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EDITORIAL

The Future of Global Value Chains and International Trade: An EU Perspective

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Abstract
The Great Recession, Brexit, the trade war between China and the USA, the pandemic crisis, and the regional wars (Russia-Ukraine and the Middle East) have opened the way to a reorganization of the global value chains and international trade. The EU in particular is facing crucial challenges regarding the internal equilibria between member countries as well as the external relations and the balance between superpowers in an uncertain geopolitical landscape. In this opening article of the Special Issue on "*The Future of Global Value Chains and International Trade: An EU perspective*", we review the evolution of international trade and discuss the recent changes in the EU's trade patterns looking at intermediate, consumption, and capital goods. We provide an overview of the contents of the Special Issue, which we organized by theme. Our analysis raises some issues and sets the stage for the following analyses and future research.

Keywords Global Value Chains · Deglobalization · Regionalization · European Union

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1 Introduction[1]

World trade grew steadily and uninterruptedly in the period from 1986 to 2008. According to the WTO (various years), in 1986, the ratio of trade in goods and services to GDP was around 20% and the elasticity of world trade to GDP was around 2. By 2008, the trade-to-GDP ratio was around 30% but elasticity had decreased to 1. Since then, world trade and GDP have grown at a similar pace and definitely below the trend of the previous twenty years. These developments have triggered several (conflicting) explanations. The reasons for the early boom in international trade span from trade policy liberalization, which lowered tariff and non-tariff barriers to trade, to the establishment of regional trade agreements (e.g., the enlargement of the EU, NAFTA) and the start and expansion of the World Trade Organization (culminating in China's accession in 2001). Furthermore, already few years back, China had started opening up to the world. Important "game changers" were also the increases in the fragmentation of production processes and the development of supply chains, generating an increase in trade in intermediate inputs, which Johnson and Noguera (2012) estimate to have become two-thirds of gross world trade flows. According to Richard Baldwin and coauthors:

> "*globalization is driven by firms that buy or make things in one nation to sell them in another nation with an eye to turning a profit. Arbitrage, in other words, drives globalization. Arbitrage is profitable whenever international differences in relative costs exceed the cost of selling across borders. Globalization will not end until international arbitrage is no longer profitable.*" Baldwin et al. (2023, p. 1)

These developments slowed down since the Global Financial Crisis of 2008–2009 with Baldwin (2022) suggesting that the world had reached "peak globalization". More recently several authors emphasized a (strong) slowbalization trend (Antràs 2021; Goldberg and Reed 2023), which kept some of the main features of the golden age of globalization but was slowed down by the reversal of some of the previous triggers: transport costs stopped decreasing, trade policy was no longer liberalized, and countries that could enter into processes of production fragmentation did it, leaving little space for newcomers. Against the background of slowbalization, the past five years witnessed a series of shocks, mostly unexpected, that increased uncertainty and negatively affected trade and integration: the US-China tariff war, the Covid-19 pandemic as well as Russia's invasion of Ukraine, and the sanctions that followed. Brexit was a brake for globalization too. At the time of writing, the war in the Middle East added to the uncertainty.

Global Value Chains were the engine of globalization, but the multiple crossing of goods across borders intrinsic to this prevailing form of production requires increas-

[1] The SI is Named after the International Workshop "International Trade and Interdependence in Global production", Organized at the DISEI, University of Florence by the ITSG - Italian Trade Study Group on December 1–2, 2022. All Articles in the SI have Followed a Rigorous Procedure of Blinded Revision as Original Research Contributions

ing amounts of fuel for transportation as well as additional packaging. This in turn implies that the globalization of the 1980 and 1990 s can be accused of being an important contributor to emissions. In the context of the emergence of climate change and increasing awareness of environmental issues, this mode of internationalization has therefore become a major challenge. Furthermore, countries at different levels of development are likely to have different environmental standards, and this may create incentives for pollution havens (though to date, there is no evidence supporting this hypothesis) as well as a disincentive to offshore in countries that are far away. Hence, a debate on reshoring (in all its forms, from backshoring to nearshoring to friendshoring) has started, driven by the problems connected to the shocks (e.g., supply bottlenecks experienced during the Covid pandemic, lockdowns, etc.) as well as environmental considerations. Different types of policies – trade, environmental, and industrial policy – have therefore become central to the debate. Policies to cope with climate change, including carbon border adjustment taxes, have the potential to lead to a new world order by changing relative prices, with potential implications for countries' competitiveness and comparative advantage. Policies to incentivize reshoring, on the other hand, might put a brake on globalization. Industrial policies were resumed by several countries, and firms and industries got State aid. The impacts are heterogeneous, even within the EU countries. The war in Ukraine and the associated energy crisis have put the policy adjustments on climate change on hold while triggering policies of friendshoring and regionalization of value chains in a search for strategic autonomy (Amighini et al. 2023).

