Ca' Foscari
University
of Venice

Master's Degree programme
in Global Development and Entrepreneurship

Final Thesis

Analysis of Reshoring

Definitions, Causes, Data and Policies

Supervisor
Ch. Prof. Giancarlo Corò

Graduand
Davide Lacara
Matriculation number 866546

Academic Year
2021 / 2022

SUMMARY

INTRODUCTION

The 20th century was a century full of events that completely changed society, politics, and economy all around the world as Eric Hobsbawn (1994) defined it as the "short century". The two World Wars had severe consequences and the affirmation of capitalism shaped the development of the political and economic framework. International trade, which stopped due to the global conflicts, rose again in this new modern world where the separation between North and South seemed similar to the one existing between the Western World and colonies, but just in the beginning. As a matter of fact, the world experienced the so-called "hyperglobalization" (Subramanian and Kessler, 2013) that brought a huge increase of FDI outflows from developed economies to developing economies. Multinational companies were attracted by low wages and regulations that were allowing more room to operate, differently from their home countries.

What happened is a reorganization of the international division of labor with low skill tasks being performed in developing economies and high skill tasks being kept in developed economies where the headquarters of MNEs are. This has triggered the formation of global value chains that, according to the OECD, "have become a dominant feature of world trade, encompassing developing, emerging, and developed economies"[1]. The emergence of GVCs has allowed an unprecedented increase in trade, especially of intermediate goods, and went hand in hand with the cost decrease of transports and communication, connecting the whole world.

However, this era of constant improvement for global trade ended in 2008 when the Financial Crisis hit the whole world, showing that global trade networks entail high interconnection that can help the diffusion of shocks. The crisis crossed the Atlantic Ocean and became a global issue that hit Europe severely. Globalization and the GVC framework survived the crisis and global trade managed to recover, only to be hit again by the Covid-19 pandemic at the beginning of 2020. The virus caused the decrease of movement of goods and people and supply disruptions, as some plants had to close due to the enforcements of lockdowns in many countries. Once again, the globalized world felt fragile and vulnerable.

In the midst of this situation, in the last years, offshoring activities and foreign direct investments do not seem an obvious and advantageous choice for MNEs like it was

[1] https://www.oecd.org/sti/ind/global-value-chains.htm

in the past. The need to have more control on activities and the supply chains have brought companies to evaluate potential relocations of previously offshored tasks to their home country or region. This approach has been named "reshoring", opposite to offshoring. As early as 2013, The Economist has documented the implementation of such kind of strategies by firms like Google, General Electrics, Ford, and Apple. Moreover, governments started to look at reshoring as an opportunity to create new jobs in the light of higher unemployment after 2008, and to restore the industrial capacity that the Western World had lost during the wave of offshoring activities. More recently, reshoring has become a potential geopolitical matter to secure key assets for which states do not wish to rely heavily on global rivals.

As we are in a pivotal moment for global economy and reshoring is acquiring importance in the academic, business and political fields, this thesis has four aims: defining reshoring, understanding the causes and origin of the phenomenon, evaluating its scale and reviewing its use in policies. Reshoring is a recent trend, and it needs to be analyzed and evaluated carefully, in order to neither underestimate nor overestimate its importance nowadays. Nevertheless, it is also important to underline that conclusions drawn now can become outdated in the next years as the international situation (both economically and politically) could change rapidly. The future scale and developments of the phenomenon will depend on various factors that span from the geopolitical situation to the diffusion of technologies such as AI and IoT.

The thesis is composed by three chapters. The first one deals with the historical evolution of international trade as we know it today and globalization, with its different phases starting from the 19th century, the development of international trade theories, the definition of fundamental concepts such as global value chains and the international division of labor, and the analysis of the recent disruptions. The second chapter reviews the definitions given to the phenomenon of reshoring and the difference between nearshoring and backshoring, it also examines the weaknesses of offshoring strategies existing before and rising after the pandemic, finally a quantitative analysis is needed to understand the scale of the phenomenon using the European Reshoring Monitor database and data on FDI, trade of intermediate goods and trade in value added. The third and last chapter focuses on the importance that governments are giving to reshoring, trying to stimulate companies' relocation to the home country, also in light of the concept of strategic autonomy. To conclude, the last paragraph reviews the main drawbacks and critiques of reshoring according to many organizations and academics.

CHAPTER 1: STAGES OF GLOBALISATION

As this thesis will focus on the phenomenon of reshoring and its consequences, and also the policies that are around it, we first need to take a look at the underlying theoretical and historical foundations of international trade. In other words, it is necessary to understand how globalization came to be, how it developed in the past and its current state. We need to understand how and why global trade has grown the way it did, which phenomenon sparked (like global value chains, offshoring etc.) in order to arrive to the trends of nowadays. Understanding the past of international trade helps us analyzing the contemporary situation and its features and trends. In this regard, Baldwin's scheme of dividing globalization history in various "unbundlings" (Baldwin, 2006) is helpful in evaluating the characteristics of different periods of time starting from the 1800s. Baldwin's work also gives us an insight to what the next step will be, named by him "Globotics" (Baldwin, 2018), where recent technological developments play a huge part in changing the paradigms of global economy. It is also interesting to see how the recent shocks of Covid-19 and the clash between the West and Russia will play, or have already played, a part in the future of global economy.

