslebens; (ii) Sicherung und Ausbau der produktiven und technologischen Kapazitäten und Fähigkeiten der europäischen Volkswirtschaften zur Bewältigung der großen gesellschaftlichen Herausforderungen; (iii) Förderung der Kreislaufwirtschaft und der lokalen Produktion hochwertiger Lebensmittel; und (iv) Etablierung einer auf den Prinzipien des fairen Handels basierenden Außenwirtschafts- und Handelspolitik.

1 INTRODUCTION

Amongst many other repercussions, the COVID-19 pandemic has exposed the fragility of global production processes in medical goods and pharmaceuticals. Over the last twelve months, and in particular during the initial phase of the pandemic, the media have featured many reports on supply shortages for face masks, protective gear, respirators and similar products. Governments and public bodies in the EU have been struggling to secure the quantities of these goods required for public health systems to stay operational. World market prices for these goods skyrocketed, and in some instances orders received did not conform to required quality standards. Consequently, both local companies and governments in the EU and also in Austria, have started to organize local production of these goods.

Against this background, the prevailing and largely globalized production of these and other goods has become increasingly scrutinized by both policy-makers and the public. Calls for geographically more diversified production chains and for more local production, respectively, have intensified, as security of supply concerns have regained in importance relative to efficiency and cost considerations. Both the sectoral coverage and the instruments applied to support such a reorganisation of production remain however contested. Some commentators go so far as to actively promote across-the-board de-globalisation of production in the aftermath of the COVID-19 crisis, while others argue for a more nuanced approach according to the strategic importance of a sector, involving a mix of policy instruments including local production, tighter mandatory storage policies, public procurement conditionalities for companies to diversify their sourcing strategies, and other instruments. Still other commentators call for a further deepening of the international division of labour by eliminating any remaining export restrictions and tariff protection for essential goods (see e.g. Baldwin/Evenett 2020).

In this study, we aim to contribute to a more systematic understanding of the issues at stake for a policy approach that wants to improve the security of supply for essential goods in the current international environment. Above all, we aim in particular at assessing the potential role of more regionalized forms of production with respect to essential manufactured goods. To this end, in section 2, we will try to gain a deeper appreciation of the contemporary organisation of production at the global level, in particular as relates to the structure of global value chains (GVCs) and the recent changes to GVC due to reshoring that have emerged since the global financial crisis of 2007/08. In section 3, the importance of key drivers of change for the spatial organisation of production, including the frequency of extreme weather events and other types of shocks, the role of digitalization, as well as the renaissance of geopolitics, will be discussed. Upon this basis, likely changes in the international division of labour will be assessed. In section 4, we will take up the policy discourse on security of supply and discuss the possibilities and limits of different policy approaches to reorganize production in order to promote security of supply, including the respective role of regionalization of production. Moving towards an economic order that supports security of supply including through regionalization, does however not happen in a legal vacuum. Its potentials and limits are co-determined by the existing international legal order. By focussing on WTO law, section 5 will thus assess the existing legal framework at the international level with a view to identifying the policy space available for promoting more regional systems of production. Section 6 will draw short conclusions and present policy recommendations.


2 RECENT TRENDS IN GLOBALIZED PRODUCTION SYSTEMS

2.1 Slowbalization and the trend towards regionalization

The production processes in most goods and services sectors and the financial, legal and administrative activities relative to them have undergone profound transformations over recent decades. These processes are increasingly fragmented and dispersed across various actors and geographic spaces, thus creating complex sequential chains and networks. Prominent examples include GVCs in textiles and apparel, electronic goods, automobiles, and processed foods (Ponte/Gereffi/Raj-Reichert 2019).

The establishment of such GVCs has been an essential part of the process of ‘hyper-globalisation’ over the last four decades, with its drastic changes in the size, structure, and velocity of trade and capital flows (Rodrik 2011). Enabling economic factors for this development have included, on the one side, advances and innovations in logistics (containerisation, just-in-time delivery) and information and communication technology (ICT), all of which have contributed to cutting transaction costs. On the other side, political factors such as the establishment of the World Trade Organisation (WTO) as the centre of the multilateral trading system, the proliferation of bilateral investment agreements and active government policies for attracting foreign direct investment (FDI) have been instrumental for the transformations in trade patterns and the organisation of global production. The number of bilateral trade agreements and other forms of economic treaties on investment and taxation rose exponentially after 1990 and resulted in tariff cuts and the lowering of trade barriers, even once WTO negotiations started to stagnate in the early 2000s. The EU’s focus on negotiating bilateral ‘deep and comprehensive’ Free Trade Agreements (FTA) has expanded the scope of trade policy to a broad range of topics that aim to align regulations in partner countries to international and EU standards.

As a consequence of the liberalisation of cross-border economic activity, transnational corporations (TNCs), which are headquartered mostly in Organisation for Economic Co-operation and Development (OECD) countries, found themselves in a privileged position to reorganise the structure of world production, coordinate complex processes across long distances, and expand cost-minimising strategies on a global scale (UNCTAD 2018). It is estimated that TNCs, acting as lead firms in GVCs, directly and indirectly, coordinate 80 % of global trade, with the resulting cross-border movement of intermediate goods and inputs leading to strong growth in global trade (UNCTAD 2013, 2018). Trade data reflect these developments. Firstly, the value of global trade has expanded by a factor of ten, from USD 2 trillion in 1980 to almost USD 20 trillion in 2018 (World Bank 2020), equivalent to a compound annual growth rate of more than 6 %. Secondly, one-third of global exports now originate from countries in the East Asia & Pacific region, particularly from China, compared to 18 % in the 1980s (UN Comtrade 2020). Thirdly, intermediate products represent almost half of the world trade in goods today, having doubled from USD 4 trillion in 2005 to more than USD 8 trillion in 2018 (UNCTAD 2020a).

However, the acceleration of global trade has not translated into output growth rates to the same degree as in the ‘golden age’ of the 1950s to 1970s, given the increased exchange of intermediate goods and the shift in the broad macroeconomic policy framework (UNCTAD 2018). The relocation of production activities and the consequent imports from low-wage countries have reduced manufacturing employment in many OECD economies (see for instance Autor, Dorn and Hanson, 2013 for the US; Mion and Zhu, 2013 for Belgium; Malgouyres, 2017, for France; Thewissen and van Vliet, 2019 for OECD countries). It is associated with lower wages, rising inequality, and, according to a growing
body of literature, also to political polarisation (Autor et al. 2016; Che et al. 2016). Further, the growing dominance of TNCs and their cost-minimising strategies also affects global functional income inequality as the rapid growth of profits of top TNCs pushes down the global income share of labour (Kohler/Cripps 2018; UNCTAD, 2018).

However, these trends were interrupted by the 2007/2008 global financial crisis, causing global trade and FDI flows to plummet. While the global economy eventually recovered, it never returned to its former growth trajectory. Besides a weak economic recovery after the global financial crisis, particularly in Europe, the decrease in global trade may also be ascribed to China and other emerging economies reaching the next stage of their development. Initially participating in GVCs exclusively as assemblers of final goods, emerging economies increasingly became the world’s major engine of demand growth and started to develop more extensive domestic supply chains, thus decreasing their reliance on imported inputs. As a result of these developments, a smaller share of the goods produced worldwide has since been sold across borders. Thus, given the available empirical data, the globalisation of production via GVCs had already peaked prior to the global financial and economic crisis (see Figure 1).

Figure 1: FDI, trade, GDP and GVC trends, 1990–2019

Following the global financial crisis, and particularly after 2010, the growth momentum of international production thus stalled. This was first reflected in trade, whereby worldwide exports of goods and services slowed down significantly relative to economic growth. UNCTAD (2020b) argues that FDI followed the same trend, although the expanding financial component of FDI temporarily obscured this fact. The causes of the stagnation in investments are attributable to international operations of TNCs becoming more intangible

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1 Amongst others, Antràs (2020) argues that populist politics due to widening wealth and income inequalities will also be a crucial political factor contributing to the trend towards globalisation and, arguably, de-globalization in the future. Though topical, the issue of populism, including the controversial debate on whether its root causes relate to economic or cultural factors (see Rodrik 2018; Inglehart/Norris 2016), will not be systematically addressed in this report, as it transcends the scope of this study.
and less dependent on investment in physical assets. Non-equity modes (NEMs) of international engagement such as outsourcing, licensing, etc. became firmly established as a third operating mechanism in international production, beside arm’s-length trade and FDI. NEMs allowed TNCs to access overseas markets through contracts rather than FDI, while still exercising a significant degree of control over operations. Technology TNCs also became increasingly important, as these firms can reach markets worldwide through digital channels and without the need for a significant physical presence. In contrast, manufacturing investment declined: according to UNCTAD (2020b), the value of greenfield cross-border investment projects in manufacturing industries was structurally lower (by 20 % to 25 %) than in the previous decade, even in Asia, the only region still showing significant growth in overall FDI inflows.

This new normal of slow growth in world trade and cross-border investment flows has been dubbed ‘slowbalisation’ by The Economist magazine. Another feature of the age of slowbalisation refers to the trend of trade and production networks towards becoming more regionalised. Since the early 2010s, the share of intra-regional trade in goods has increased by close to 4 percentage points (see Figure 2). Against this background, it is important to note that the COVID-19 crisis thus coincides with a pre-existing trend towards more regionalised economies. Arguably, COVID-19 will contribute to this trend by giving an impetus to pending reshoring and nearshoring decisions by companies (Barbieri et al. 2020).

Figure 2: Share of intra-regional goods trade in total trade
2.2 Reshoring of production since the global financial crisis 2007/08

Since the global financial crisis in 2007/2008, the debate on reshoring has intensified, particularly in light of developments in the international business and management literature. In general terms, reshoring refers to the processes of bringing industries and value-creating activities ‘home’ to a specific location (Kinkel/Maloca 2009; Gray et al. 2013; Arlbjørn/Mikkelsen 2014; Fratocchi et al. 2014). Further distinctions can be made between backshoring and nearshoring (Eurofound 2019; Piatanesi/Arauzo-Carod 2019). Backshoring occurs when manufacturing activities return to their initial country of origin, while nearshoring occurs when manufacturing is relocated to a country closer to ‘home’. This study discusses the concept of reshoring/backshoring in the context of bringing industries back to the EU from non-EU countries. This definition excludes any process of intra-EU ‘reshoring’. Where reference is made to the relocation of manufacturing activities within the EU, this is explicitly indicated.

The empirical evidence on reshoring processes is so far limited (Delis/Driffield/Temouri 2019). Most studies present case studies focusing on specific countries, sectors or firms. So far, and to the best of our knowledge, only four studies present a cross-country analysis to better assess the scale and scope of reshoring processes in the EU. The first three of these studies are based on an assessment of the European Manufacturing Survey (EMS). Dachs and Kinkel (2013), Dachs and Zanker (2014) and Dachs et al. (2019) examined the frequency of, motivations for, and countries impacted by backshoring, as well as the characteristics of those companies engaged in backshoring processes between 2007 to mid-2009, 2010 to mid-2012 and 2013 to mid-2015, respectively. The fourth study by Eurofound (2019), discussed in more depth below, draws on European Reshoring Monitor data between 2015 and 2018.

Dachs and Kinkel (2013), Dachs and Zanker (2014) and Dachs et al. (2019) take on a country perspective, and therefore also include intra-EU reshoring. They also highlight trends and tendencies at a sectoral level, such as, for example, the extent to which companies within specific sectors are likely to engage in reshoring processes. The results, however, should be interpreted with caution, given that the analysis only covers limited periods of time. These studies indicate that the sectors with the highest propensity to reshore include electrical equipment, computer manufacturing, machinery, motor vehicles/transport equipment, communication equipment and pharmaceuticals. Location-bound sectors, i.e., sectors for which both offshoring and reshoring are limited, include the metal sector, food and beverage production, wood production, mineral production and printing. Within the analysed timeframe, leather and apparel manufacturing were also among the sectors with very limited reshoring tendencies.