These changes, which are affecting international trade and the international fragmentation of production processes, require an active EU response. The Open Strategic Autonomy for a competitive and resilient EU goes in this direction. In addition to asking member States for a profound technological transformation of the European production system and to respond to climate change with a medium-long-term strategy, it proposes to launch trade expansion in order to achieve security and to diversify sources of supply. The main idea is that industrial policy need not necessarily be identified with protectionist trade policies. This can only have – in the modern meaning – a typical orientation towards the promotion and strengthening of exports, with active participation in global value chains (Juhàsz et al. 2023). In a document of 2022 ("EU Strategic Dependencies and Capacity: Second Stage of In-Depth Reviews", Commission Staff Working Document, 2022) the EU focuses, specifically on the analysis of the progress made in identifying and addressing strategic dependencies, and on the in-depth analysis of other sectors. Concerning the strategic dependencies, it is believed that international partnerships, launched over the last few years, will enable more diversified and resilient supply chains, just as industrial alliances on batteries, hydrogen, and raw materials will allow a strengthening of open strategic autonomy (CSC, 2023).

In this opening article of the Special Issue on "*The Future of Global Value Chains and International Trade: An EU perspective*", we address these issues by integrating the different papers of the Special Issue into the framework of slowbalization and policy changes to which EU firms (and countries) have to respond. We review the evolution of international trade and discuss the recent changes in the EU's trade patterns looking at intermediate, consumption, and capital goods. We provide an over-

view of the contents of the Special Issue, which we organized by theme. Our analysis raises some issues and sets the stage for the following analyses and future research.

2 Trade Shocks and EU Trade Patterns

2.1 A Decade and a half of Trade Shocks

Global Value Chains (GVCs) contribute to the vast majority of world trade. The world reached such a historically high level of integration relatively quickly. Since the 1990s, in about two decades, the era of hyperglobalization (Rodrik 2011) pushed the trade-to-GDP ratio from about 20% to over 30% in 2007 (WTO data); and GVC-related trade increased from less than 40% to more than 50% of total trade (World Bank 2020). At the time, with the emergence of China and other middle-income countries as big players in the global economy, the expansion of globalization seemed unstoppable. Jump 15 years ahead and there is little to no progress in the data, at least looking at the trade-to-GDP ratio: today, in 2023, we are about at the same level we were in 2008. But, upon careful inspection, the slowdown of globalization or *slow-balization* (Antràs, 2021) is, in fact, a period of turmoil rather than rest. It started with the Great Financial Crisis of 2008, followed by the Great Trade Collapse (GTC) of 2009. Since then, trade has rapidly recovered to its pre-crisis level, but not to its pre-crisis trend. Skepticism towards the benefits of globalization became increasingly relevant, with mounting calls for protectionist measures (Baldwin and Evenett 2009). The World Uncertainty Index (WUI) increased by 100% between 2008 and the 2012 eurozone debt crisis (Ahir et al. 2022). Then in 2016, came the Brexit referendum and the related trade policy uncertainty. In 2018, the US launched a trade war against China, which brought about tariff increases and trade diversion, further increasing trade tensions even among third countries, the EU included. Just, two years later, in 2020, the Covid-19 pandemic hit the world. GVCs faced supply disruptions and bottlenecks, and economic shocks propagated internationally. Just as during the GTC of 2009, protectionist calls were rapidly voiced once again, this time strengthened by the fear of scarcity of medical supplies and other strategic goods as well as supply bottlenecks in many sectors. The fear fired a debate on export bans and reshoring, with the idea that global interconnectedness and exposure to foreign shocks had become excessive. Policy actions followed suit. About 44% of all covid-related measures introduced by WTO members and observers were trade-restrictive, and, in 2020, the number of specific trade concerns related to national security raised in WTO committees reached its historical peak since 1997 (WTO, 2023). In April 2020, the Japanese government announced subsidies to encourage diversification or reshoring. In January 2021, the US federal government committed to buying more goods produced domestically as part of the *Buy American* program to revive domestic manufacturing. A 2021 study by the European Parliament discussed the pros and cons of reshoring for the EU in the context of covid-induced supply shortages.[2] Yet,

[2] "Post Covid-19 value chains: options for reshoring production back to Europe in a globalized economy". European Parliament, Policy Department, Directorate-General for External Policies, March 2021. ISBN

despite the initial economic downturn, policy uncertainty, and restrictions, trade, and GVCs displayed an incredible level of resilience during and after the pandemic, also thanks to massive fiscal and monetary policy interventions. As a result, global trade has been unexpectedly fast to get back to its pre-covid levels with a V-shaped recovery. Again, globalization and GVCs resisted. Then, on February 24th, 2022, Russia invaded Ukraine, bringing geopolitical tensions to the front end, and causing further GVC disruptions. This time the renewed political attention moved toward securing inputs, critical raw materials, energy supply, and strategic and technological goods. All in all, since 2008, a series of multiple shocks has hit the world economy, gradually shaping the perspectives on trade and global production networks. Today, GVCs still represent a driver of world trade, just about as they did in 2008, but, particularly in the wealthiest economies, the political landscape and public opinion regarding globalization have profoundly shifted. Focusing on the most recent period only, we can identify three phases (Goldberg & Reed, 2023):

1. 2015–2019: *import substitution*. Particularly in the richest countries, globalization went together with an increase in inequality as well as evidence of localized long-term unemployment related to imports (the so-called "China effect") which have fueled discontent towards the distribution of the gains from globalization. Starting around 2015, concerns about import competition became practical, materializing into Brexit and the US-China trade war;

2. 2020–2021: *resilience*. During the Covid-19 pandemic, sudden demand spikes for medical equipment caused shortages that in turn led to export bans motivated by national health concerns, while the inability to import key goods or inputs exposed a fragility of global supply. International shock transmission provided a reason for aiming at GVC resilience through diversification and reshoring;

3. 2022–2023: *decoupling* or *derisking*. The war in Ukraine exposed another apparent flaw of the current form of globalization: geopolitical instability and the strategic dependence on specific countries with uncertain diplomatic stances. Rather than just on GVC resilience in general, the focus was now also explicitly on some critical inputs and raw materials sourced from one or very few countries, and on technological leadership. Not just reshoring but rather "friendshoring".