The historical analysis has to come hand in hand with its theoretical counterpart. The development of international trade finds its explanation in the theory of comparative advantage, Heckscher-Ohlin model, and many others academic contributions on the subject. Strictly connected to the evolution of trade is the international division of labor that will be the basis to our assessment of the phenomena of offshoring and reshoring.

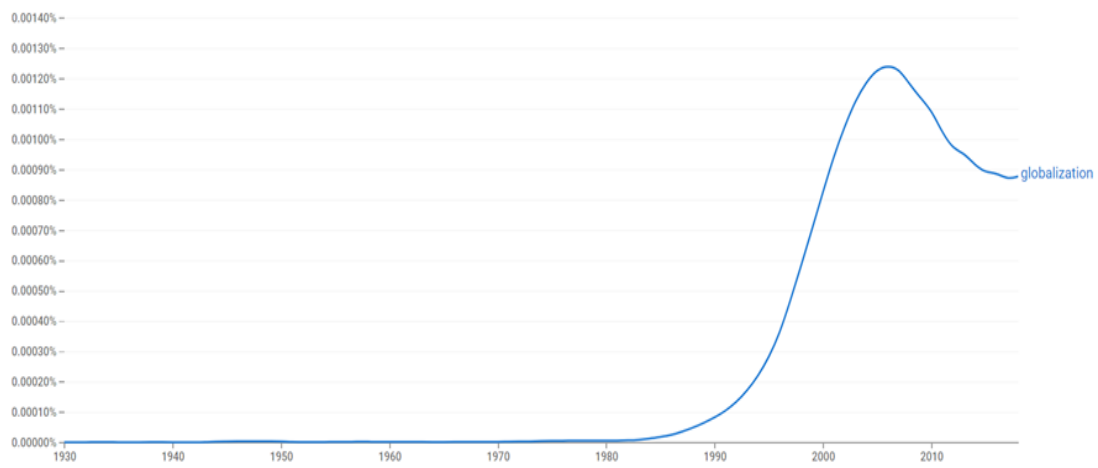
1.1 History of globalization

The word "globalization" has become of popular use in the last three decades, even though, according to James and Steger (2014), it is a neologism that dates back to the 1930s. The word has entered a dictionary for the first time in 1961 when it was defined in the Merriam-Webster Third New International Dictionary. According to this dictionary nowadays, globalization is defined as "the development of an increasingly integrated global economy marked especially by free trade, free flow of capital, and the tapping of cheaper foreign labor markets"[2]. This definition clearly focuses on the economic aspect of the phenomenon, while Cambridge Dictionary also offers definitions that take into

[2] https://www.merriam-webster.com/dictionary/globalization

account other dimensions of globalization more broadly. One of them define the word as "the development of closer economic, cultural, and political relations among all the countries of the world as a result of travel and communication becoming easy"[3]. According to this definition then, globalization is a vaster concept, and it does not include just global trade. Also, Mittelman (1995) defines it as "compression of the time and space aspects of social relations, a phenomenon that allows the economy, politics and culture of one country to penetrate another" (p.273).

Figure 1. Use of the word "Globalization"



Source: Google Books Ngram Viewer[4]

As we can see from Figure 1., the use of the word has started in the 1980s and exponentially increased during the 1990s and early 2000s. Of course, as many can imagine, globalization as a phenomenon actually started way before its conceptualization (James and Steger, 2014).

Before understanding its different phases, we should first point out the time period when it started being the process that we defined. In their studies, O'Rourke and Williamson (2000) mention various academic points of view for the "birth" of globalization: some scholars date the spark that ignite the process of global economy back to the discovery of America in 1492 and the circumnavigation of Africa by Vasco da Gama in 1498 (Bentley, 1996). Many disagree on this, but some other scholars go even further back to the 13th century claiming that in that period there was "an international trade economy (...) that stretched all the way from northwestern Europe to China" (Janet Abu-Lughod,1989, p. 8).

[3]https://dictionary.cambridge.org/it/dizionario/inglese/globalization
[4]https://books.google.com/ngrams/graph?content=globalization&year_start=1930&year_end=2018&corpus=26&smoothing=3

Even though we should not ignore international exchange of goods in that period, O'Rourke and Williamson's analysis rationally establishes why we cannot consider globalization to be born before the 1800s. According to them, the growth of commerce between the 16th and 18th century is by no means proof that globalization was already happening because "the only irrefutable evidence that globalization is taking place (…) (is) what we will call commodity price convergence" (p.4). Before the 1800s, there is no evidence of price convergence and global trade was mainly focus on non-commodity goods such as silk, precious metal, spices etc. Meanwhile, O'Rourke and Williamson report that there is price convergence starting from the 19th century: as an example, wheat price in Liverpool was 57.6% higher than in Chicago in 1870, while in 1912 it was higher by 15.6%. They even claim that these estimates understate the price convergence happening in that period of time.