In their latest study, Dachs et al. (2019), found that 105 out of 2 450 firms (4.3 %) reported backshoring activities during the analysed period. Of these firms, 1.7 % backshored from their suppliers, and 2.6 % from their own subsidiaries. Backshoring was more common in high and medium-high technology sectors (6.7 % and 6.2 % of surveyed high/medium-high technology firms) when compared to medium-low and low technology sectors (3.2 % and 1.7 %). In this context, the authors contemplate the potential relationship between backshoring and innovation. In addition, the study found that firms producing single units are less likely to backshore than firms in batch or mass production, as single-unit production requires closer interaction with customers and is less wage-sensitive. The authors also argue that the higher share of high-tech reshoring can be explained by more frequent offshoring in high-tech compared to low-tech industries (such as paper, wood, food and beverage industries). For the same reason, larger firms are also more likely to reshore than smaller firms.
The countries with the highest share of firms engaged in reshoring included Spain (7.9 %), Austria (5.5 %), the Netherlands (4.7 %), and Switzerland (4.2 %). Firms in Croatia, Serbia and Slovenia (all 2.2 %), as well as Germany (3.2 %), represented a significantly lower share. Production was moved back predominantly from EU-15 countries (50 %), followed by other EU Member States (20 %) and then China and other Asian countries (25 %). Compared to the earlier results presented by Dachs and Zanker (2014), the authors argue that backshoring from China and other Asian countries has gained momentum (Dachs et al., 2019). However, this trend should not be overestimated, since the share of companies engaging in reshoring is still small, as is the number of companies that are relocating their production from Asia to the EU. The main drivers of reshoring reported by firms were a lack of flexibility (55 % of responses), poor quality (51 %), and unemployed capacity at home (42 %). For firms reshoring from Asian countries, the lack of flexibility (71 %) and poor quality (79 %) was even more important (Dachs et al. 2019).

The fourth study, a cross-country analysis by Eurofound (2019), analyses data from the European Reshoring Monitor between 2015 and 2018. The European Reshoring Monitor is an online database collecting information on individual reshoring cases identified in the media and other sources. Within the period of analysis, the number of reshoring cases increased almost every year, culminating in a total of 253 cases by the end of 2018 (ibid.). Almost all (92 %) of these cases reflected backshoring activities, while nearshoring accounted for only 5 %. Eurofound (2019) takes on a country perspective in its definition of backshoring, which it sees as encompassing activities that were previously offshored and relocated to the home country in the EU. Its definition of nearshoring, on the other hand, includes the relocation of offshored activities to another EU country besides the original home country. The great majority of reshoring cases occurred in the manufacturing sector (86 %), followed by information and communication (5 %) and financial and insurance services (4 %). Regarding the frequency of reshoring in specific manufacturing industries, the findings of Dachs et al. (2019) were only partially confirmed, as two low-tech industries, apparel and food production, registered the highest number of reshoring cases (accounting for 11 % and 9 % of total cases, respectively). Nonetheless, reshoring activities were dominated by medium to high-tech industries, including machinery and equipment (8 %), computer, electronic and optical products (8 %), electrical equipment (7 %), other transport equipment (7 %), fabricated metal products, excluding machinery and equipment (5 %), and motor vehicles, trailers and semi-trailers (5 %) (Eurofound 2019). Similar to Dachs et al. (2019), most of the cases in the Eurofound (2019) study were attributable to larger companies with more than 250 employees (60 %).

According to Eurofound (2019), the UK (17 %), Italy (15 %), France (14 %), Denmark (8 %), Norway (8 %) and Germany (7 %) account for the countries with the highest numbers of reshoring cases. In most cases, production was reshored from members of the European Economic Area (plus Switzerland) (47 %), and in particular, Poland (6 %) and Germany (6 %). This was closely followed by Asia (42 %), and in particular, China (30 %). The main drivers for reshoring included firms’ global reorganisation (mentioned in 24 % of all cases), delivery time (22 %), automation of processes (20 %), poor quality of offshored production (19 %), proximity to customers (17 %), and ‘made in’ effects (16 %).

Eurofound (2019) provides the only assessment of the impact of reshoring on employment among the cross-country studies. The assessment is based on 99 cases (for which data was available) that were linked to the creation of 12 840 new jobs. However, the authors emphasise the high number of cases (154) within the dataset, for which no information on employment effects was provided. They conclude that, in these cases, employment gains may have been completely absent or not relevant enough to be highlighted. The reasons why reshoring does not lead to increased employment might be due to its link with
automation, which reduces labour demand, and because reshoring decisions are sometimes based on strategies to leverage untapped production capacities at home (e.g., due to pressure of unions in the event of plant closures and employee lay-offs in the home country). In contrast, the authors also point out that the actual impact of reshoring on employment can only be assessed by also taking into account jobs that were indirectly created (i.e., jobs created in one company that may have benefited from the reshoring decision of another company). However, this information is not covered by the data of the Reshoring Monitor.

In addition to the above-discussed firm-level strategies, the impacts of political and institutional changes on reshoring dynamics so far remain under-researched in the empirical literature. Based on a regression model and using firm-level data on the reshoring decisions of multinational enterprises in the manufacturing sector from 14 OECD countries for the period 2006–2013, Delis, Driffield and Temouri (2019) find a strong relationship between the onset of the financial crisis and the propensity of firms to reshore.

By way of summary, the empirical evidence so far highlights that reshoring processes are on the rise, but that they are so far limited in scale and, thus, with limited effects on the EU economy as a whole. Additionally, it should be noted that an increasing number of reshoring processes does not mean that offshoring strategies are no longer pursued. Effects on employment are particularly low due to the role of automation in driving reshoring processes (see chapter 3.2. for details). The limited effects of reshoring on the EU economy are also related to the fact that reshoring so far is an intra-EU phenomenon, even though reshoring from Asia and China is rising. Larger and medium to high-tech industries are among the firms with the highest reshoring propensity. The drivers of reshoring are diverse and are often related to lack of flexibility, quality issues and the importance of proximity to specific markets/end-users. Finally, the review revealed that the literature focuses on microeconomic motivations for reshoring, while other factors such as macroeconomic crises or changes in economic policy are often not considered. For this reason, conclusions from the literature on reshoring for the current COVID-19 situation and the changing geopolitical situation are limited.
3 DRIVERS OF CHANGE IN THE GLOBAL PRODUCTION SYSTEM

3.1 The growing vulnerability of global value chains to natural and man-made shocks

While Europe is still experiencing the effects of the COVID-19 pandemic, it is worth noting this is not the first shock or crisis to have raised cause for concern in recent times. Indeed, research has concluded that the frequency of shocks, due in particular to extreme weather events, has increased over the past 50 years. According to data published by the European Academies’ Science Advisory Council (EASAC), the number of floods and other hydrological events has quadrupled since 1980 and doubled since just 2004. Climatological events, such as extreme temperatures, droughts, and forest fires, have more than doubled since 1980. Meteorological events, such as storms, have doubled since 1980 (EASAC 2018). As world temperatures rise, the frequency of and losses resulting from severe weather events will likely continue to increase (Swiss Re Institute 2020).

Extreme weather events carry substantial economic costs. According to the Swiss Re Institute (2020), the average annual economic loss attributable to weather-related events has grown sixfold from approximately USD 30 billion in 1980 to more than USD 200 billion in 2019 (see Figure 3). The study estimates economic growth and urbanisation to account for a 55 % share of the increase in economic losses over the period. The same methodology applied to emerging economies shows that economic growth and urbanisation are the driving force behind at least 70 % of the 8 % annual increase in economic losses from weather-related events over the same period.

Figure 3: Economic loss from catastrophic weather events, 1970–2019, in billion USD

![Economic loss from catastrophic weather events, 1970–2019, in billion USD](source: Swiss Re Institute 2020)

However, companies and their value chains are not only exposed to natural disasters, but also to other kinds of man-made shocks. As the international system moves towards a
multipolar order, trade disputes are on the rise, with tariffs increasing. The share of global trade conducted with countries ranked in the bottom half of the world for political stability, as assessed by the World Bank, rose from 16% in 2000 to 29% in 2018. Increased reliance on digital systems increases exposure to a wide variety of cyberattacks: the number of new ransomware variations alone doubled from 2018 to 2019. Interconnected supply chains and global flows of data, finance, and people offer more ‘surface area’ for risk to penetrate, and ripple effects can travel rapidly across these network structures (MGI 2020). Figure 4 provides an overview of the different types of shocks and their frequency.

Figure 4: Types of shocks to GVCs and their frequency

According to estimates by the McKinsey Global Institute (MGI) based on expert interviews, a shock with a duration of 1-2 months currently occurs every 3.7 years. MGI believes that companies can expect to lose on average more than 40% of a year’s profits every decade. A single severe event that disrupts production for 100 days – something that usually happens every five to seven years – could cost some industries almost a year’s earnings. Although given the methodological problems typically associated with such estimates, these numbers should be interpreted with great caution, the widely shared views amongst scientists about the increasing economic losses to be expected from extreme weather events and the other risk factors listed above do suggest that an increase in the number and length of supply chain disruptions is likely.

Value chains are exposed to different types of shocks based on their geographic footprint, factors of production, and other variables. Those GVCs with high trade intensities (imported inputs and exports as a share of added value) and with exports concentrated across only a few countries are particularly exposed to shocks. The industries most affected include those in the high-tech sector, such as communication equipment, computers and electronics, and semiconductors and components. Many labour-intensive GVCs, such as apparel, are particularly exposed to pandemics, heat stress, and flood risk. In contrast, food and beverages and fabricated metals have lower average exposure to shocks because they are among the least traded and most regionally oriented value chains. For pharmaceuticals and medical devices, given their high trade intensity, exposure does not only relate to the risks associated with a pandemic but also to trade disputes.

Geographic concentration in supply networks can also present a vulnerability. On a sectoral level, concentration of production since 2000 has been particularly pronounced for mobile and communication equipment, computers, and labour-intensive industries such as textiles and apparel and furniture. Even in value chains that are generally more
geographically diversified, production of certain key products may be disproportionately concentrated. Figure 5 shows export concentrations as measured by the Herfindahl-Hirschman Index (HHI) for products in diverse sectors. On the basis of this indicator, MGI (2020) identifies 180 products across value chains (worth USD 134 billion in 2018), for which one country accounts for 70% or more of exports, creating the potential for bottlenecks. For instance, many low-value or basic ingredients (active pharmaceutical ingredients, APIs) in pharmaceuticals are produced predominantly in China and India. The chemicals sector has a particularly large number of such highly concentrated products, but other examples can be found in multiple industries, including in food and beverages, and apparel. Other products may be produced across geographically diverse areas but have severe capacity constraints, creating bottlenecks in the event of production stoppages. Similarly, some products may be exported by numerous countries, but trade takes place within clusters of countries rather than on a global basis. In those instances, importers may struggle to find alternatives when their primary supplier experiences a major disruption.

**Figure 5: Export concentration for 200 individual products, across sectors**

![Box plot showing export concentration for various products](image)

Source: MGI 2020: 37

Economic theory has only recently started to analyse the relationship between trade openness and exogenous shocks; Caselli et al. (2015) analyse whether the prevailing assumption that economic specialisation and openness to trade lead to higher macroeconomic volatility is correct. They show that sector-specific shocks, i.e., shocks that hit a specific sector in a country or region, lead to increased macroeconomic volatility. These shocks are, however, less frequent in number than country/region-specific shocks, which affect all sectors in a particular country or region. Such shocks have less severe economic impacts if the country is open to international trade and has diversified supply relations with other countries at its disposal throughout the crisis. In the event of local shocks, for example, extreme weather events such as storms, floods, droughts and heatwaves, international trade and diversified supply chains are conducive to security of supply. Of course, the shock delivered by COVID-19 was highly systemic, hitting all countries and all sectors of the economy. In this case regionally diversified GVCs do not necessarily bring added value, as damage to production occurs across many countries.
simultaneously. Here, the nature of the correlation between countries/regions is of particular importance. If an epidemic spreads, as was the case with COVID-19, from lower-income countries engaged in the low-value production stages of a GVC into countries with the higher value-added stages, for example, in Europe and the US, the normal functioning of the GVC risks a lengthy hiatus, as the interruptions caused by the crisis ripple all the way through the various distinct stages of the GVC (Egger 2020). Similarly, where a particular country or region is an important production hub for certain products sourced by companies from many other countries, as is the case for APIs in China, the economic effects of this single country being hit by an external shock may be felt globally.

By way of summary, the frequency of natural or man-made shocks to GVCs will likely increase in the future. The existence of GVCs as such increases the likelihood that such shocks are transmitted to other regions, leading to the subsequent increase in macroeconomic volatility. Geographically diversified production structures contribute to the resilience of economies during crises if supply interruptions in one country can be replaced by imports from other countries. A pronounced geographical concentration of global production of certain goods may exacerbate economic vulnerabilities if that particular region is affected by a crisis. Regional and global diversification of production will thus be beneficial in mitigating the impact of shocks on production organised in GVCs, although the true effects will very much depend on the nature of the shock involved, that is, whether the shock is regional or global/systemic in nature.