The change in perspective is dramatic. Arguably, while the import substitution might be interpreted as a way to help the losers from globalization, and the GVC resilience demanded during Covid-19 was mostly seen as a means to reach greater economic stability, strategic autonomy is a matter of national security. But the policy shift does not seem to have delivered much yet. The available evidence on Brexit and the US-China trade war largely shows negative effects overall (Dhingra et al., 2017; Broadbent et al. 2023). The US-China trade war led to higher tariffs and escalated to third countries, and eventually resulted in price increases, and welfare losses for US consumers and for US firms that relied on imported inputs, while the benefits to domestic producers did not fully compensate for the losses (Fajgelbaum et al., 2022). Similarly, covid-induced reshoring did not materialize (Di Stefano et al. 2022), while there is evidence that GVCs were, in fact, a source of diversification and resilience (Eppinger et al., 2021; Espitia et al. 2022); and that, in a world of reshoring where

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GVCs were renationalized, the GDP contraction would have been even larger than the observed one (Bonadio et al., 2020). Will the impact of the new policy attention towards decoupling or derisking be different? Geopolitical factors may legitimately represent the most compelling argument in favor of reglobalization, but costs and benefits need to be carefully evaluated, even, and perhaps especially, against aims of national security and strategic autonomy. To this end, there is a great need for unbiased independent research and analyses.

2.2 Shifting EU Trade Patterns?

The multiple shocks that have hit the world economy in the last decade are gradually contributing to shaping trade patterns. The idea of decoupling or derisking implies an attempt to rebalance the geographical composition of trade and GVCs. To this end, the EU's attention is largely towards the East. Specifically, two countries stand out: Russia and China. In terms of oil and gas imports, after the Russia-Ukraine war, the EU has attempted to diversify away from Russia. Similarly, the EU is trying to reduce its dependence on China regarding the imports of raw materials, manufacturing inputs, and technological goods. Despite these concerns, the EU is a net exporter of (non-energy) goods with a solid normalized trade balance surplus. During the last decade, however, the surplus in intermediate and capital goods has significantly decreased (Fig. 2.1). Considering the trade-to-GDP ratio, the EU stands out relative to major trading countries since the ratio has slowly continued growing even after

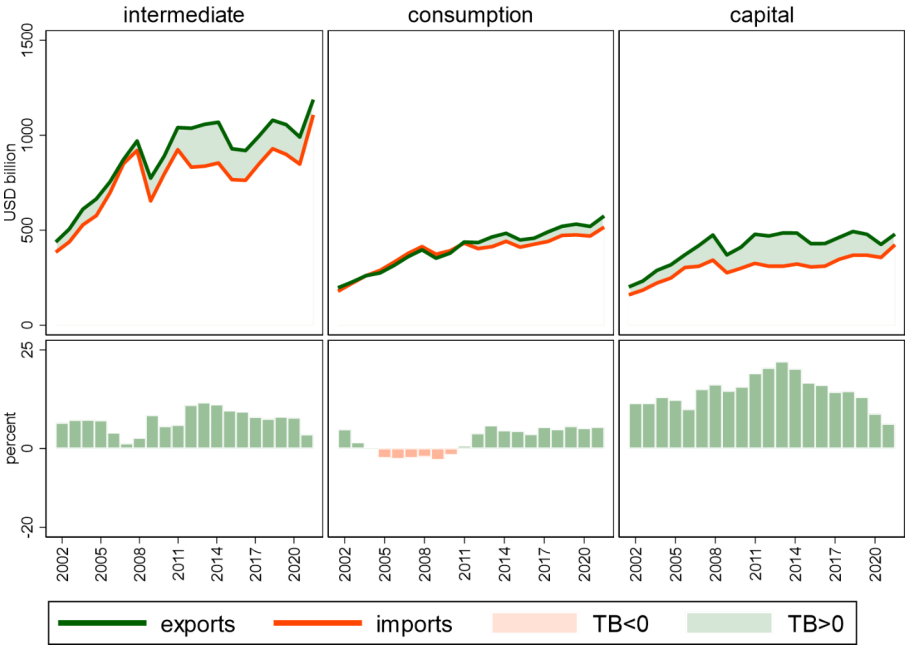

Fig. 2.1 EU trade and normalized trade balance, by type of good
Note: excluding oil, gas, and mineral fuels (HS 27)
Source: authors' elaborations on BACI data

2008, while it started decreasing, e.g., for the US and China (Baldwin 2023). EU's integration into the world economy remains high and has been growing.