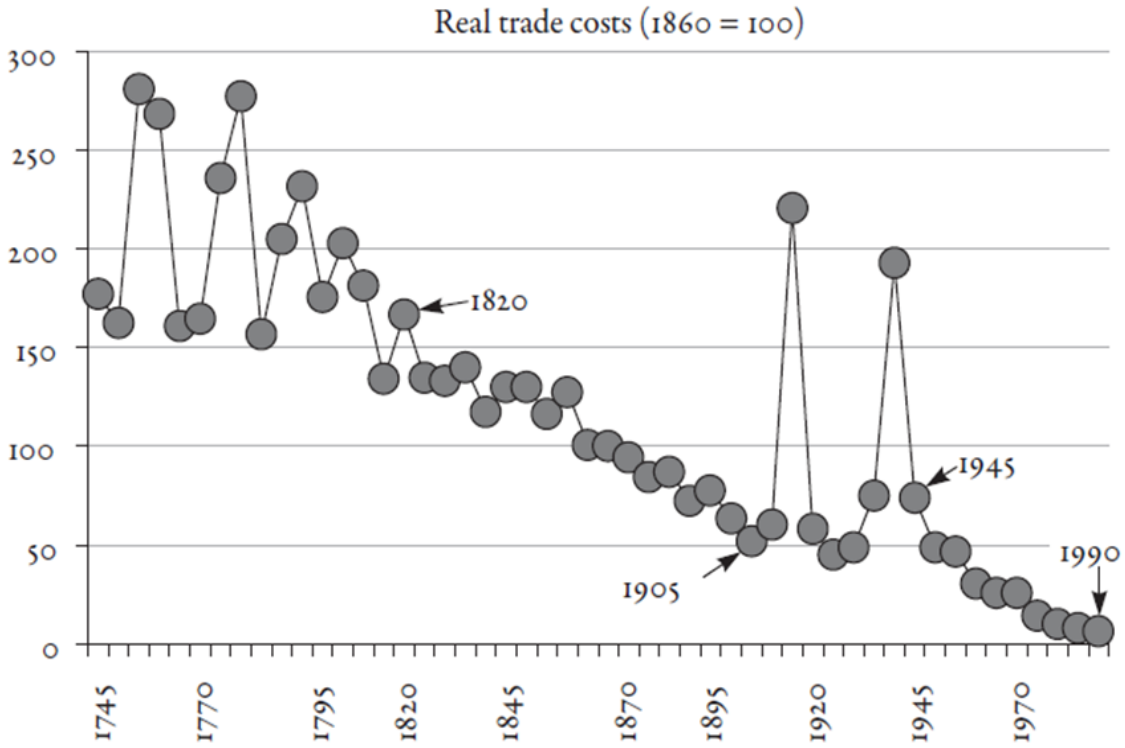
Having established that globalization started in the 19th century, we can then understand how it developed in the different time periods. To do so, we can follow Baldwin's work (2006) that theorized different "undbundlings", as he calls them, of globalization.

1.1.1 First Unbundling

According to Baldwin (2006), the first wave of globalization came around 1850s. First of all, what sparked the first wave was the steam revolution which brought faster transportation and increased productivity starting from the Industrial Revolution in the 18th century (Baldwin, 2016). The first wave of globalization presented peculiar characteristics that are really different from the ones that are shown nowadays. The first, and probably the clearest one, is the industrialization of the North of the world (Europe and North America) at the expenses of the South (mainly Africa and Asia) which deindustrialized (Baldwin and Martin, 1999). This process came as a consequence of the Industrial Revolution: according to Baldwin and Martin, the acceleration of the Revolution brought the need for better transportation as supply kept increasing. Better transportation meant the construction of the first railways, which increased the speed of trade by land, and oceanic routes getting faster thanks to steam-driven ships, increasing the speed of trade by sea, even though the latter change was not as abrupt as the former given the lack of coal sources (Baldwin, 2016). Moreover, speed of communication increased as well, relatively to the period, thanks to the invention of the telegraph.

Baldwin (2006) underlines four other features apart from the industrialization of the North and deindustrialization of the South: i) the world experienced a huge income divergence between North and South due to the Industrial Revolution and economic growth happening just in Europe and North America; ii) international trade of goods and factors grew exponentially until the two World Wars; iii) connected to the income divergence, the North experienced the beginning of economic growth while the South remained stagnant; iv) urbanization in Northern cities erupted.

Figure 2: Decline of trade costs.



Source: Baldwin (2016)

According to O'Rourke and Williamson (2000), this period shows the traits of the model developed by Eli Heckscher and Bertil Ohlin at the beginning of the 20th century: trade was based on the differences between factor endowments and led to price convergence between trading partners (p.6), just like they mentioned with the example of wheat price in Liverpool and Chicago.

The period of time characterized by these features, going from 1850 to 1914 is named by Baldwin (2018) "Globalization 1.0". Of course, this globalizing process was momentarily stopped by the First and Second World Wars. After WWII, global trade fell to levels comparable only to the ones in the early 19th Century (Vanham, 2019). The end of the War meant that a new global order was born, and the second wave of globalization

started. This second wave had some different characteristics: the South started to industrialize; the income divergence stopped and actually reversed showing some traits of convergence while the North was experiencing internal divergence; finally, Southern cities started to grow just like Northern cities did in the first wave (Baldwin, 2006).