3.2 Digitalization and its impact on the spatial organization of production

Apart from shocks, a second secular trend currently underway is digitalisation. From an economic point of view, digitalisation holds a number of promises, e.g., with respect to productivity growth. The impact of digitalisation on the spatial configuration of production has received growing attention in recent discussions, both at the academic and policy levels. Before providing a review of this discussion, we will start by giving a brief overview of the results of the empirical literature regarding the relationship between digitalisation and reshoring.

Firstly empirical assessments on the relationship between reshoring and Industry 4.0 were presented by Ancarani and Di Mauro (2018), Dachs, Kinkel and Jäger (2019) and Kinkel (2020). Based on an assessment of 840 reshoring initiatives (mostly in the US and Europe), Ancarani and Di Mauro (2018) conclude that robotisation is generally not a key driver of reshoring processes, but plays a more important role when reshoring is linked to design and product innovations. In an econometric analysis of the European Manufacturing Survey (EMS) 2015 dataset (1,700 manufacturing firms from Austria, Germany, and Switzerland), Dachs, Kinkel and Jäger (2019) find a positive and significant relationship between the reshoring of production activities and investments in Industry 4.0 technologies. Based on the EMS 2015 dataset, Kinkel (2020) confirms these findings in his analysis of 1,300 German manufacturing firms, underlining the significant positive correlation between the use of digitalisation technologies in manufacturing and reshoring.

Judging from the results of the still rather limited empirical literature, the effects of digital technologies on the spatial configuration of production are modest and dependent on the type of technology as well as on the type of industry. Furthermore, the economic effects might differ significantly: while, for instance, communication technologies such as 5G, cloud computing, and artificial intelligence will arguably promote the growth of GVCs as well as facilitate offshoring and outsourcing, particularly in service industries, other technologies could have the opposite effect of shortening GVCs. According to some authors, robotics, automation, and computerised manufacturing, amongst others, could
reduce the advantages of production in low-labour-cost developing and emerging economies, hence curtailing the progress of international fragmentation of production (Seric/Winkler 2020). Similarly, additive manufacturing technologies hold the potential to align products more closely to customer specifications and could thus reinforce a trend towards the regionalisation of production. Technologies like 3D printing have received a boost by the COVID-19 pandemic and have, in many countries, been used to remedy shortages in medical supplies, including to produce ventilator valves and other ventilator parts, as well as face masks and plastic shields (Hale 2020).

Although digitalisation had long been underway before the outbreak of the COVID-19 pandemic, the crisis will likely catalyse further investment in digital technologies by many TNCs. As humans are vulnerable to the health impacts of pandemics, more automated production processes and logistics can help increase the resilience of production during public health crises. The use of robotics and production automation has been growing, particularly in the industries most exposed to international competition, such as those in automotive, computer and electronics sectors. Against the background both of COVID-19 and the continuously sinking investment costs of robots, the trend towards automation could be reinforced by companies in the near future (Marin 2020): whether that will reduce participation in GVCs is still unclear. Seric and Winkler (2020) argue that for countries engaged in innovative GVC tasks, no reduction of their participation in GVCs can be observed so far.

Whether the trend towards more regionally integrated production networks involving significant reshoring to Europe will actually materialise as suggested by some of the reshoring literature summarised above, however, remains to be seen. Butollo (2020) argues that the effects of digitalisation will likely be rather mixed, and could lead to further fragmentation of global production. Against the background of shrinking wage differentials between OECD countries and emerging economies, due to wage increases in the latter (particularly in China), lead firms might use investments in digital technologies to boost productivity, thus combining digitalisation with wages that are still comparatively low, in particular for mass production processes. Similarly, new technologies in online retailing and logistics enable platform companies to combine local end configuration of products with production of components in offshore locations, and still guarantee timely delivery of the final products to end-users. Thus a marked orientation towards regionally integrated production networks is only to be expected in the case of strong consumer preferences for local products, produced to specific quality and according to specific technical standards. Herrigel et al. (2013) have shown that automobile production has increasingly followed this pattern, given regionally diverse consumer preferences and regulatory frameworks.

Antràs (2020) similarly expresses doubts that the technological trajectory of Industry 4.0, particularly in areas such as automation or 3D printing, will be particularly conducive to reversing the internationalisation of production processes. As digital technologies increase firm productivity, the optimal size of companies will also expand; these two factors will jointly lead to a higher demand for intermediate inputs, many of which will be offshore components. In support of these arguments, Antràs cites empirical studies which have shown the largely complementary nature of digitalisation and trade (Artuc/Bastos/Rijkers 2018; Freund/Mulabdic/Ruta 2019; Stapleton/Webb 2020). Advances in ICTs such as video conferencing tools will facilitate the management of long-distance GVCs, as it reduces the need for business travel.

By way of summary, the impact of digitalisation on the future of international production thus remains to be seen and will depend on the type of digital technology considered: ICTs, for instance, will have quite different effects than automation or additive
manufacturing. With respect to the impact of digitalisation on employment, most experts agree that the effects on employment when production is reshored in combination with investments in digital production technologies will be positive but limited to the host country, while, of course, negative for the country of origin, i.e., the country of production before reshoring. Similarly, the types of jobs created by digitalisation will be qualitatively different, requiring workers to acquire new digital skills. This makes digitalisation particularly challenging for less-developed countries, limiting their possibilities to access GVCs.

3.3 The crisis of the liberal international order and the renaissance of geopolitics

Above and beyond the effects of shocks and the changes brought about by the digital revolution, what the COVID-19 crisis has helped to reveal are the threats of GVCs to national security and the security of supply, particularly during times of crisis. An enduring argument of other schools of thought such as Keynesian public finance (Musgrave 1959; Stiglitz 2000) in economics, but in particular International Relations (IR) theory, has been that locational decisions always involve trade-offs between economic efficiency and other legitimate concerns, which are either (i) economic in nature, e.g., macroeconomic stability, dynamic efficiency and technological development concerns such as late industrialisation policies in LDCs etc., or (ii) non-economic motivations, such as distributive justice, environmental sustainability, national security, or security of supply. All of these concerns, whether economic or non-economic, have an effect on the resulting international economic and political order.

This however goes against much of the received wisdom of the globalization debate during the last four decades. The literature on free trade and on GVCs typically departs from the assumption that the international division of labour and its forms of governance are ultimately driven by the interests and decisions of economic actors, most notably TNCs. It is thus the motivations and decisions of companies that are at the centre of the analytical focus. The decisions of these firms, themselves regarded as increasingly transnationalised actors and detached from nation-states, are conceived of as being driven mainly by economic imperatives; on the other hand, the state and national governments, whose role is that of setting a regulatory framework that facilitates international trade and investment, is seen as largely accommodative. With the support of TNCs and other non-state actors, governments would actively support the construction of a set of international institutions that provided a regulatory framework for a liberal international order characterised by the free flow of goods, services and capital. This was precisely the central idea behind the neoliberal discourse on globalisation, or to use another widely-cited phrase, of the rules-based international order (see Slobodian 2018). The more progressive version of this discourse, which became known as global governance, emphasised the importance of promoting human rights and democratic participation (see, e.g., Archibugi/Held 1995).

Multilateralism has nevertheless experienced a crisis of legitimacy. Over the last two decades, the liberal international order, well established until the year 2000 or so, has begun to show signs of erosion. This is highlighted by the marginalisation of the WTO, the rise of bilateralism in trade policy, and, more recently, the outbreak of the ‘trade war’ between the US and China. A more general move towards protectionist policies, which has gained strong momentum with the Trump administration, but clearly precedes it, is further testament to the ongoing change in international relations. This is a change that
liberal internationalism and concepts of global governance have great difficulty in explaining.

Other schools of thought do provide some guidance on the changes underway in the international system; this is particularly true for IR literature. While distinct theoretical traditions co-exist in the field of IR, influential approaches in the (Neo-)Realist tradition emphasise the primacy of the political, i.e., the dominant role of (large) nation-states, in determining the structure of international trade (Krasner 2009). In contrast, approaches in the tradition of critical International Political Economy (IPE), though sharing the ultimate primacy of the political in determining economic issues, have a more nuanced understanding of the mutually constitutive relationship between the economic and the political, as well as of the role of non-state actors (Overbeek 2013; Gill 2014).

In contrast to liberal economic doctrine, the Theory of Hegemonic Stability (HST), a product of different theoretical traditions in IR, including Realism and the systemic school, has observed that free trade has not been the norm throughout the history of capitalism (Kindleberger 1973). HST declines the primacy of economic actors in determining the structure of international trade but posits that the structure is ultimately determined by state power (see Krasner 1976; Hirschman 1945). States are thought of as largely independent actors, their actions being directed towards increasing power in the international system (Krasner 2009). States use a variety of measures including trade policy to foster their power in an international system of asymmetrical interdependence, in which all states are linked by trade relations, but larger states typically are less dependent on trade for their economic well-being than small states. An open international trading system thus depends on the extent to which large states can promote their main strategic interests via the pursuit of trade policies. These interests are focused on promoting economic income and growth, social stability, national security, and technological and financial dominance, amongst other things. While small states tend to favour an open system of trade, given their limited domestic market, such a system will emerge only if it is actively supported by large states, and, above all, by a hegemonic state, i.e., an economically and politically dominant power.

What is more, an open international trading system may not be stable in the long term, but will eventually be undermined, for example, by ‘security externalities’: trade may have positive impacts on the military potential of other large economies as dynamic efficiency gains allow countries to upgrade both their technological and thus also their military capabilities (Gowa 1994). Thus the dominant position of the hegemon is eventually undermined by the ascendancy of other states, eroding the incumbent’s support for open multilateral trade. As a consequence, economic poles will emerge, composed of a large state with its allies tied to it by a system of bilateral/regional arrangements. Trade is thus closely connected to national security, as exports of advanced technology threaten to eventually undermine the technological superiority of the hegemon. It is widely acknowledged in IR theories that the political power of states is closely related to its economic and technological capacities, which together with its financial power, form the backbone of its military strength (see Strange 1988). Against this background, the ‘trade war’ launched by the Trump administration against China must be interpreted as an effort to maintain the technological and thus, ultimately, the military superiority of the US. In this undertaking, trade policy is explicitly put to the service of national security interests.

The reassertion of large nation-states as key actors on the international stage, including both major global powers such as the US and China, but also second-tier regional powers such as Russia, India, Turkey, Iran, Indonesia, and Brazil, amongst others, has been underlined by the recent ascendancy of looser forms of international cooperation such as the G-20, functioning outside of institutionalised international governance mechanisms.
such as the International Monetary Fund (IMF) or the WTO. Last but not least, crisis phenomena like the global financial crisis of 2007/2008 and more recently, the COVID-19 pandemic, have reinvigorated the role of national governments as crisis managers. Given their monopoly (i) on the legitimate use of force, (ii) on the issuance of legal tender, and (iii) on taxation, national governments are the ultimate security mechanism, both for safeguarding economic development and social reproduction during times of crisis. So far the EU is the only partial exception to this general rule.

By way of summary, the renaissance of geopolitics is thus a consequence of the contradictions that have evolved within the liberal international order over the last four decades. Most notably this includes financial exuberance as demonstrated by the global financial crisis, the social costs of trade, as evidenced by growing inequality in the OECD world, and unemployment due to the relocation of production. The open liberal order has also contributed to shifts in economic and technological capacities and capabilities. This has progressed to such an extent that the US, as the incumbent hegemonic power, considers it as a threat to national security. All of these factors have eroded trust in international institutions and forms of global governance and have led to the re-emergence of nation-states as primary actors in international politics, while the legal form of government has significantly shifted in the direction of authoritarianism and populism.

The direction of the geopolitical reordering of the international system currently underway is, however, not a given. Ultimately, it is politics that determines the course of action. Although state power continues to be an important force in international politics as posited by (Neo-) Realist IR, the critical IPE literature points to the importance of the interplay of political, economic, and social forces at different territorial levels in determining the resulting politics. Whether state power will thus be employed to pursue a Machiavellian understanding of hard power or a more cooperative form of international politics is not pre-determined but will result from the relative balance of social forces and their respective influence on the actions of states. It is evident that the ongoing changes will exert pressure on the EU to reconsider its external economic policy setup. In this reset, a variety of factors will have to be considered. In addition to the distributive impacts of globalisation and the threats emanating from public health crises such as COVID-19 on the security of supply for essential products, the ongoing geopolitical reordering will arguably exert a major impact on the future direction of in particular the EU's trade and investment policies.