Similarly, despite decoupling and derisking, imports from China have continued their upward trend, leading to an increase in the trade deficit in intermediate, consumption, and capital goods (Fig. 2.2). Eurostat data show that the value of goods imported almost doubled between 2018 and 2022; the increase in imports from China notably includes sensitive technology and critical minerals. On the other side of the world, the trade surplus with the US has increased for all types of goods. Trade has, thus, increased both with the US and China. In 2020, China surpassed the US as the largest trading partner for goods. However, the direction of trade flows is opposite in China and the US. The result is that the EU remains highly integrated into the trade network, and reliant on imports from China and on exports towards the US. Even in terms of policy attitudes, the direction looks diverging. In 2021, the EU and the US announced a renewed transatlantic partnership focusing on global health challenges, green growth, strengthening trade relations, and fostering democratic values for a more secure world (EU Commission). On the other hand, since 2019, the EU has explicitly referred to China not only as a partner for cooperation and negotiations but also as a "systemic rival" (European External Action Service). The EU sees Chinese progress towards WTO-agreed reforms and liberalizations as partial and largely concentrated in non-sensitive industries, lamenting a lack of transparency, wide use of discriminatory industrial policy practices, subsidies and government interventions, and poor enforcement of intellectual property rights (EU Commission). Trade rela-

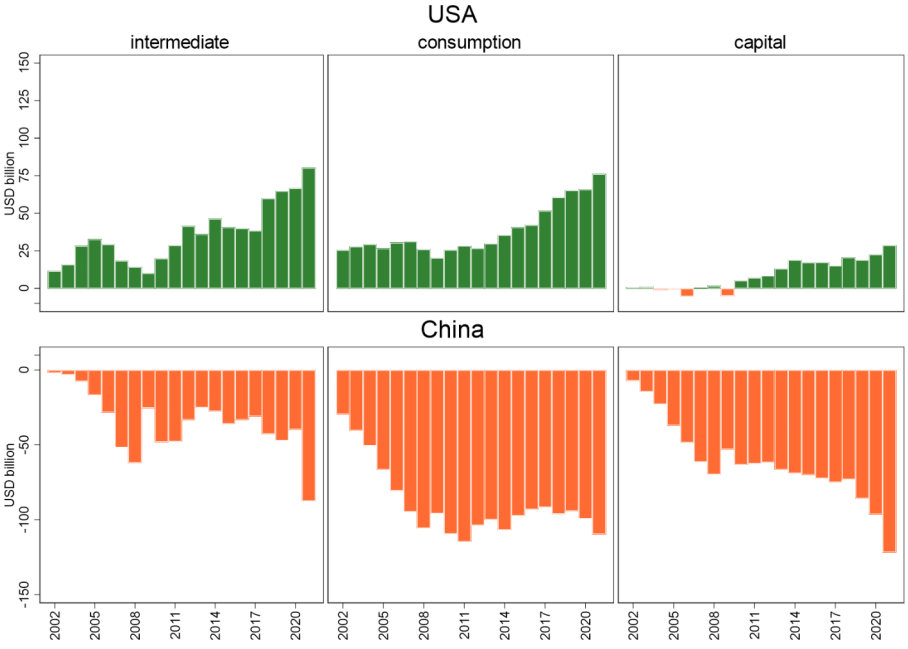

Fig. 2.2 EU trade and trade balance with USA and China, by type of good
Note: excluding oil, gas, and mineral fuels (HS 27)
Source: authors' elaborations on BACI data

tionships with China play a key role, especially for some specific goods, for which strong derisking from China and diversification are hardly feasible. Imports of critical raw materials account for less than 1% of total imports, but they are highly concentrated into few well-endowed suppliers: for instance, China holds 98% of rare earths elements; moreover, since these inputs are used in the production of, e.g., permanent magnets, electric vehicles, and wind generators, their demand is expected to increase by a factor of ten by 2050 (Amighini et al. 2023).

For the EU, diversification of trade and GVCs can take two complementary roads: intra-EU and extra-EU. The EU is a very large market that comprises many heterogeneous countries with differentiated economic structures and specializations. Reinforcing intra-EU trade could be a good path to follow as individual countries may find it convenient to supply inputs from or to other EU economies. Processes like reshoring, nearshoring, and friendshoring can be expected to increase the share of intra-EU trade on total trade.[3] Looking at total trade (exports plus imports), we see that intra-EU trade shares were slightly in decline up to 2012–2015 (after the sovereign debt crisis), then the trend turned upwards particularly for capital and consumption goods, slightly less for intermediates (Fig. 2.3). Overall, the upward trend

[3] Intra-EU trade shares are calculated as intra-EU trade over total trade. Total trade is the sum of intra and extra-EU export and imports.