Baldwin (2018) calls the post-WWII period "Globalization 2.0": trade was accompanied by complementary policies and a global governance (which was absent in the first wave) arose in the shape of the UN, WTO, IMF, World Bank, GATT etc. It is important to underline that during this period transportation and communication costs experienced a drastic decrease, lowering again trade barriers, like tariffs, (Baldwin and Martin, 1999) which is completely opposite to what happened in the aftermath of the Great Depression (Baldwin, 2016) happening in 1929.

This new acceleration of globalization is mainly due to the drastic drop in communication and transportation costs: by 1970, relatively to 1930, the cost of sea freight dropped by more than 50%, passenger air transport cost was lower by more than 75% and the cost of international calls was a tenth of what it was[5]. In particular, transportation costs decreased as containers revolutionized shipping making it cheaper, more reliable and faster also thanks to the standardization of procedures in ports all over the world (Badlwin, 2016).

1.1.2 Second unbundling

The second unbundling, or "Globalization 3.0", is a crucial step for the aim that this thesis has: in the mid-80s, a "revolution" of production networks began (Baldwin and Lopez-Gonzalez, 2013), meaning the birth of North-South production, in other words, offshoring. Subramanian and Kessler (2013) also call this period "hyperglobalization" and distinguish several characteristics (p.3): the rapid rise in trade integration, the importance of services, the embrace of openness, similarity of North-to-South trade and investment flows also in the other direction, the rise of China as a mega trader, the spread of regional trade agreements, and the definitive decline of trade barriers but still high barriers for services. Between 1983 and 1989, FDI increased at annual compound growth rates of 28.9%, world income increased by 7.8% and global trade by 9.4% (Graham and Krugman, 1993). Until this period, most of the trade was happening between rich

[5] Source: https://ourworldindata.org/trade-and-globalization

countries and a good portion of it was intra-industry trade. As factories started to "cross borders", North-South trade became very similar to North-North trade (Baldwin, 2016).

At this point, it is important to describe the different ways a firm can enter the global market as distinguished by Root (1994).

1) *Exporting* can be considered as the starting point for a firm that wants to globalize. It merely involves the sales of goods abroad. It can be either indirect (if the firm relies on a third party like a distributor in the foreign market) or direct (if the firm is actively involved in activities like marketing and logistics).
2) *Licensing* is a contractual agreement for which the firm allows a foreign firm to use its technologies, logos and production process.
3) *Franchising* is similar to licensing; however, the firm exerts more control on the franchisee and gives it a kickstart. A typical example is the fast-food industry
4) *Joint ventures* are firms that are owned by two or more investors who share ownership and control over property right and operations[6]. To enter the Chinese market, big companies like Starbucks decided to enter via a joint venture with Chinese entities. Joint ventures can be the right choice for scouting the market, navigating in a new legal system and so on[7].
5) Companies can decide to directly own new plants abroad either with a brownfield or greenfield investment: the former is simply the acquisition of an already existing production plant, the latter is the establishment of a brand-new facility abroad. This kind of entry strategy can be defined as *foreign direct investment*.

Reinert (2012) distinguishes three categories of strategies, depending on their nature: exporting, contractual and investment. Depending on the desired level of commitment and the acceptable level of risk, each strategy has its own pros and cons, and every company should analyze the situation in order to proceed with the most fit alternative (Christian et al., 2016).

[6] Source: https://www.fao.org/3/w5973e/w5973e0b.htm
[7] Source: https://www.china-briefing.com/news/setting-up-joint-venture-china/

In this period, it is clear the rise of global value chains and the fragmentation of manufacturing with the chains extending from high-tech to low-wage countries and vice versa (Baldwin and Lopez-Gonzalez, 2013).