3.4 Summary: Assessing the likely impact of environmental, technological and political drivers

After outlining the main trends of GVC-related production during the last four decades, and discussing emerging economic, technological and political drivers of change, we now aim to present a tentative assessment of the effects of these drivers on the spatial configuration of production in a post-COVID-19-pandemic world.

With respect to economic factors, we differentiate on the one hand between factors that have been prominent drivers of offshoring and outsourcing in the past (Economic Factors I), such as international wage cost differentials, low transport costs, access to raw materials, access to emerging markets, and regulatory differences, etc. To this we might add factors that have emerged as a consequence of previous offshoring and outsourcing activities, such as high sunk costs due to high FDI fixed costs and the resources expended by lead firms for developing high-quality and efficient production and sourcing networks in offshore countries. On the other hand we can point to economic factors that will contribute to the shortening of GVCs (Economic Factors II), such as quality issues, the importance of proximity to market, the importance of proximity between manufacturing and innovation activities, short lead times and consumer preferences for locally produced goods (‘Made-
in’ effects), etc. We generally consider Economic Factors I as continuing to exert pressure on companies to offshore and outsource. However, these pressures will likely decrease over time, as, for instance, wage cost differentials further diminish and possibilities for regulatory arbitrage become more circumscribed. In contrast, we foresee a rise in the relative impact of Economic Factors II on the shortening of GVCs. In sum, we posit that due to these diverging trajectories, no clear indications on the direction of the spatial organisation of production can be derived from our analysis.

Given the distinct nature of digital technologies, a perspective that differentiates between different technologies is needed in this respect. As in the past, ICT technologies will likely continue to promote offshoring and outsourcing, particularly as these technologies are mainstreamed into an increasing number of segments of the service economy. The effects of automation on the spatial configuration of production might involve both an increase in local production, including through reshoring and nearshoring as the importance of wage cost differentials vanishes, or it may promote further offshoring, as automation helps production processes in emerging economies to strengthen their productivity. A more widespread application of additive manufacturing technologies will likely promote local production, particularly for higher-value customised products, or might be encouraged by governments with a view to establishing multi-purpose production capacities for emergency situations. All in all, we cannot necessarily predict that digitalisation as a whole will have clear push effects towards shorter and more regional/local production.

The growing frequency of exogenous shocks, both man-made and natural, could trigger a shortening of GVCs and encourage more regionalised forms of production. This has less to do with a change in the business models of companies. For reasons of efficiency, companies might prefer to focus their efforts on shielding their GVCs from shocks through resiliency-enhancing measures that maintain the spatial configuration of their GVCs largely intact. Concerns regarding the security of supply, motivated by an increasing number of shocks, will however reinforce the role of governments. As a consequence, the pressure on companies to shorten their GVCs is expected to rise, in particular as governments introduce measures that (i) provide incentives to nearshore and reshore production, and/or that (ii) place resiliency obligations on companies, which render highly fragmented and geographically disperse GVCs more costly and resource-intensive to manage. Assuming that over time a preference for resilient products develops amongst consumers – similar to the preference for sustainability – lack of attention to security of supply concerns will become a reputational risk for companies.

The trend will be exacerbated by geopolitical developments. Though, of course, depending on the future trajectory of the systemic rivalry between the US and China, their respective efforts to curtail each other’s economic and technological capacities will include the building-up of spheres of influence. This will contribute both to the shortening and to the regionalisation of production systems, and, to some extent, even to the decoupling of strategic rivals from access to specific technologies, products, or strategic resources. Under such circumstances other political entities, including the EU, will risk being at the mercy of one of two strategic rivals in order to have access to some technologies, products or strategic commodities. Thus, the EU will at some point have to contemplate the establishment of more autonomous production networks in strategic sectors, which will arguably involve pressure on domestic companies to reconfigure their GVCs, including through reshoring and nearshoring. All in all, geopolitics might have a strong effect on the spatial organisation of production.
4 ECONOMIC APPROACHES TO PROMOTE SECURITY OF SUPPLY – FROM RESILIENCE TO REGIONALIZATION OF PRODUCTION

Even though the debate on security of supply pre-dates the COVID-19 pandemic, the latter has reinforced the emergency of this issue. As always, various policy approaches confront another. Arguably, most important are the debates on (i) GVC resilience, which might be described as the liberal response; the discussion on (ii) (open) strategic autonomy in the EU, intermingling security of supply concerns with the issue of technological sovereignty; and (iii) the calls for more regionalized forms of production and consumption, not least as a consequence of the climate crisis and calls for a socio-ecological transformation. To each of these debates, we turn in this section.

4.1 Promoting the Resilience of global value chains

The concept of GVC resilience

Global supply chains are governed by lead firms, which typically take decisions on the location of production and sourcing from other firms. Decisions are made mainly on the basis of costs, quality management issues and speed of delivery (lead times). In this context companies often prefer single-sourcing strategies, as these reduce transaction costs for buyers and incentivise suppliers to grant price reductions (Petersen 2020). Thus, GVCs have been mostly determined by such efficiency considerations, while risk management approaches paying attention to security of supply have only been of secondary importance in the management practices of firms (Bogaschewsky 2020).

A key concept, when dealing with the risks to which GVCs are exposed, is resilience. The OECD (2019a) defines resilience as “the ability of households, communities and nations to absorb and recover from shocks, whilst positively adapting and transforming their structures and means for living in the face of long-term stresses, change and uncertainty. Resilience is about addressing the root causes of crises while strengthening the capacities and resources of a system in order to cope with risks, stresses and shocks.” In the risk management literature, the concept of resilience is contrasted with that of robustness. While resilience is defined as the ability to return to normal operations over an acceptable period of time post-disruption, robustness is the ability to maintain operations throughout a crisis (Miroudot 2020; Brandon-Jones et al. 2014). From a company perspective, a risk management approach based on resilience may differ from one based on robustness. For example, when applying a resilience approach, a company might be willing to accept an interruption of operations during a crisis and instead focus on re-establishing operations quickly post-disruption. In this context, companies might prefer to pursue a single-sourcing strategy, as the long-term working relationship with one supplier will facilitate adherence by the supplier to risk management standards. In the case of vertically integrated production, companies might focus on developing plans and procedures for the swift re-establishment of operations post-disruption, while using buffer stocks to maintain supply during the disruption itself. A robustness approach, on the other hand, might instead lead companies to prefer multi-sourcing strategies over single-sourcing strategies, making it possible to switch between suppliers in the event of a crisis, and/or to establish multiple production sites in order to secure production redundancies. Robustness strategies, however, involve substantial costs, as working relations with multiple suppliers have to be established, quality issues settled, adherence to standards and lead times monitored, cost mark-ups for sourced inputs due to smaller orders accepted, and so on. Thus in many cases, companies might prefer resilience approaches in their supply chains. Although some strategies are common both to resilience and robustness, the fundamental
difference is that resilient firms tend to reduce their risks while not investing significantly in anticipating and avoiding all forms of disruption. Such firms prefer to weather the disruptions and focus on minimising their impacts (Miroudot 2020).

It is difficult to argue in general terms that one strategy is superior to the other. There is some evidence that supplier diversification is associated with a slower recovery from supply disruptions, whereas the use of long-term relationships is associated with more rapid recovery (Jain et al. 2015). However, ultimately, the selection of the optimal risk management strategy will depend on the characteristics of the respective GVC as well as the importance – or criticality – of the respective goods to the security of supply for the general public. While, for many products, a resilience-based risk management approach might suffice, particular products such as, for example, pharmaceuticals, may benefit more from a robustness-based approach. Given the costs involved, which might increase prices and thus negatively affect competitiveness, companies may lack the intrinsic motivation to engage in effective risk management. This readiness must be created, if necessary, by policymakers.

A more comprehensive approach going beyond the company level is the ‘systemic resilience approach’ developed by the OECD’s New Approaches to Economic Challenges (NAEC) group. Based on systems thinking, this approach argues that efficiency and resilience are in a state of tension, and given the complex interrelations between sub-systems, policies must be geared towards creating absorptive buffers, capacity reserves and redundancies in order to prevent an initial, small-scale crisis from cascading and multiplying throughout the entire system and thus leading to a more serious crisis. This is particularly topical for systemic threats, such as pandemics or climate change, which are characterised by their capacity to percolate across complex interconnected systems – either through an abrupt shock or through gradual stress (IRGC 2018).

Systemic threats are particularly difficult to model and calculate via a risk-based approach. Systemic risk events are difficult to predict, and the disruption caused by such events tends to be indirect as a result of nested interaction effects. The global financial crisis of 2007/2008, for example, began as a collection of relatively contained failures at the hands of a limited number of financial firms but ended in substantial financial collapse across much of the world (OECD 2019a: 6). In this context, traditional risk management is not enough, given its focus on crisis prevention and risk mitigation. It is, instead, critical to accept the inherently uncertain, unpredictable, and even random nature of systemic threats and to address them through building system resilience (OECD 2019a).

The policy debate on GVC resilience during COVID-19

An initial discussion on GVC resilience took place in the aftermath of the 2007/08 global financial crisis. In an edited volume collecting various case studies, Cattaneo, Staritz and Gereffi (2010: 6) concluded that, by and large, GVCs have proven resilient: “They have become crucial and enduring structural features of the world economy. In the aftermath of the Asian financial crisis in the late 1990s, similar discussions about ‘the end of globalization’ and the ‘retrenchment of global production arrangements’ in the Asian context arose, but global supply chains bounced back more quickly than expected.” Writing in response to the COVID-19 pandemic, Gereffi (2020) advocates for redundancy rather than reshoring in order to bolster the robustness and resiliency of supply chains. Lead firms should diversify their supply chains in multiple ways in order to retain scale economies, reasonable costs, and innovation opportunities. Strategic options could include bolstering capacity in the home country to address security concerns and to ensure the continued production of products deemed essential and expanding the number of
international production sites to avoid overreliance or dependence on only one or two locations. Resilience-enhancing measures do not only involve geographical strategies such as setting up production locations in different jurisdictions and sourcing the same components from different suppliers, that is, creating supply chain redundancies, but may also entail a variety of additional measures, such as introducing monitoring, due diligence and early warning mechanisms, and increasing the strategic stockpiling of critical inputs. Such measures could be introduced by companies themselves, or they could be required by governments and public regulators to strengthen security of supply.

Other recent work, for instance, the volume edited by Baldwin and Evenett (2020), two well-known liberal trade economists, addresses the issue of resilience, particularly in its potential relation to regionalisation/localisation of production. Unsurprisingly it warns against the export restrictions that many governments had implemented during the early phase of the COVID-19 crisis, arguing instead that “national trade barriers in a world of internationalised manufacturing processes will make it harder for every nation to produce vital medical supplies. Trade is not the problem; it is part of the solution. Insular policies will also fail to foster economic recovery and they are a threat to the collaborative spirit that the human race will need to defeat this threat” (ibid.: 1). Essentially their case against increased regionalisation/localisation of production, including through processes of reshoring, rests on two key arguments. Firstly, they maintain that concentrating production domestically will not increase resilience, since local production can still be interrupted by a crisis and that even localised production would likely require the import of certain resources. In addition they suggest that the regionalisation/localisation might disrupt complex established systems of production and, paradoxically, lead to diminished security of supply. Secondly, they argue that concentrating (more) production domestically will be economically inefficient, because of higher production costs resulting in higher prices for end consumers. Resilience is thus better served when the geographic concentration of production and supply bottlenecks are mitigated through company strategies for diversifying suppliers and production locations at a global scale.

Similar arguments have been voiced by the OECD in its work on resilience with respect to the COVID-19 crisis. Emphasising that interconnectivity between systems is one of the determining features of the modern world, it argues against the “instinctive reaction to the COVID-19 outbreak […] to limit or reduce such interconnectedness” on the basis that “such sweeping policy changes would not better protect countries or international markets against future systemic threats”. Instead, they argue that “an emphasis upon developing resilience within the international economic system is a necessary evolution for a post-COVID-19 world” (OECD 2020: 11).