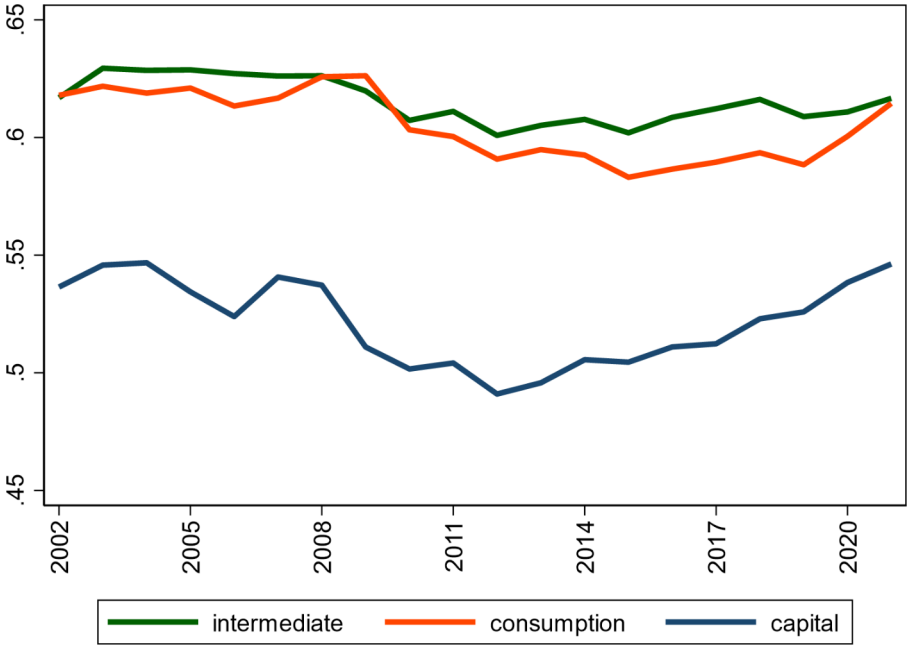

Fig. 2.3 Intra-EU trade shares, by type of good
Note: excluding oil, gas, and mineral fuels (HS 27)
Source: authors' elaborations on BACI data

towards an intra-EU regionalization, although visible, is still not very pronounced; so, while the direction might be that of a regionalization, the levels of current intra-EU trade shares – around 62% for intermediate and consumption goods, and around 55% for capital goods – are still compatible with what was observed before 2008. There is room for deeper integration.

The other aspect of diversification regards extra-EU trade. Focusing on imports, the issue is that reliance on very few suppliers might create dependence and exposure to bottlenecks, disruptions, and even geopolitical risk. The concentration of supply needs to be evaluated at a detailed level since the issue is that of finding alternative suppliers for specific products. To this end, for each 6-digit product of the Harmonized System classification (about 5,000 product codes), we took the import shares of all countries supplying a given market, and calculated the Herfindahl-Hirschman (HH) concentration indexes; we, then, aggregated the product level HH indexes at the country level by taking a weighted average with weights equal to traded values (Fig. 2.4). Up to about 2011–2012, there was a general trend towards geographical concentration of consumption and capital goods imports; from about 2013, the EU, the US, and China followed different trends, with China more clearly aiming towards diversification. EU imports show greater diversification than those of the US and China regarding intermediate and consumption goods, while, from about

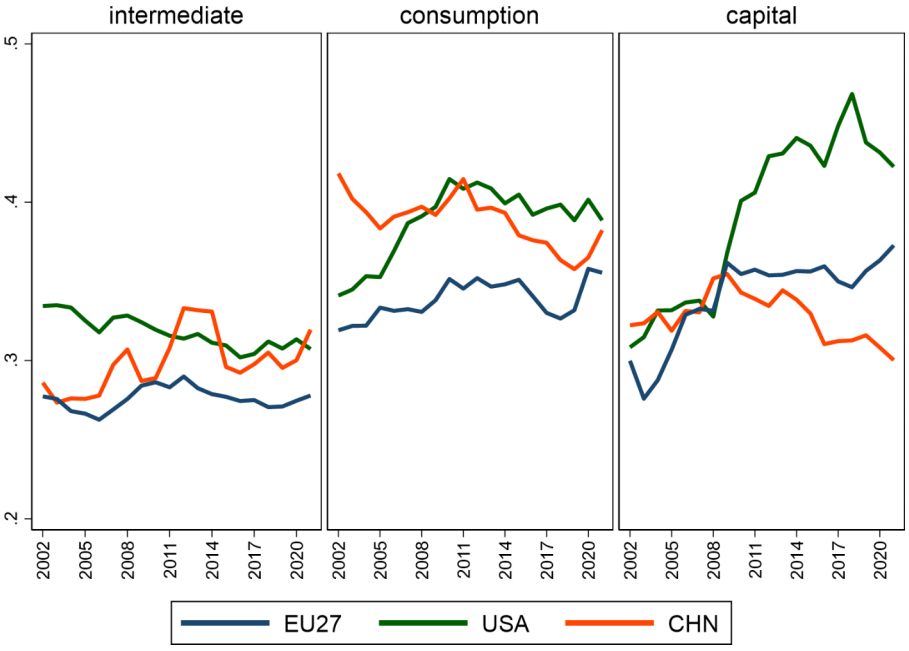

Fig. 2.4 Extra-EU import concentration index, by type of good
Note: the HH indexes are calculated at the 6-digit level and then aggregated as a weighted average of product-level HH indexes with weights equal to trade values. The index spans 0 to 1, with 1 indicating maximum concentration ("monopoly"). The reciprocal of the HH index can be interpreted as an index of diversification expressed in terms of effective number of countries with identical shares
Note: excluding oil, gas, and mineral fuels (HS 27)
Source: authors' elaborations on BACI data