Table 1

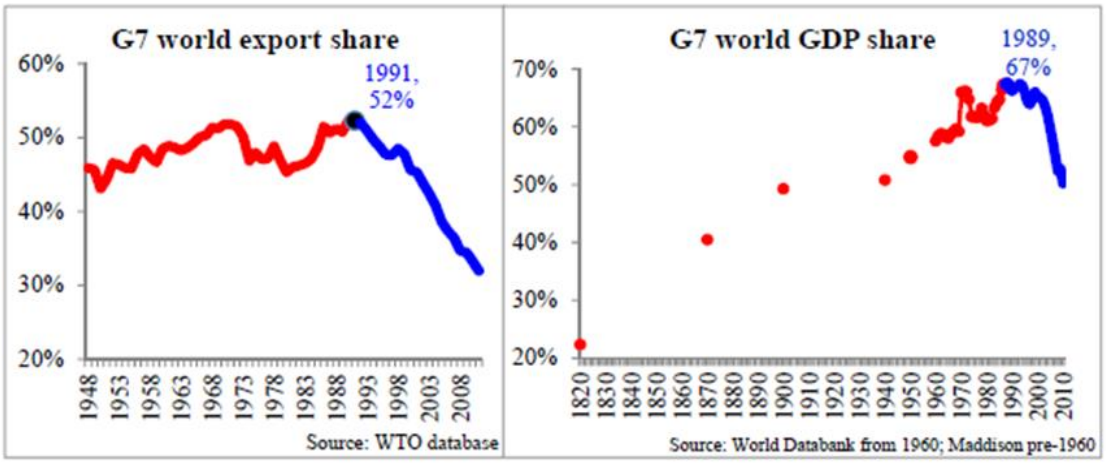
	1988-91	1992-95	1996-2000	Change
High and increasing intra-industry trade				
Czech Republic	n.a.	66.3	77.4	11.1
Slovak Republic	n.a.	69.8	76.0	6.2
Mexico	62.5	74.4	73.4	10.9
Hungary	54.9	64.3	72.1	17.2
Germany	67.1	72.0	72.0	5.0
United States	63.5	65.3	68.5	5.0
Poland	56.4	61.7	62.6	6.2
Portugal	52.4	56.3	61.3	8.9
High and stable intra-industry trade				
France	75.9	77.6	77.5	1.6
Canada	73.5	74.7	76.2	2.7
Austria	71.8	74.3	74.2	2.4
United Kingdom	70.1	73.1	73.7	3.6
Switzerland	69.8	71.8	72.0	2.2
Belgium/Luxembourg	77.6	77.7	71.4	-6.2
Spain	68.2	72.1	71.2	3.0
Netherlands	69.2	70.4	68.9	-0.3
Sweden	64.2	64.6	66.6	2.4
Denmark	61.6	63.4	64.8	3.2
Italy	61.6	64.0	64.7	3.1
Ireland	58.6	57.2	54.6	-4.0
Finland	53.8	53.2	53.9	0.1
Low and increasing intra-industry trade				
Korea	41.4	50.6	57.5	16.1
Japan	37.6	40.8	47.6	10.0
Low and stable intra-industry trade				
New Zealand	37.2	38.4	40.6	3.4
Turkey	36.7	36.2	40.0	3.3
Norway	40.0	37.5	37.1	-2.9
Greece	42.8	39.5	36.9	-5.9
Australia	28.6	29.8	29.8	1.2
Iceland	19.0	19.1	20.1	1.1

Source: OECD Economic Outlook 71 (2002)

As we can see from Table 1 above, starting from the end of the 1980s, intra-industry trade has constantly increased for OECD countries whose factories were taking advantage of lower costs in developing economies. This meant a huge increase of the importance of those countries (Baldwin especially highlights the role of China, Korea, India, Indonesia, Thailand and Poland), both in terms of trade and of manufacturing in the global economic scenario, and a clear-cut difference from inter-industry trade that characterized the first two waves. As a natural consequence, the percentage of global trade and GDP of G7 countries fell as we can see from Figure 3. Baldwin and Lopez Gonzalez point out that it is also interesting to notice that policy-wise, this change meant

that developing economies were now welcoming trade openness and attracting multinational companies looking for a way to cut production costs. Protectionism became perceived as harmful for developing economies trying to appear advantageous for Western firms. Bilateral Investment Treaties grew even though they meant constraining the sovereignty of countries receiving the capital flows (Baldwin, 2016).

Figure 3



Source: Baldwin and Lopez-Gonzalez (2013)

The emergence of global supply chains introduced concept such as I2P (importing to produce), I2E (importing to export) and value-added trade (Baldwin and Lopez-Gonzalez, 2013). These concepts describe how many final goods go through a global process before being sold. The value added of the final good comes both from the home country of the company and from abroad. Nevertheless, it has to be said that in that period, North-South trade was still concentrated in a few specific sectors, especially electronics and electrical machinery (Baldwin, 2016).

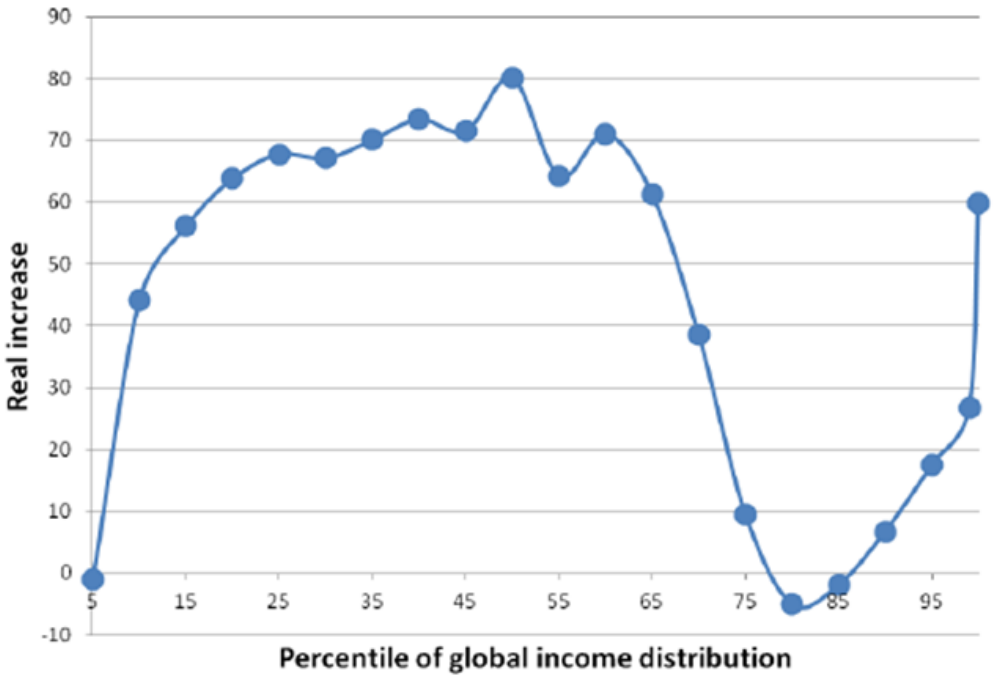
All these changes did not affect just trade and production processes but went hand in hand with increasing internationalization of financial transactions: Farrell and Newman (2019) point out how the financial world has been one of the first networks to be transformed and it facilitated international operations with tools such as the SWIFT and dollar clearing system. This allowed for the development of a faster and easier network for banks around the world.