A problematic assumption in the liberal internationalist argument is that the obvious advantages of an open international division of labour compel countries to cooperate and maintain trade openness, even during periods of uncertainty and crisis. Though intuitively appealing, this assumption is not corroborated by the available historical evidence. In situations of crisis, the immediate concern of national governments is to guarantee the supply of essential goods to its own population. This trumps the willingness to adhere to standards of international cooperation and commitments under international law. According to the WTO, some 90 countries invoked more than 230 temporary measures to restrict exports since the outbreak of COVID-19. That there is such a high number of countries invoking export restrictions during the COVID-19 crisis is just the latest in a long history of similar episodes. Export restrictions have been employed for a variety of reasons, for instance, commodity price hikes, supply shortages, or political-strategic motivations. They have been applied to a variety of goods, including agricultural and food products and strategic raw materials (see Anderson 2009).
pandemic, the most recent example of such restrictions being widely employed was the global food crisis during 2007–2011 (see Sharma 2011). Given the historical evidence on the self-serving nature of economic crisis management by national governments, which includes EU Member States even in their trade with each other, international openness and cooperation may, in theory, be the first-best solution for regulating GVC-based production and the distribution of essential medical and other products during periods of crisis. As the historical record shows, however, their efficacy in crisis periods is threatened by national egoisms.

The liberal argument further emphasises the importance of supplier and geographic diversification for mitigating supply bottlenecks. Though correct in principle, geographical diversification of suppliers is costly, and companies have so far demonstrated a propensity to stick to single-sourcing strategies. The argument also fails to account for the uncertainty associated with international cooperation. Suppose, for example, that a sourcing bottleneck for critical medical products from China leads to the establishment of new production facilities in other important low-cost production countries, say in India and Brazil, a crisis might still trigger export restrictions being imposed in all three producer countries, thus interrupting the supply chain. Given a government’s responsibility for security of supply with critical goods during a crisis and the high levels of uncertainty associated with international cooperation, relying solely on international sourcing is not a rational choice. In such situations, setting up production capacities in the domestic economy could become part of a more effective geographic diversification strategy, as it increases the overall number of production sites. It also allows for more targeted government intervention since, in the event of a global crisis, governments are able to implement domestic policy measures to regulate or influence domestic production. This is not possible when manufacturing is confined to offshore countries, since the typical government cannot force other countries to adhere to international commitments for the free flow of goods during situations of crisis. Reshoring may therefore be preferable if it could help guarantee a certain minimum of domestic production. Indeed, it is not surprising that almost all governments, at least in the OECD world and in emerging economies, have resorted to helping set up new local production facilities – or scale-up existing ones – for the manufacturing of Personal Protective Equipment (PPE) during the COVID-19 crisis. This does not preclude efforts to uphold international cooperation during a crisis, but it makes clear that precisely because governments have to explore all possibilities for maintaining security of supply, they will also promote domestic production, including by providing incentives to companies to reshore parts of their production.

The second core argument emphasised by the liberal resilience discourse relates to efficiency. Reshoring production back to Europe, it is argued, is not only unconducive to resilience but also inefficient, as production costs in the OECD world are markedly higher than those in the offshore locations where the production of especially low-tech and labour-intensive production is currently taking place. Looking purely at economic efficiency, the argument is obviously correct, yet it fails to paint the full picture. Taking into account externalities, social costs of production in offshore locations are much higher than the private costs of production. Given lower environmental standards, particularly in developing and emerging economies, the environmental externalities of production in offshore locations are sizable, particularly in raw-material intensive heavy industries. (see e.g., Wiedmann/Lenzen 2018; EC 2013). Similarly, the environmental externalities of long-distance transport are also not accounted for in the conventional cost calculus. With respect to the carbon footprint of EU imports, it is noteworthy that net imports of CO2 have increased by some 33 % since 1990, rendering the EU, with 728 million tons, the world’s largest net importer of CO2 emissions in 2017 (Felbermayr/Peterson 2020: 7f.). Last but
not least, breaches of basic labour rights in production, and the negative effects on the rights and livelihoods of affected local populations, have to be considered. While monetising environmental and social externalities involves complex methodological issues and the empirical literature is limited, the cost differentials reported between offshored production and production in OECD countries do typically overstate the real cost differentials when taking into account the aforementioned externalities.

Under efficiency considerations, the first-best solution for internalising these externalities would be for offshore countries to raise their environmental and social standards, establishing a level playing field with local production in OECD countries, while still profiting from lower wages. Alternatively, offshore suppliers could be required by lead firms to comply with strict environmental and social standards. The incentives for stakeholders to follow this path are, however, somewhat limited. For governments, introducing environmental and social legislation might erode the competitiveness of local industries, with negative effects on the tax base, employment and foreign currency income. For suppliers in offshore countries, it will increase the costs of production and thus decrease profitability and competitiveness. For lead firms in OECD countries, due diligence requirements will increase sourcing costs and reduce profits. The success of efforts based on voluntary commitments as the UN Guiding Principles on Business and Human Rights has hitherto been mixed, leading EU policymakers, more recently, to contemplate the introduction of mandatory due diligence requirements. With respect to long-distance transport, the international community would have to agree on pricing transport-related carbon emissions through, for instance, the introduction of a global carbon tax. Of course, such a solution is predicated on the willingness of all countries to reach an international agreement and to implement it domestically. As any such agreement would impact countries’ competitiveness, reaching an agreement will be difficult and protracted, as we have also witnessed throughout the history of climate negotiations. The hurdles to overcome in order to implement the first-best solution are formidable.

To the extent that domestic production in OECD countries is taking place under higher environmental and social standards than in offshore locations, and potential breaches of these standards by companies are more effectively sanctioned by OECD governments, reshoring of production could be seen as a contribution to a viable second-best solution to the problem of production sustainability. Emerging economies will, of course, lose jobs in case of reshoring. However, if vigorously pursued by OECD governments, reshoring in response to both resiliency concerns and sustainability imperatives might arguably exert pressure on governments in offshore countries to upgrade their environmental and human rights policies, to support those local export sectors under threat of losing access to international supply chains. Similarly, governments in offshore jurisdictions might be more willing to agree to international agreements on pricing transport-related carbon emissions.

By way of summary, our discussion has underlined the case for EU policymakers to seriously consider policies for increasing the resilience of GVCs. The stringency of such requirements, that is, if they follow a resilience or a robustness approach, needs to be defined at a sector – if not a product – level. Resilience-oriented policies might include a combination of different measures, such as monitoring obligations, due diligence requirements and stockpiling. We would, however, contend that GVC resilience policies alone might not suffice for achieving a level of security of supply deemed necessary by policymakers, particularly in the case of systemic threats such as pandemics, and for products deemed critical. For critical products with pronounced sourcing bottlenecks, such as, for example, pharmaceuticals, governments may wish to resort to other and arguably more interventionist policy options, including reshoring.
4.2 Strategic autonomy as the new policy objective of the EU

Another global trend that increasingly determines the course of economic policy, including security of supply concerns, is the return of geopolitics. China, the very country that has become the key supplier of a wide portfolio of essential goods and commodities, has also become the target of a geopolitical conflict instigated by the US. Chinese exports do not only include pharmaceutical products, but also many other products and critical inputs including rare minerals and other metals such as magnesium, bauxite or titanium, which are not only important from a security of supply perspective but are essential for implementing ecological innovation and are key to achieving the objectives of the European Green Deal. A recent analysis by the Commission highlights that strong EU import dependencies exist for 30 important metals, in particular from China, but also from Turkey (98 % of borate imports), or Brazil (85 % of niobium imports). A discussion on exploiting the dependency of many countries on such goods and commodities as a political weapon has recently been surfacing in Chinese political circles. Against China’s more assertive stance in international affairs, which has already led the Commission to qualify China as a ‘systemic rival’ (EC 2019a), EU policymakers have become increasingly concerned about the EU’s import dependency vis-à-vis authoritarian regimes and its potential vulnerability to political blackmailing.

In its Global Strategy for the EU’s Foreign and Security Policy launched in 2016, the Commission introduced the concept of ‘strategic autonomy’. The scope of the concept at the time remained limited and referred in particular to defence cooperation and the European defence industry. Against the backdrop of the COVID-19 crisis, former EU Trade Commissioner Phil Hogan referred to the term ‘open strategic autonomy’, highlighting that global supply chains would need to be diversified in some sectors, including, where necessary, through strategic stockpiling. At the same time, he stressed that this would require a deepening of the international rules-based trading system, and reiterated the EU’s continued commitment to such a system. According to this view, a move towards strategic autonomy in certain sectors would have to be balanced with a continuing commitment to an openness to trade and the multilateral trade framework. In political terms, there is also a need to strike a balance between a group of EU countries, led by France, demanding a more assertive external economic and industrial policy in the EU, and a second group of export-oriented countries, led by Germany, preferring a more cautious approach in order to avoid aggravating important trading partners.

With respect to the issue of advanced technology and the strategic competitiveness of the EU economy, the discussion is already moving further. As it is becoming increasingly apparent, the true objective of the US ‘trade war’ against China is to slow down Beijing’s quest towards technological leadership in high-tech industries. Recent US moves against Huawei, China’s leading manufacturer of communication technology equipment, aim at cutting the company off from export markets and impeding its ability to source critical components such as semiconductors. Similarly, the US tries to incentivise reshoring of microelectronics manufacturing to the US. A number of large US companies, including Walmart, General Electric, Ford and Whirlpool, have announced plans to reshore production capacity to the US. With this, the Trump administration is taking heed of military intelligence that, for years, has called for a stronger focus on maintaining the US technological lead in high-tech and particularly in digital technologies. As outlined above, the Realist thinking underpinning the views of the US security establishment strongly emphasises the importance of technological superiority for the military capabilities of a nation. Therefore, hindering the technological catch-up of China has become a top priority of US foreign policy. For all that is known, this strategic approach is widely shared amongst
Democrats and will thus arguably be continued under a Biden presidency, albeit on the basis of a more considered approach.

What is more, over the last two decades, Chinese companies have become increasingly pro-active in acquisitions of foreign companies, including in Europe. The stock of Chinese FDI increased by a factor of 75 in the period 2000–2019 (UNCTAD 2020b, Annex Table 2), rendering China the second-largest outward investor in 2018. Takeovers of EU high-tech companies by Chinese investors have made headlines in recent years, as was the case with German robotics company KUKA or telecom company 50Hertz. In reaction to this increasing technological competition, several EU Member States, as well as the Commission itself, have stepped up efforts to control takeovers of EU firms by foreign companies. The EU Foreign Investment Screening Regulation (Regulation 2019/452) creates a mandatory information-sharing mechanism between Member States and allows Member States and the Commission to comment on foreign investments foreseen in other Member States. With the Regulation, the EU aims to safeguard Europe's security and public order by introducing an EU-wide foreign investment screening mechanism and scrutinising purchases by foreign companies that target the EU's strategic interests. The Regulation entered into force on 11 October 2020 and applies to foreign direct investments concluded after 10 April 2019.

Given Member States' competencies with respect to investment issues, the EU's role in the Regulation is essentially confined to coordination. The Regulation contains a non-exhaustive list of industries and sectors that could trigger a screening exercise, including (i) critical infrastructure (energy, transport, water, health, communications, media, data processing or storage, aerospace, defence, electoral or financial infrastructure and sensitive facilities); (ii) critical technologies and dual-use items (artificial intelligence, robotics, semiconductors, cybersecurity, aerospace, defence, energy storage, quantum and nuclear technologies, as well as nanotechnologies and biotechnologies); (iii) critical inputs (energy, raw materials and food security); (iv) access to sensitive information (personal data); and (v) media freedom and pluralism. In response to the COVID-19 pandemic, FDI screening was expanded to include the health sector and the Commission issued a Guidance to Member States addressing the possibility of non-EU investors attempting to acquire health care capacities or related industries through FDI during the pandemic. The Commission recommended full use of national FDI screening regimes and urged member States that do not have screening regimes to set them up (UNCTAD 2020b: 111). COVID-19 thus triggered an expansion of the scope of screening exercises to include security of supply considerations.

While the regulation promotes a cooperation mechanism between the Commission and Member States to exchange information on investment screening, it does not create an EU-level regulator who could issue a binding opinion and block an investment. Nor does it require harmonisation of EU Member States' national investment screening mechanisms, or even create an obligation for them to introduce such regimes. Nonetheless, against the backdrop of a wider trend among major countries, including Australia, Canada, the UK and the US, increasingly toughening their foreign investment controls, a growing number of EU countries have recently ramped up their own investment control systems. In their national frameworks, several EU countries have already introduced stricter requirements. France, for instance, has expanded the scope of regulated sectors to include food safety. Germany, due to the COVID-19 pandemic, added medical industries to its list of sectors and lowered its threshold for the authorisation of foreign takeovers of critical infrastructures to 10 %. In its 'New Industrial Strategy for Europe' dated 10 March 2020, the Commission, in turn, announced its intention to
contemplate further measures to tighten the investment control system in the EU, although concrete measures are still pending.