2010, China displayed greater diversification in capital goods. Overall, the long-run trend of EU imports is that of concentration of suppliers, particularly for capital and consumption goods, much less so for intermediate goods, for which there is some diversification until 2018, followed by concentration in the most recent years. EU imports, thus, have slightly become less diversified over time and there are no apparent signs of a consistent diversification trend in the last period. Nonetheless, the EU remains more diversified than that of the US and China, particularly for intermediate goods. So, while the data do not suggest a need for generalized efforts towards diversification, it must be recognized that the issue can be relevant for specific inputs like critical raw materials, rare earth elements, chips, semiconductors, photovoltaic panels, and others. This observation highlights the importance of targeting policies where they are needed.

Focusing on the last period (2020–2021), to gauge which countries are gaining importance in terms of intermediate imports, we consider how import shares have changed across the EU's intermediate suppliers. Looking also at intermediate suppliers of EU's import partners, we obtain the network of top expanding intermediate suppliers (Fig. 2.5).[4] Although no input-output claims can be made from gross trade data, this approach allows us to see possible indirect effects: e.g., not only the EU has increased direct trade with China, but it has also increased trade with several countries that supply intermediate goods from China, like Turkey, Russia, and Ukraine. Notably, the US is not among the EU's top 5 countries in terms of import share

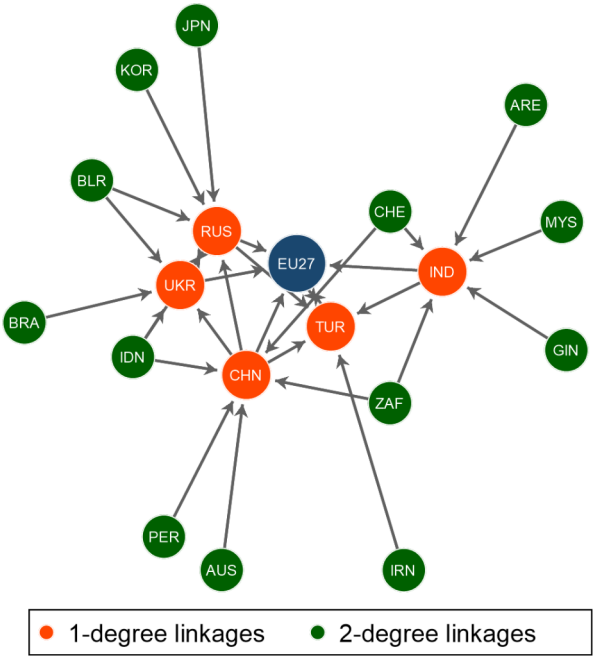

Fig. 2.5 Network of top 5 expanding EU's intermediate suppliers (2020–2021)
Note: the network shows the top 5 EU's intermediate suppliers by import share variation, and for each of them their top 5 intermediate suppliers by import share variation. No claims on input-output linkages can be made
Note: excluding oil, gas, and mineral fuels (HS 27)
Source: authors' elaborations on BACI data

[4] Looking at import shares allows to see the possible reshuffling across importers. Note that, by definition, an import share increases if imports from a particular supplier grow at a rate higher than that of aggregate imports.

variation; in general, top EU share increases do not include advanced Western economies. On the contrary, further inspection (not shown) reveals that the US, UK, and Canada appear among the suppliers for which the EU's intermediate import shares have shrunk the most. And, in turn, the EU is among the first countries that reduced their intermediate shares as suppliers to both China and the US. In sum, during 2020–2021, rather than decoupling or derisking from China and Russia, the EU seems to have done it from the US. This is probably a short-run effect, possibly driven by price changes, but it highlights how unexpected and unintended consequences may arise within complex systems.

3 Prospects for EU Firms and GVCs

We have organized this Special Issue into four sections, to better analyze from a European perspective the challenges and the opportunities for firms' internationalization and the future prospects in the changing geopolitical landscape we have outlined above.

3.1 Challenges and Opportunities in the EU

The first section concerns the challenges and opportunities that internationalization opens up for European Union companies in terms of greater efficiency, productivity, and penetration into new markets. This section includes two articles, both analyzing the evolution of localization and participation within production networks at the EU level.

The article by De Ponti et al. (2023), using the property rights theory developed in various contributions by Grossman, Hart, and Moore, investigates the role played by inputs, investments, and productivity in defining the firm's boundaries as well as in determining its location decision (at home and abroad). The empirical analysis is carried out on a survey of Italian manufacturing companies, headquartered in Lombardy, in the North of Italy. The survey data allow the authors to analyze relevant aspects of the property rights theory as well as to explore theoretical propositions that have not been empirically evaluated until now. They find that greater integration is crucially dependent on specific and intangible inputs. Furthermore, the presence of cross-spillover effects pushes firms to opt for joint ventures rather than non-integration. Analyzing the location of firms, the authors find that domestic supply prevails over foreign supply in the presence of repercussions on investments, while the characteristics of the input have no role. Finally, they confirm the central role played by productivity in determining the boundaries of the firms: more productive companies are more likely to source their inputs abroad. The analysis also identifies policy implications and corporate practices by highlighting the challenges and opportunities for European companies in deciding on ownership and localization. Increasing productivity is a central objective for all companies that want to internationalize and integration is strongly correlated with the use of specific and intangible inputs. Therefore, companies could benefit from an adequate evaluation of their production processes to guide ownership decisions on sourcing.