According to Baldwin (2016), the spark that ignited the second unbundling was the ICT Revolution that meant the spread of information and possibility to communicate at speeds that were unimaginable before it. The popular spread of telecommunication and internet allowed more rapid and easier collaboration among people working in various different places. Between 1986 and 2007, information storage capability increased

globally at a rate of 23% per year, telecommunication grew 28% per year and computation power increased by more than 50% per year. Baldwin adds that the possibility to relocate factories was also made possible by the development of air cargo. Differently from containers, air cargo does not imply cheaper costs, being much more expensive than sea transport, but it allows very fast exchanges of goods. This gives the possibility to offshoring firms to fix potential problems in a matter of days rather than weeks or months.

If the first unbundling was characterized by a huge income divergence between the North and the South of the world, the second one was the scenario for a remarkable global income convergence. By taking a look at Figure 4 by Milanovic (2012), it is possible to identify two groups of winners of the period that goes from the Fall of the Berlin Wall to the Financial Crisis of 2008: the first one is the class of those belonging to the top 1%, seeing an increase of 60% of their real income; the second group is the middle class of emerging economies, especially China, India, Brazil and Indonesia. This group, also called by Milanovic "emerging global middle class", experienced an 80% real income increase over two decades.

Figure 4, Change in real income between 1988 and 2008 at various percentiles of global income distribution



Source: Milanovic (2012, p.13)

Unfortunately, just like the first unbundling, also this phase of globalization has its losers. We can see from the figure that the biggest losers were the ones between the 75th and 90th percentiles: Milanovic identify in this category people from Africa, South

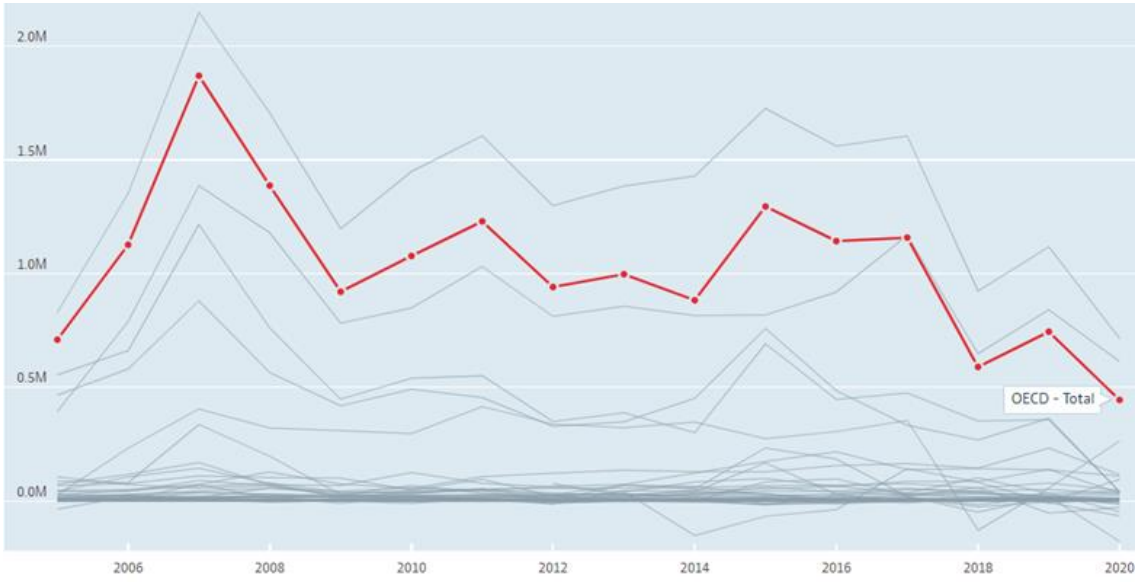
America and former Communist countries. Milanovic goes on saying that this "confirm(s) the failure of these two parts of the world to adjust well to globalization, at least up to the early years of the 21st century" (p.15).