By way of summary, we have seen that the discussion on (open) strategic autonomy has addressed security of supply concerns, mainly through the proposed investment screening policies. Investment screening might lead to a slowing-down of offshoring activities, with the knock-on effect that production is reshored. The explicit goal of investment screening is, however, to inhibit the loss of control over key technologies and industries to foreign interests and, therefore, the debate on the EU level still has to explicitly address the role of reshoring policies as a possible element of an open strategic autonomy conception.

What emerges from this overview of the debate on open strategic autonomy is that the capacity of the EU to respond to an increasingly more dynamic geopolitical reordering is constrained by both substantive divisions and institutional impediments. With respect to the institutional constraints, the economic policy framework with its focus on free trade, the emphasis on competition and strict disciplines on policy interventions, while lacking crucial macroeconomic and fiscal competences, is enshrined in the Treaties and the legal framework. This is complemented by weakly-institutionalized competences in foreign and security affairs and a complex system of multi-level governance. It has been noted that the institutional complexities and conflicting interests are exploited by the US, China and others (in particular Russia) to weaken consensus formation and prevent the EU from arriving at common positions. Notwithstanding these difficulties, under the threat of severe exogenous shocks such as, most recently, the COVID-19 pandemic and the global financial crisis, EU politics has eventually been able to move forward with projects of a strategic trajectory, such as, for instance, the EU recovery plan ‘Next Generation EU’ and the European Green Deal initiative.

As outlined above, the policy debate on the need to increase the security of supply with essential products triggered by the COVID-19 pandemic is a necessary, though by no means sufficient, element of a more comprehensive discussion on resilient and sustainable production systems. Of course, given the rise in the number and scale of natural disasters to be expected in the future, effective policies to increase the security of supply for essential products and services is highly relevant. The ongoing geopolitical reordering of the international system in combination with the imminent digital transformation, however, add a strategic dimension to this discussion. If the EU and its Member States want to retain the policy space to tackle these grand societal challenges, a more comprehensive policy approach on strategic autonomy will arguably be necessary.

Such an approach should, however, not only discuss the organisation of production from the point of view of security of supply. It will also be necessary to maintain and expand the productive and technological capacities and capabilities of European economies in order to tackle the grand societal challenges of the future, and in particular to manage the pressing socio-ecological transformation of our energy and material-intensive production and consumption model in accordance with the objectives of the European Green Deal. If the EU seeks to be a leader in this venture, it must safeguard its technological potential and have the ability to employ it to master the transformation of our energy, transportation and production systems. In addition to large ‘mission-oriented’ public research and innovation programmes, this will also entail the selective utilisation of more interventionist policies, particularly in strategically important sectors. The special state aid regulations for Important Projects of Common European Interest (IPCEI) have been a first step to promote technological projects of a strategic significance, including the data infrastructure project Gaia-X, the European Battery Alliance, an IPCEI on microelectronics and others. The basic idea behind these initiatives is to achieve technological sovereignty in high-tech
sectors, which are of strategic value for EU competitiveness and where European companies are late comers and dependent on technologies from firms in other countries, in particular from the US and China.

This combines with the recent debate on technological sovereignty, which has been promoted since the outbreak of COVID-19 by key EU policy-makers, including German Minister of Economic Affairs Peter Altmaier and Commissioner Thierry Breton. Various elements and meanings have been proposed. For instance, Commissioner Breton has identified the following key elements: firstly, digital sovereignty with the three pillars computing power, control over our data and secure connectivity; secondly, technological autonomy, with enhanced EU cooperation through the European Defence Fund in key technological projects such as drones, combat aircraft, the European tank, space capabilities and cybersecurity; and thirdly, technological sovereignty with respect to green technologies and the objective of making Europe the epicentre of ‘green tech’, requiring EU policy to strengthen value chains, diversify essential supplies and even relocate production.

The boundaries of the concept and the respective role of different policy instruments have however not been worked out properly so far. In our view, it is important to start from a concise definition of the concept of technological sovereignty. The definition of Eder et al (2020) provides a useful starting point. They define technological sovereignty as “the ability of a state or a federation of states to provide the technologies it deems critical for its welfare, competitiveness, and ability to act, and to be able to develop these or source them from other economic areas without one-sided structural dependency.” In their conceptualisation, technological sovereignty is not only required for fulfilling the traditional sovereign tasks of states, like defense and public security, but also for meeting society’s needs, and to preserve economic competitiveness (see Figure 6).

**Figure 6: Dimensions of and motivations for technological sovereignty**

<table>
<thead>
<tr>
<th>Technology sovereignty</th>
<th>Original sovereign tasks</th>
<th>Meeting needs of society</th>
<th>Economic competitiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preserve and protect</strong></td>
<td>Defense, public security, administration</td>
<td>Public services, critical infrastructures, public healthcare (water supply, transport links, health system)</td>
<td>Creating jobs and value in existing industries (mechanical and automotive engineering)</td>
</tr>
<tr>
<td>(static)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Being crisis-proof</strong></td>
<td>Military conflicts</td>
<td>Pandemics, climate-based crises, terror attacks</td>
<td>Euro crisis, structural breaks caused by transformation</td>
</tr>
<tr>
<td><strong>Against</strong></td>
<td>Terror attacks</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dynamic development</strong></td>
<td>Informational self-determination, geopolitical positioning (5G debate and EU cloud)</td>
<td>System transformation (sustainable mobility/logistics, energy transition)</td>
<td>Creation and renewal of paths, transform and develop new sectors (e-mobility, industry 4.0)</td>
</tr>
</tbody>
</table>

Source: Eder et al. 2020: 13
What is more, technological sovereignty is considered a necessary component for maintaining the dynamic capabilities and capacities of societies to tackle current and future challenges, such as pandemics and the green transition. Basically, two important policy implications follow from this approach. Firstly, the technological fields where threats to technology sovereignty exist, should be identified as precisely as possible. Secondly, the promotion of technology sovereignty needs a strategic approach to policy-making, including a variety of instruments. Sufficiently broad investments in research and development (R&D) are considered the basic prerequisite for establishing sovereignty in critical technologies now and in the future.

In the case that technologies identified as critical, suffer from structural import dependencies with respect to certain inputs and components, appropriate measures might include diversification of suppliers, and in our view, also the promotion of domestic production including through reshoring. Again, following this concept of technological sovereignty, reshoring should be considered as one of many policy instruments applied for achieving broader societal objectives. Similar to our discussion of the issue of security of supply, the use of reshoring will depend on the analysis of the criticality of a specific technology and the existence of import dependencies and supply bottlenecks. This can only be achieved at the sector level and by analysing specific value chains.

4.3 Towards a comprehensive concept of regionalization

As outlined above, the discussion on the need to increase the security of supply with essential products triggered by the COVID-19 pandemic is a necessary, though not sufficient element of a more comprehensive discussion on sustainable production systems. For sure, given the rise in the number and scale of natural disasters to be expected in the future, effective policies to increase the security of supply with essential products and services is highly relevant and topical. The ongoing geopolitical reordering of the international system in combination with the imminent digital revolution and the socio-ecological transformation add however a strategic dimension to this discussion. If the European Union and its member states want to retain the policy space to tackle these grand challenges, a more comprehensive approach will be necessary.

Our analysis leads to the conclusion that the solution will not lie in a further deepening of the prevailing liberal international order. The gradual decay of this order has been proceeding for well over a decade and is arguably receiving another impetus by the COVID-19 crisis. The propensity of the two dominant global powers as well as of a number of second-tier powers like Russia, Turkey, or India to compromise on their national interests – however defined – and voluntarily forego their policy space by succumbing to the prevailing liberal international order seems ever less pronounced. Under these conditions, the route to further economic and political integration at the global level seems to have arrived at an impasse. What has emerged over the last decade, are instead the contours of a multi-polar world order in the making. While it is impossible to identify the many elements and details of such a future order, the principal direction seems clear enough. Against this background, the EU basically faces two trajectories: either a further erosion of the process of European integration with a return to nation state-based models and/or forms of fragmented cooperation between groups of like-minded countries, or a deepening of European integration on the basis of new institutional and programmatic foundations. Our key argument is that only the second option holds a promise for a socially inclusive, economically viable and ecologically sustainable future.

True, given the many global interdependencies, a more regionalized European economic model will not be the panacea to solving all problems related to current security of supply.
concerns. Building a more diversified EU production structure while at the same time promoting the socio-ecological transformation with its key elements of decarbonisation and the circular economy, will however make an important contribution to building a more resilient European economy. Such an alternative European model will not isolate itself from the world, but will continue to pursue economic interchange with other countries, and promote cultural exchange and political dialogue. The economic dynamics of the model will however be primarily based on the development of the endogenous potentials of its macro-regional economy. Its guiding principles are:

1. To secure the satisfaction of the basic needs of its citizens by promoting a crisis-resistant foundational economy. This includes the provision of basic social services with respect food, housing, health-care and education, but also public utilities (water, energy, transport) via a system of publicly funded and not-for-profit institutions. To this end, instruments to promote public provisioning need to be strengthened, particularly at the local and regional level, and the existing legal frameworks at the international, EU and national levels revised, if necessary.

2. To maintain and expand the productive and technological capacities and capabilities of European economies not only to procure essential medicines and other basic goods, but also to tackle the grand societal challenges of the future, and in particular to manage the urgently necessary socio-ecological transformation of our energy and material-intensive production and consumption model. If the EU wants to be a leader in this venture, it must safeguard its technological potentials and have the ability to employ them to master the transformation of our energy, transportation and production systems. In addition to large "mission-oriented" public research and innovation programmes, this will also entail the selective utilization of more interventionist policies. In strategically important sectors, including pharmaceuticals, a minimum of productive capacities has to maintained, or introduced, strategic stockpiling might be necessary. Public investment and equity funds might be set up to prevent the takeover of key technologies by foreign interests. Such industrial policies require strong coordination and management at the EU level.

3. Against the background of resource scarcity and high import dependency, to promote the circular economy and the regional production of high-quality and organic foodstuffs. Competition and state aid law as well as public procurement regulations will need to be employed to this end, and revised if necessary.

4. Finally, economic interchange with other countries needs to be based on fair principles and a new generation of fair trade agreements. EU import needs for raw materials, agricultural goods and other manufactured goods must be based on binding obligations for ecologically and socially sustainable production, safeguard the human rights of affected local and indigenous populations, secure decent wages and fair sharing of resource rents with partner countries. With respect to maintaining policy space for partner countries, EU trade agreements should follow a WTO-minus agenda and refrain from imposing EU standards on other countries. As a general norm, EU trade policy should not follow a neo-mercantilist orientation of increasing its external competitiveness and achieve export surpluses, but aim for a balanced current account over the medium term.

The promotion of a model of regional economic development based on the above principles will of course be a long-term project requiring a circumspect process of policy-reform and the mediation of distinct interests and political conflicts. To identify the policy tools already available under the current international legal framework, is a first necessary task, which we will take up in the next section.
5 ASSESSING THE INTERNATIONAL LEGAL FRAMEWORK FOR REGIONALIZATION OF PRODUCTION

5.1 Preliminary considerations

From a legal perspective, the first challenge is to translate the regionalization discourse into concepts that are legally relevant and, thus, can be subject to a legal analysis. Currently, there is no “Law of De-Globalization or Regionalization”. However, efforts to promote De-Globalization and Regionalization, respectively, may create conflicts with WTO rules, which are at the heart of what Stephen Gill has famously called “new constitutionalism” (Gill 1998: 31-34). Therefore, it seems useful to address the topic from the perspective of WTO law.

In the present context, we aim to identify key obligations under WTO law, which may potentially create barriers for regionalization. However, we do not assess whether any concrete measures aiming to promote regionalization are compatible with WTO law. This would require a complex and detailed analysis, which is beyond the scope of this study.

The current WTO rules are largely the result of the so-called Uruguay Round negotiations (1986-1994). According to the WTO, the complete set of rules “runs to some 30,000 pages consisting of 30 agreements and separate commitments (called schedules) made by individual members in specific areas, such as lower tariffs and services market-opening”. These agreements cover trade in goods and services as well as rules on intellectual property, subsidies, government procurement etc. The concrete legal requirements established in these agreements are referred to as “disciplines” (for example, requirements to grant market access, non-discriminatory treatment etc.)