The article by Cresti et al. (2023) looks at GVCs participation. It asks whether Italy's position in the EU trade has changed, and what is the role of the labor market. The authors propose a new analytical and measurement framework to investigate the positioning of a country, specifically Italy, in the European productive system. A novelty relative to the existing literature is that the authors link the country's GVCs position to employment rather than production flows within input-output relations. The aim is to identify the resulting division of labor at an international level. The basic assumption is that there is an asymmetry in the labor supply to and from specific trading partners; furthermore, labor inputs, including those incorporated into intermediate goods, are representative of a firm's know-how, tacit rules, and capabilities accumulated within the economic system, which are necessary to make goods and services. The logical consequence is that delocalization implies the loss of domestic capabilities and know-how. Building on this perspective, the authors construct indicators that measure the positioning of countries rather than participation in global value chains (GVCs) to understand the asymmetric loss of production capacity that has occurred over the last thirty years in many mature economies (within Europe). What emerges is the interaction of deindustrialization and delocalization processes, with winners and losers. The authors focus their attention on Europe which, in the last twenty years, has witnessed the emergence of a clear core-periphery type production network with a dominant core (Germany and other central European countries) and two peripheries (the Mediterranean and the Eastern countries). There is a strong heterogeneity of the country's strategic positioning in global value chains, based on the type of production activities (and integrated capabilities) maintained internally or offshore. In the European context, Germany is a key country not only in terms of trade but also in terms of composition and employment. The flows of dependence on Northern countries as well as those of the South of Europe are decreasing, while those from Eastern countries are progressively becoming relevant.

3.2 Firms in a Period of Turmoil

The second section of this Special Issue takes a more direct firm-level perspective and analyses the behavior of firms in times of uncertainty, shocks, and crises. Trade and FDI are known to have contributed to the diffusion of the SARS-CoV-2 virus: hubs within trade and FDI networks have reported the highest number of infections and deaths within the European Union (Antonietti et al. 2023). In the opposite direction, the pandemic, and the related restrictions on international travel and trade implemented to contain the virus, affected the internationalization of firms and their GVC participation. GVC disruptions had differentiated effects on exports, depending on the degree of GVC integration. The two articles included in this section investigate these issues.

The article by Ozer and Maggioni (2023) analyzes the effects of the Pandemic on the Turkish internationalization process. Turkish exports of healthcare and technology (i.e. surgical masks, gloves, and both pharmaceuticals and medical devices) increased during the pandemic. Yet, at the same time, there was a decrease in the demand for some of Turkey's traditional exports, such as textiles and clothing, due to reduced economic activity and changes in consumer behavior. Turkey's participa-

tion in GVCs is mainly concentrated in manufacturing sectors, heavily dependent on imported input – from China and the EU. This is an element of weakness for the economy of Turkey: while the economic literature suggests that firms participating in GVCs are more resilient, export responses have been more negative when the country relies on intermediate goods imports. Exploiting a monthly-level firm product dataset, the authors find that Turkey's exports decreased dramatically after the pandemic, and since then recovery has been only partial. The impact depends on the degree of goods complexity and sophistication, and the outsourcing of intermediate inputs: firms outsourcing domestically suffered less than those outsourcing internationally. The findings reaffirm the role of diversification in creating a more resilient economic environment.

The article by Bellucci and Rungi (2023) wonders whether the pandemic has started a process of reorganization of firms' investment strategies in terms of localization, which, in turn, might lead to a reconfiguration of the global production system. Using an innovative dataset, with information at the parent-affiliate level, the authors analyze investments and divestments implemented by companies to understand whether and how they have been affected by the pandemic crisis and the Russian-Ukrainian war. The authors show that, on average, foreign subsidiaries have become geographically more distant from the parent company after the pandemic; furthermore, multinationals are now present, on average, in more countries. Finally, they show that Covid-19 risk is positively correlated with greater investments at home, and negatively with the propensity to invest in new projects abroad. This empirical evidence seems to confirm that the shocks that companies have faced in recent years are leading to the reorganization of the global production network: companies are changing investment strategies, and are trying to build more flexible and reliable supply chains.

3.3 Resisting the Shocks, Enhancing Resilience

The strong integration due to global value chains and international trade, especially of intermediate goods, gives relevance to the study of the resilience of economic systems. The third section of this Special Issue includes two articles that investigate the firm's ability to be resilient to shocks. Shocks hit firms, often with negative consequences; however, shocks also provide firms with an opportunity to learn and prepare to deal with similar shocks in the future. This may even have implications for a system's degree of resilience. Moreover, it is worth studying the source of heterogeneity in resilience across countries and regions, and the related mechanisms.