In terms of poverty, Baldwin analyzes that, in absolute terms, people living under the poverty line actually rose, but Globalization should not be blamed for that: the reason is that population grew in nations that were already poor. Meanwhile, and that goes hand in hand with Milanovic's findings, countries that are identified as "upper-middle" income countries experienced an exponential drop in poverty.

1.1.3 The last 15 years and "Globotics"

Globalization seems to have gone through some changes and more of them are expected to come in the following period. FDI have experienced a decrease because of the 2008 financial crisis and then again because of the COVID-19 pandemic (Figure 5).

Figure 5, FDI Flows, OECD is highlighted



. Source: OECD data[8]

The spread of these disruptions is the clear example of how integrated and interdependent the economies of different and distant countries are. As Farrell and Newman (2020) underline, the lack of insulation of economies can spark chain reactions that may have negative impacts on the whole global economy. This makes policy making more difficult than ever before as governments have also to think about how their economy is integrated in the global system. This state of constant interdependence can

[8] https://data.oecd.org/fdi/fdi-flows.htm

cause tensions and overreactions among countries that could lead to detrimental results. Farrell and Newman, for example, speak of the attempt of a "great decoupling" of US economy from Chinese imports but according to them this would mean not even understanding the possible consequences of such a move. They claim that "the world's powers are enmeshed in financial, trade, and information networks that they do not fully understand, raising the risk of blunders that could set off dangerous conflict".

In a situation that does not feels safe as it did at the beginning of the century, some argue that instead, we are going towards a regionalization of trade and economic integration. Research conducted by Legge and Lukaszuk (2021) showed empirical proof of some patterns that are emerging in world trade nowadays: the data does not show any evidence that regionalization is happening, actually trade distance has increased in the last decades due to the massive increasing importance that China has in commercial exchanges. However, from February 2020, trade among countries within the same continent increased significantly while geographic distance of imports fell. Of course, Covid is the main factor in this change and there is no certain expectation about the future trends, however this is interesting considering that the number of regional trade agreements have increased from less than 100 at the beginning of the millennium to around 500.

With the increasing interconnections of economies, firms and societies, the process of innovation diffusion (started during the second unbundling as a result of offshoring of firms) goes hand in hand with globalization. A study by Skare and Soriano (2021) has proved that globalization is able to affect technological penetration and innovation. Economies that are more open are more likely to experience a boost in productivity and lower the barriers to technological adoption. The aspect of recent high-tech development is a fundamental variable for the future of globalization. According to Baldwin (2018), we are on the verge of a new wave, Globalization 4.0: the ICT revolution broke down barriers during the second unbundling, allowing factories to relocate elsewhere due to lower costs, including, and especially, wages. Now communication technology have become so advanced that the next step is going to be the tearing down of barriers in the service sector. Baldwin claims that technology will make remote workers feel less remote and we have already been forced to see this new way of working especially in the early stages of the Covid-19 pandemic. During the first trimester of 2021 in Italy, it has been estimated that more than 5 million of workers worked remotely and

89% of big firms will keep home working as a possibility for the future[9]. The workers in the service sector in developed economies will be affected by new challenges just like workers in manufacturing from the 80s. As a matter of fact, Baldwin, in his book *The Globotics Upheaval* (2019) warns about the disruption that the middle class, or white-collar workers, will experience because of the technological developments that have happened already and will happen in the future. In this case, when we talk about technological developments, we are talking of artificial intelligence, robotics, telepresence and so on. This means that, just as blue-collar workers have been harmed by the development of globalization in the 20th, white collars could be harmed in the same way: China and India with their vast population (the latter has also a relevant portion of English speakers) could become destination for offshoring services. It will not be a sudden change, it will be more like, as Baldwin puts it, the "iPhone infiltration": "Globots will take over professional and white-collar jobs in the same incremental, unreflected way that iPhones invaded our lives" (p.197). This creates a very dynamic environment of job creation and job destruction, and Baldwin states that there is data confirming that this is already happening in the information sector in the US, with more people losing their job than getting hired since 2015.

Baldwin suggests to potential affected workers to have jobs that cannot be replaced by these technologies, even though this is not easy of course. Baldwin is still optimistic towards globalization and believes that it will increase general wellbeing, but governments should play a part in order to prevent a possible turmoil caused by these changes. We will see later on that governments have already many challenges, as it has become increasingly clear that some strategic assets (like medical supplies, microprocessors, semiconductors, etc.), mainly produced abroad, needs to be secured in order to prevent supply disruption. On top of that, many started to doubt the authority and importance of nation-states: back in 1993, Kenichi Ohmae believed that they have become "unnatural", and we should think more about region-states whose borders are drawn by the "invisible hand of the global market for goods and services" (p.78).

[9] Source: https://www.osservatori.net/it/ricerche/comunicati-stampa/smart-working-italia-numeri-trend

1.2. Evolution of International Trade Theory

1.2.1 Classical Trade Theories

In order to proceed the analysis, it is useful to recall the theoretical foundations of global trade starting from classical theories. Adam Smith introduced the concept of absolute advantage in 1776: the Scottish scholar proposed an alternative to the main school of thought in that period, mercantilism. Smith based his thought on international trade on its theory about division of labor: more specialization means more output with the same amount of labor, meaning that there are quantitative but also qualitative gains. If a state trades with a foreign market, that can be seen as a sort of extension of the domestic one and in turn of division of labor. Following this reasoning, states specialize in whichever output they have lower production costs to produce, which means that the competitiveness of a country in international trade is dictated the same way it is in domestic markets, by price advantages (Schumacher, 2012). Everyone would benefit from trade and the subsequent division of labor.