The vulnerability of international supply chains has become particularly apparent during the Covid-19 pandemic. In May 2020, EU Trade Commissioner Phil Hogan emphasized the importance of “examining how to diversify and solidify these chains in some sectors, including strategic stockpiling where necessary” in order to attain what the EC calls “open strategic autonomy” (Hogan 2020). At the same time, the European Commission’s (EC) recent Concept Paper on “Trade in Health Care Products” suggests that “[f]acilitating international trade in healthcare products contributes to making supply chains more resilient and diversified, and strengthen preparedness for future health shocks” (EC 2020: 1). Thus, the Concept Paper contains proposals for permanent tariff elimination, disciplines relating to essential goods in crises and disciplines of general application, irrespective of the crisis. By contrast, from a regionalization perspective, increasing the resilience of supply chains may rather focus on “shortening” global supply chains or supporting the creation of new regional supply chains. In the subsequent sections, we explore potential sources of conflict of such regionalization measures with the General Agreement on Tariffs and Trade (GATT), the Agreement on Trade-Related Investment Measures (TRIMs), the Agreement on Subsidies and Countervailing Measures (SCM) and the Government Procurement Agreement (GPA).

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2 See https://www.wto.org/english/thewto_e/whatis_e/inbrief_e/inbr_e.htm#wto_agreements.

3 NB. Both the GATT and GATS provide specific exceptions for regional/preferential trade agreements. Cf. Article XXIV of the GATT and the Understanding on the Interpretation of Article XXIV of the GATT 1994 as well as Article V GATS. In the subsequent analysis, however, the focus is on the production of and trade in goods. Therefore, the WTO rules on services trade, enshrined in the GATS are not subject of the subsequent analysis. Moreover, issues arising under the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) have been excluded from the scope of this study.
5.2 WTO law

5.2.1 Obligations under the GATT

Under the GATT, measures that aim at promoting regionalization may raise concerns with regard to most-favoured-nation treatment (MFN) under Article I:1 GATT and national treatment under Article III:4 GATT. Simply put, the MFN obligation prohibits discrimination ‘between and among like products of different origins’; the obligation to provide national treatment, in contrast, prohibits the discrimination of ‘imported products vis-à-vis like domestic products’.

Moreover, if the measure imposes quantitative restrictions on the import or export of a product (e.g., a ban or quota) it may raise concerns under Article XI GATT. In the context of the Covid-19 pandemic, 80 countries and separate customs territories had introduced export prohibitions or restrictions by April 2020. These concerned a broad range of products, including medical supplies, pharmaceuticals and medical equipment (WTO 2020: 1). Article XI:2(a) allows WTO Members to apply such restrictions temporarily to prevent or relieve critical shortages of foodstuffs or other essential products. However, as the wording clearly indicates, this carve-out only covers restrictions, which are temporary and address critical shortages in essential products. Thus, measures aiming at regionalization more generally would fall outside the scope of this specific exemption.

However, such measures may be justified under the general exceptions in Article XX GATT or the security exceptions under Article XXI GATT. For example, a WTO Member may take otherwise WTO inconsistent measures, which are "necessary to protect human, animal or plant life or health", provided that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

5.2.2 Local content requirements – TRIMs

In terms of substance, the TRIMs Agreement adds little to existing obligations under the GATT. It contains an explicit prohibition of “any TRIM that is inconsistent with the provisions of Article III or Article XI of the GATT 1994”. An Annex to the Agreement contains an exemplary list of measures, which are considered inconsistent with either of these provisions.

The most relevant prohibition in a regionalization context concerns so-called local content requirements (LCRs). LCRs are “part of a broader set of ‘localisation’ policies that favour domestic industry over foreign competition” (OECD 2019b).

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4 Reports of the Appellate Body, European Communities – Measures Prohibiting the Importation and Marketing of Seal Products (22 May 2014) WT/DS400/AB/R; WT/DS401/AB/R, para 5.79 [emphasis in original]. More technically, Article I:1 provides that with respect to matters referred to in Article III:4 “any advantage, favour, privilege or immunity granted by any [Member] to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other [Members]”. Article III:4 provides that “[t]he products of the territory of any [Member] imported into the territory of any other [Member] shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use”.

5 While all these measures should principally be notified as soon as possible to the WTO pursuant to the 2012 “Decision on Notification Procedures for Quantitative Restrictions”, only 13 WTO Members (or 39, if the EU Member States are counted individually) had notified the introduction of new measures by the time the note was published in April 2020 (cf. WTO 2020: 5).


7 Article 2.1 of the TRIMS Agreement.
The TRIMs Agreement targets LCRs, which require “the purchase or use by an enterprise of products of domestic origin or from any domestic source”. The prohibition covers both mandatory measures and measures compliance with which is necessary to obtain an advantage. The latter include, for example, measures that make the purchase or use of local products a condition for the granting of a subsidy. Additionally, depending on its exact design, such a subsidy may also be prohibited under the SCM Agreement (see below section 5.2.3).

Importantly, even localisation measures, which fall outside the scope of the TRIMs Agreement, may nevertheless come into conflict with WTO law. For example, a measure that requires the use of domestically “produced” services as input is not covered by the TRIMS Agreement, which is only applicable with regard to trade in goods. However, such a measure may violate the GATS. Such a finding is of course subject – inter alia – to the specific commitments scheduled by the WTO Member that introduces the measure.

Moreover, International Investment Agreements (IIAs), increasingly include provisions on so-called “performance requirements”. Such requirements go beyond typical LCRs and include, e.g., requirements to establish a joint venture with domestic participation, requirements to locate headquarters, employment requirements, requirements to transfer technology or requirements relating to research and development (UNCTAD 2003: 3). The new generation of EU trade agreements also includes specific rules on performance requirements (e.g. Article 8.5 CETA; Article 8.8 EU-Vietnam FTA).

5.2.3 Subsidies – SCM

The SCM Agreement defines subsidies as financial contributions by a government or public body in the territory of a WTO Member, which confer a benefit.8 The SCM Agreement, however, only applies to “specific” subsidies, i.e. subsidies, which are provided specifically to an enterprise or industry or group of enterprises or industries.9 Importantly, also subsidies, which are limited to certain enterprises located within a designated geographical region within the jurisdiction of the granting authority, are considered specific (“regional specificity”).10

Specific subsidies fall into two broad categories, prohibited subsidies and actionable subsidies.11 Prohibited subsidies comprise “export subsidies” and “local content subsidies”. The latter are subsidies, which are “contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods”.12 This is the case, where the receipt of a subsidy de jure or de facto requires the use of domestic goods “in preference to, or instead of” imported goods.13 The subsidization of domestic production per se is not prohibited (but falls in the category of actionable subsidies, see below). Additionally, it should be noted that even if an incentive to use domestic over imported goods does not qualify as a prohibited subsidy under the SCM Agreement, it may

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8 Article 1 of the SCM Agreement.
9 Article 2 of the SCM Agreement.
10 Cf. Article 2.2 of the SCM Agreement. Moreover, according to Article 2.3, “prohibited subsidies” are automatically considered specific.
11 The SCM initially also contained the category of non-actionable subsidies. However, the application of the respective provisions was limited to a period of five years, beginning with the entry into force of the WTO Agreement and was not extended subsequently (cf. Articles 8, 9 and 31 of the SCM Agreement).
12 Article 3(1)(b) of the SCM Agreement.
nonetheless constitute less favourable treatment under Article III:4 of the GATT.\textsuperscript{14} While Article III:8(b) of the GATT provides that the national treatment obligation in the GATT does not prevent the payment of subsidies exclusively to domestic producers, certain incentives, like tax exemptions or reductions are not covered by this carve-out.\textsuperscript{15} Similarly, requirements to use domestic over imported goods cannot be justified under Article III:8(b) of the GATT either.\textsuperscript{16}

Actionable subsidies, by contrast, are not prohibited but can be challenged by WTO Members that consider them to have adverse effects on their interests. Such adverse effects may stem from injuries to their domestic industries, the nullification or impairment of benefits accruing under the GATT or so-called serious prejudice to their interests.\textsuperscript{17} Importantly, the complaining Member has to show the adverse trade effects caused by the subsidization.

5.2.4 Government procurement – GPA

Governments at all levels spend large amounts of public resources on purchasing goods and services to fulfil their functions. In the EU, public/government procurement accounts for over 14% of the overall GDP (EC 2019b). In light of its sheer volume, governments also use public procurement as a strategic tool to address “secondary policy objectives”, such as environmental, economic or social challenges (OECD 2017: 174; Mayr 2015: 63).

Despite its obvious significance for international trade, government procurement has a somewhat special status under WTO law. While principally exempt from key obligations under the multilateral GATT and GATS,\textsuperscript{18} government procurement is subject to a separate agreement, the GPA.\textsuperscript{19} The GPA is a “plurilateral” agreement, which means that not all WTO Members are parties to the agreement. Currently, the GPA has 21 parties comprising a total of 48 WTO Members.

Whether the GPA rules apply to procurement activities of a party depends on the commitments scheduled. The parties’ coverage schedules are contained in Appendix I to the agreement. Under the revised GPA, the schedule of each party is subdivided into seven Annexes, which specify covered entities, covered goods, services and construction services, relevant threshold values as well as specific exemptions.\textsuperscript{20} Simply put, the GPA rules apply to procurement activities for governmental purposes by covered entities, relating to covered goods and services above specified threshold values.\textsuperscript{21}

Taking the procurement of medicinal goods as an example: According to EU Annex 4, the procurement of all goods procured by entities listed in Annexes 1 to 3 is covered by the GPA.


\textsuperscript{15} According to the AB, the „payment“ of a subsidy requires the “expenditure of revenue by a government”, Reports of the Appellate Body, Brazil – Certain Measures Concerning Taxation and Charges (13 December 2018) WT/DS472/AB/R, WT/DS497/AB/R, para 5.124.

\textsuperscript{16} Ibid.

\textsuperscript{17} While injuries are caused by subsidized imports in the territory of the complaining WTO Member, serious prejudice covers adverse effects that occur in the market of the subsidizing Member or a third country market. The nullification or impairment of benefits occurs, e.g., if improved market access is “neutralized” by subsidization.

\textsuperscript{18} Cf. Article III:8(a) of the GATT and Article XIII:1 of the GATS.

\textsuperscript{19} The GPA 1994 entered into force in 1996. The revised GPA 2012 entered into force in 2014, replacing the older GPA among those states that have ratified the revised agreement.

\textsuperscript{20} For example, in its Annex 7, the EU has scheduled a specific exemption for “Procurement by procuring entities covered under Annexes 1 and 2 in connection with activities in the fields of drinking water, energy, transport and the postal sector are not covered by this Agreement, unless covered under Annex 3”.

\textsuperscript{21} Cf. Article II of the GPA 2012.
GPA, “unless otherwise specified in this Agreement”. The threshold for the procurement of goods by central government contracting authorities is EUR 139,000 (EU Annex 1). The relevant threshold for procurement by sub-central government entities is EUR 214,000 (EU Annex 2). In the case of the EU, sub-central government entities include all regional and local contracting authorities as well as “bodies governed by public law (as defined in the EU procurement directive). Thus, subject to the detailed limitations specified in the respective Annexes, the GPA principally applies to the procurement of medicinal products by the covered entities and exceeding the relevant thresholds. The use of any local procurement requirements – i.e. making government purchases contingent on the use of domestic over foreign goods – would principally be inconsistent with the general non-discrimination principle. However, similar to the GATT, the GPA contains a provision on security and general exceptions. Parties are not prevented from taking measures that are necessary to protect (a) public morals, order or safety and (b) human, animal or plant life or health, provided that these measures are not applied in a manner that would constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on trade.

5.2.5 Local procurement requirements – GPA and/or GATT?

The issue of local procurement requirements also illustrates the complex interplay of WTO obligations. Prominent commentators argue that local procurement requirements “may be used so long as a WTO Member is not a party to the WTO’s [GPA]” (Sauvé 2016: 9). However, in light of the AB’s decision in Canada – Renewable Energy and its narrow interpretation of the exception (or “derogation”) in Article III:8(a) of the GATT, the WTO compatibility of local procurement requirements requires a more nuanced assessment.

The dispute concerned “Minimum Required Domestic Content Levels” that generators of electricity utilizing solar PV and wind power technology had to comply with in the design and construction of electricity generation facilities in order to qualify for guaranteed prices offered under the Ontario Feed-In Tariff (“FIT”) Programme. What is relevant in the present context is that the AB found that the measure did not fall within the scope of the derogation in Article III:8(a) of the GATT. In order to fall within the scope of the derogation, the AB requires that “the product of foreign origin allegedly being discriminated against must be in a competitive relationship with the product purchased”. In this case, however, the product purchased was electricity, while the product allegedly discriminated against (by the Minimum Requirements for Domestic Content) under the FIT Programme was renewable energy generation equipment. In the absence of a competitive relationship between these products, the AB concluded that the discrimination contained in the FIT Programme was not covered by the derogation in Article III:8(a) of the GATT and upheld the panel’s finding that the measure was inconsistent with Article 2.1 of the TRIMs Agreement and Article III:4 of the GATT.