The article by Iandolo and Ferragina (2023) argues that innovation is the best tool to protect oneself against possible recessions and unexpected socio-economic downturns. Looking at Italian provinces, the authors analyze the relationship between innovation and the response (in terms of lower employment) to exogenous shocks. Specifically, they look at the effect of China's entry into the WTO (the so-called China Shock) on employment in Italian provinces in the period 2000–2012. China's entry into the WTO constituted a clear exogenous shock for many economies, especially middle and high-income ones, opening the debate on the "at home" effects of international trade with low-wage countries. The paper shows that the most innova-

tive Italian provinces are those that have suffered the least and have been most resilient to this shock. Firms within these provinces were better able to resist and absorb the shock. The basic idea is that greater innovation allows firms to differentiate products and compete in international markets with inputs from low-wage countries, such as China.

The article by Arbolino et al. (2023) also looks at the effects of external shocks on international trade and firms' resilience. The authors start from the assumption that only through clear and targeted economic policy interventions the competitiveness of companies can be improved and, thus, their ability to export. Looking at Italy, the authors ask what role the European Union's cohesion policies have played in supporting "export resilience". To this end, they built a NUTS2-level dataset (for the 20 Italian regions) covering the period 1991–2020 (4 cycles of cohesion policy). The data allow the authors to evaluate the effects on exports – and the presence of any asymmetries – following four significant shocks: the currency crisis, the Great Recession, the sovereign debt crisis, and the Covid-19 pandemic. Results show that there is strong heterogeneity in resilience by regions and sectors. These differences can be explained by territorial cohesion programs.

3.4 Global Value Chains in a Changing Geopolitical Landscape

If the crises can be considered – at least at a firm level – as exogenous shocks, the process of globalization as well as the emergence of new actors on the world scene (first of all China, but also India) have changed the geopolitical landscape. The last section of this Special Issue includes three papers discussing how the geopolitical landscape affected firms' internationalization, global value chains, and international cooperation.

The article by Pomfret (2023) deals with international supply chains. These are crucial for the efficiency and reliability of the international production network. A crucial role is played by transport, the possibility of finding competitive alternatives to the usual routes is relevant in determining the flexibility of GVCs in responding to external shocks. The analysis focuses on rail transport links between the EU and China, with particular reference to the expansion of trade along the Landbridge linking East Asia and Europe. European automakers used this rail route to send components to factories in China; in the opposite direction, electronics companies operating in China sent computers and printers to their European partners. The goal was efficient management of the supply chain, through just-in-time delivery, taking advantage of the fact that rail transportation is faster than maritime one. While market-driven, Landbridge development has relied on transit country governments to set transit rules, timetables, and fares. In the case of the Landbridge, the main routes all pass north of the Caspian Sea and transit Russia. China and, to a lesser extent, the EU have sought to develop alternative routes. However, routes across or south of the Caspian Sea had significant disadvantages compared to the northern route. The land bridge has flourished despite shocks such as the deterioration of EU-Russia relations, sanctions after 2014, the change in EU-China political relations after 2017, and the COVID-19 pandemic in 2020–2021. Russia's invasion of Ukraine resulted in a dra-

matic failure of the Landbridge Railway, disrupting the international supply chain and leading to its reorganization.

The article by Bruno et al. (2023) postulates that deep international fragmentation of production requires countries to be open to international trade, with transparent and credible rules. Governments should be aware that success in international markets depends both on the ability to import inputs and on the possibility of exporting quality goods at a competitive price. However, in recent years, sanctions – restrictive political measures – implemented by one State towards another State have increased. The latter usually implements countermeasures, leading to non-trivial net effects. The closest case is given by the sanctions imposed by the European Union on Russia, following the Ukraine's invasion. The authors aim to show the (complex) relationship between trade, participation in GVCs, and comparative advantages detected following the adoption of sanctions. For example, when a country cannot access one of its usual input suppliers (because it has been sanctioned), who does it turn to satisfy the demand? How does the supply chain change and what effect does the removal of this partnership have? To address these questions, the authors – armed with a theoretical framework and an original dataset – use a gratification model to analyze the effect of sanctions on international trade. The analysis covers 66 countries for 23 sectors between 1995 and 2018. Results show the effects of sanctions on comparative advantages, participation in GVCs, and, above all, how long the effects of sanctions last.

In the last article of the Special Issue, Hoekman et al. (2023) bring attention to non-economic objectives (NEOs) that are pursued by States such as national security, protection of workers' rights, or the fight against climate change. The authors recall that the WTO was not designed to address the issues of the non-economic repercussions of national trade policy. However, NEOs can push countries to cooperate. The paper discusses recent initiatives that seek to achieve NEOs through the governance of global value chains. The authors underline that it is not clear whether this type of cooperation is optimal and if it could allow the achievement of the proposed objectives. It is necessary to build international cooperation mechanisms that can allow States to govern the complexity of GVCs and international trade relations, and reach the non-economic objectives they have set themselves. These mechanisms must be based on clarity of the objectives to be pursued, transparency on the political choices adopted, and the analysis of the repercussions (even negative) of these choices. A robust analytical framework is needed to evaluate the effectiveness and efficiency of the measures taken, with the ultimate aim of greater cooperation at an international level.

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