While some uncertainty remains as to the exact consequences of the AB’s ruling, commentators have pointed out that it “seems to severely restrict how remote the content requirement can be in relation to the product procured” (Hestermeyer/Nielsen 2014: 578; critical also Sinclair 2013). For example, a preference for domestically manufactured

22 Article IV of the GPA 2012.
23 Article III of the GPA 2012.
pharmaceutical products may be covered by the derogation under Article III:8(a) of the GATT. However, conditioning the procurement of pharmaceutical products on the use of domestically produced active ingredients may fall outside the scope of the derogation and thus be subject to Article III of the GATT and the TRIMs Agreement. It is also noteworthy that in its Concept Paper on “Trade in Healthcare Products”, the EU Commission has recently suggested that in crises existing domestic preference measures for procuring essential goods, including direct market access restrictions for foreign companies, domestic price preferences and local content requirements should be eliminated (EC 2020: 6).

5.3 Performance requirements in the EU’s International Investment Agreements

According to an oft-cited definition by UNCTAD, “performance requirements” are “stipulations, imposed on investors, requiring them to meet certain specified goals with respect to their operations in the host country” (UNCTAD 2003: 2).

Put bluntly, performance requirements “aim to wring domestic benefits from investment, over and above what would normally occur” (Cosbey 2015). For example, performance requirements may be imposed in order to strengthen the domestic capacity in the regulated sector, create employment opportunities for the local workforce, or improve social or environmental outcomes of investments (Collins 2015: 10). Thus, performance requirements include, but are not limited to, LCRs. While LCRs are prohibited under the TRIMs Agreement, other types of performance requirements are not necessarily subject to WTO disciplines. However, international investment agreements (IIAs) increasingly address performance requirements.

Figure 7 offers a useful overview, even if our above analysis of relevant WTO disciplines suggests that the focus on the TRIMs Agreement is too narrow. Performance requirements not explicitly mentioned in the above list may, for example, be subject to the SCM Agreement or the GPA. In this section, our focus is on specific provisions on performance requirements in EU IIAs. However, it should be noted that one of the first IIAs addressing performance requirements was the NAFTA Agreement between Canada, Mexico and the US (cf. Article 1106 NAFTA). Consequently, most arbitral decisions explicitly dealing with performance requirements have been issued in the NAFTA context (cf. Sinclair 2018). Only more recently, new generation EU IIAs such as CETA or the EU-Vietnam FTA also contain provisions that specifically target performance requirements.27 As these provisions are largely modelled on Article 1106 NAFTA, the NAFTA experience can also offer some practical guidance for regionalization measures in the context of new generation EU IIAs. For example, an interesting case with regard to such localization/regionalization efforts is the above-mentioned Mesa Power Group LLC v Canada investment arbitration. The case concerned Ontario’s 2009 Green Energy Act. The complaining investor had argued, inter alia, that local content requirements related to the feed-in-tariff program were NAFTA-inconsistent performance requirements. However, a majority of the tribunal rejected this claim, ruling that the FIT program was covered by the exception for government procurement in Article 1108 (8) NAFTA (cf. Sinclair 2018: 26). The fact that the WTO

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27 While our focus is on provisions specifically targeting performance requirements, other provisions in EU IIAs obviously also may be relevant in the context of potential regionalization efforts. E.g., the provision on market access prohibits measures that impose limitations on the participation of foreign capital in terms of maximum percentage limit on foreign shareholding or the total value of individual or aggregate foreign investment (Article 8.4(a)(iv) CETA) or measures that require joint ventures (Article 8.4(b) CETA).
Appellate Body found the same measure violated the GATT and TRIMs Agreement (see above) illustrates the complex interplay of different legal regimes at the international level.

**Figure 7: Performance requirement under WTO law and International Investment Agreements**

<table>
<thead>
<tr>
<th>Category</th>
<th>Performance Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prohibited by the TRIMs Agreement</strong></td>
<td>Local content requirements&lt;br&gt;Trade-balancing requirements&lt;br&gt;Foreign exchange restrictions related to the foreign-exchange inflows attributable to an enterprise&lt;br&gt;Export controls</td>
</tr>
<tr>
<td><strong>Prohibited, conditioned or discouraged by IIAs at bilateral or regional levels</strong></td>
<td>Requirements to establish a joint venture with domestic participation&lt;br&gt;Requirements for a minimum level of domestic equity participation&lt;br&gt;Requirements to locate headquarters for a specific region&lt;br&gt;Employment requirements&lt;br&gt;Export requirements&lt;br&gt;Restrictions on sales of goods or services in the territory where they are produced or provided&lt;br&gt;Requirements to supply goods produced or services provided to a specific region exclusively from a given territory&lt;br&gt;Requirements to act as the sole supplier of goods produced or services provided&lt;br&gt;Requirements to transfer technology, production processes or other proprietary knowledge&lt;br&gt;Research and development requirements</td>
</tr>
<tr>
<td><strong>Not restricted</strong></td>
<td>All other performance requirements</td>
</tr>
</tbody>
</table>

Source: UNCTAD 2003: 3

As regards the EU’s approach in recent IIAs, the relevant provision in CETA is an instructive example: Article 8.5 CETA addresses the use of (certain) performance requirements both in the pre- and post-establishment phases of an investment. Moreover, it addresses both mandatory and non-mandatory performance requirements. The former impose requirements, which an investor/investment has to fulfil, e.g. in order to be granted admission to the market. The latter cover state measures that condition the receipt or continued receipt of an advantage on compliance with specific requirements.

Mandatory performance requirements, which are prohibited by the CETA in connection with the establishment, acquisition, expansion, conduct, operation, and management of any investments in a party’s territory include, for example, requirements to export a given

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level or percentage of a good or service, to achieve a given level or percentage of domestic content, to transfer technology, a production process or other proprietary knowledge to a natural person or enterprise in its territory or to supply exclusively from the territory of the Party a good produced or a service provided by the investment to a specific regional or world market.\textsuperscript{28}

In addition, CETA prohibits non-mandatory performance requirements, which condition the receipt or continued receipt of an advantage, in connection with the establishment, acquisition, expansion, management, conduct or operation of any investments in a party’s territory on compliance with specific requirements. These include, for example, requirements to achieve a given level or percentage of domestic content or to purchase, use or accord a preference to a good produced in its territory, or to purchase a good from a producer in its territory.\textsuperscript{29}

With a view to regionalization, it is noteworthy that some non-mandatory performance requirements are explicitly exempted from the prohibition in Article 8.5 CETA.\textsuperscript{30} These include requirements to locate production, provide a service, train or employ workers, construct or expand particular facilities, or carry out research and development in its territory.\textsuperscript{31} Thus, Article 8.5 CETA does not prevent the Parties from conditioning the receipt of an advantage on compliance with requirements such as to locate production or carry out R&D activities in their respective territory. Another important exception is that Article 8.5 CETA does not apply to government procurement, which is subject to Chapter 19 of the agreement.

Finally, it should be noted that the prohibition of performance requirements in Article 8.5 applies in the context of “any investments in [a party’s] territory”. Thus, the provision covers not only investments by investors from the other CETA-party but also by investors from third parties. This broad prohibition aims to ensure a level playing field, as otherwise third-party investments, which could be subjected to performance requirements, could be deemed more attractive from the host state’s perspective (Bjorklund 2013: 486).

5.4 Conclusion

Our analysis shows that key WTO agreements limit states’ policy space to introduce regionalization measures in a number of ways. Importantly, the exact scope of each WTO Member’s obligations may vary in light of specific commitments and/or reservations, making a generalized assessment difficult. Whether or not a specific regionalization measure is compatible with a WTO Member’s obligations, it requires a careful analysis on a case-by-case basis. Moreover, obligations under WTO agreements to some extent overlap and are supplemented by obligations under preferential trade agreements and/or international investment agreements.

Certain types of measures, such as local content requirements and local content subsidies are clearly conflicting with WTO law. A different – yet practically highly relevant – question is whether other WTO members bring a complaint and challenge such a measure. In light of the widespread use of local content requirements by both developed and developing countries, it is remarkable, that – so far – such measures have given rise to relatively few WTO disputes. Similarly, most types of subsidies – including the subsidization of local

\textsuperscript{28} Cf. Article 8.5.1 CETA.
\textsuperscript{29} Cf. Article 8.5.2 CETA.
\textsuperscript{30} NB. Parties typically schedule reservations allowing them to impose performance requirements in specific sectors or circumstances.
\textsuperscript{31} Article 8.5.3 CETA.
production – fall under the category of “actionable” subsidies. These subsidies are not per se prohibited under the SCM Agreement. Rather, WTO members that challenge such a measure have to show that it has adverse effects on their interests.

In light of the EU’s conclusion of new generation trade agreements such as CETA, member states’ policy space is further limited. For example, CETA includes a provision prohibiting a number of so-called performance requirements. This prohibition partially goes beyond what is prohibited under WTO law (e.g., with regard to technology transfer requirements). However, in terms of policy space, it is noteworthy that incentives to locate production, provide a service, train or employ workers, construct or expand particular facilities, or carry out research and development in a state’s territory are explicitly excluded from the prohibition of performance requirements under the CETA.
6 CONCLUDING REMARKS

Our discussion of the potentials and limits of employing different policy approaches to promote security of supply has emphasized that this discussion should not only consider the immediate concerns in the context of the COVID-19 pandemic, but must be situated in the broader context of both the geopolitical reordering of the international system and the grand societal challenges posed by climate change. Increasing the resilience of global supply chains by mitigating sourcing bottlenecks and promoting geographical diversification, as promoted by the liberal economic mainstream, can be part of the solution, but it will not suffice. Given heightened geopolitical rivalries, the weak institutionalization of multilateral rules, as well as the historical experience with state behaviour during previous episodes of crisis, the responsibility for managing security of supply ultimately rests with national governments. Thus, local/regional production will have to be contemplated as an important element in any strategy towards promoting security of supply, including in the European Union. The incipient debate in the EU so far has remained stuck between competing programmatic visions and a highly complex system of multi-level governance. Only under the pressure of the sudden and deep economic crisis triggered by the COVID-19 pandemic, have first policy steps towards a more strategic trajectory become possible in the EU, notably with the EU recovery plan and the European Green Deal.

In the current conjuncture, the debate on security of supply must incorporate a more strategic outlook. Supply bottlenecks will not originate from natural disasters only – though in all likelihood the latter will become more frequent in the future – but will also result from strategic rivalry and political conflict. The pronounced import dependencies of the EU with respect to minerals, pharmaceuticals and other products invite other states to exert political pressure. On the other hand, in their quest for technological superiority both the US and China have resorted to more aggressive actions, including takeover of foreign high tech companies, reshoring of production capacities and restrictions targeting individual companies. This might have repercussions on the EU’s ability to maintain the technological capabilities and capacities necessary for tackling the grand societal challenges of the 21st century, in particular the socio-ecological transformation necessary in response to the climate crisis. The debate in the EU – centred upon the vague concept of “strategic autonomy” – is still at an early stage and impeded by conflicting interests and the existing legal and institutional structure.

What is thus necessary is a more systematic and comprehensive concept of regionalization, that is, of a regional system of production for the European Union. This system should be based on four principles: (i) satisfying basic needs by promoting a foundational economy based on public and not-for-profit production; (ii) safeguarding and expanding the productive and technological capacities and capabilities of European economies to tackle the grand societal challenges; (iii) promote the circular economy and local production of high-quality food; and (iv) establish an external economic and trade policy based on fair trade principles. Implementing a more regional production system will entail the application of a wide portfolio of economic policies at different territorial levels. Given the legal framework at the international level, the available policy space remains circumscribed. Nonetheless, within certain limits instruments such as subsidies, public procurement, strategic stockpiling or tax incentives can be used, while more interventionist industrial policies such as local content and joint venture requirements, or caps on foreign ownership of companies are conflicting with WTO law and/or IIAs. In practical terms, however, the empirical record suggests that even such measures have often not been subjected to a legal challenge. Moreover, against the backdrop of a weakened WTO
dispute settlement and a general move towards more active economic policy in many countries, the policy space de-facto available to the EU is arguably higher than previously assumed.
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