The subsequent evolution of international trade theory is comparative advantage by David Ricardo: the Portuguese economist fundamentally believed, just like Smith, that trade between two countries make both of them better off. The key idea is that a country should export goods over which it has a comparative advantage. Even though developed countries might have an absolute advantage in producing every good, they should still specialize in something which makes trade possible even for countries that lag behind on technology and productivity. Ricardo explains this concept with the traditional example of England producing cloth and Portugal producing wine: if England requires 100 workers to produce cloth and 120 to produce wine, then England should specialize in producing cloth even if Portugal requires 150 workers to produce wine. As long as Portugal needs less workers to produce wine than to produce cloth, then Portugal has a comparative advantage when it comes to producing wine. This simple example is to explain that for both England and Portugal, it is beneficial to trade with each other while specializing on what they can produce more efficiently (Irwin,2017). Even though this theory is more than 200 years old, it is still valid, mathematically correct and can also be

highly explanatory as a study by Costinot and Donaldson (2012) proves: the findings of this research, using data from the agricultural sector in 1989, support Ricardo's ideas.

The next step is the extension of the classical theories, like the Heckscher-Ohlin model, developed at the beginning of the 20th century by two Swedish economists. As Leamer (1995) claims, the key assumption of the model is that commodities, when traded, can be seen as "bundles of factors": land, labor, and capital. The two Swedish economists went deeper than Ricardo in finding what determines comparative advantage which is explained by factor endowments (Carbaugh, 2018). The different distribution of these factors is what drives trade of different commodities: exchange is driven by the fact that some goods need determined factors to be produced, these factors cannot be moved so countries import goods derived by factors in which they are scarce. The different factor endowments cause different prices of both inputs and final products, which is the foundation for comparative advantage and consequently for trade. According to the model, the price of products should converge between two countries with no trade barrier, and this leads to factor price convergence. As a matter of fact, O'Rourke and Williamson (1999) state that in the 19th century, with rapid transport cost decline and trade openness, evidence that the Heckscher-Ohlin is a valid theory is clear. This is also because in that period, trade of commodities really started since trade in previous centuries dealt mainly with very high value. According to the model then, in the 19th century, developed nations imported raw materials from colonies and undeveloped countries which in turn they used to produce final goods. However, they add, because of the role that technology started playing in the 20th century, and the minor role that now agriculture has in developed countries, it is difficult to assess how well the model works nowadays. In any case, if we follow the rationale of the model, we can see trade patterns like the one between China and Western countries: China is abundant of low skill labor and has relative scarcity of high skill workers, vice versa Western countries have less unskilled workers (also due to the smaller population) but are relatively abundant of skilled workers in scientific and engineering fields. For this reason, and the trade patterns of the last decades confirm this, Western countries tend to import goods that do not require high skill to produce (clothing, electronic equipment, etc.), meanwhile China imports goods like aircrafts, chemicals and other products that are result of skilled labor (Carbaugh, 2018).

The Stolper-Samuelson Theorem adds new aspects into the picture and it's the natural continuation of the Heckscher-Ohlin Model. In this theorem we can see how trade creates its own losers and winners, just as we have seen previously with what happened

with globalization. Stolper and Samuelson (1941) assume the key message of the H-O Model that countries export goods produced with the factor which they are abundant of, this causes price convergence even though it can't be a complete one since the result would be no trade at all. What they add is that the export of goods relatively cheap to produce increases the price of the resources involved in their production. This is because the demand for them has increased due to the trade with foreign countries. Higher demand and prices for these resources mean that the income of the owners of these resources increases at the expense of the owners of scarce resources. This means that free trade is not beneficial to all society and that someone will suffer from the increased income of others. Stolper and Samuelson conclude their article by stating that "the harm which free trade inflicts upon one factor of production is necessarily less than the gain to the other" (p.73) and subsidies and redistribution policies can be useful in order to make everyone better off.

It is interesting to add that in 1953, Wassily Leontief tried to empirically prove the Heckscher-Ohlin model, but his findings were actually unexpected and became known as the Leontief's paradox. What he discovered was that U.S. exports were less capital intensive than U.S. imports which contradicted the predictions about factor endowments that Heckscher and Ohlin proposed. The subsequent studies about this question resulted in mixed conclusions but the main argument has been that the Heckscher-Ohlin model is successful when it comes to trade between developed and underdeveloped economies. Moreover, it also depends on our definition of capital which can include human capital (Carbaugh, 2018).

1.2.2 Modern or Firm Trade Theories

All the theories described until now have dealt with inter-industry trade, so they have not explained the possibility of exchanging intermediate goods within the same sector. As globalization and new trade patterns developed, new theories came along.

One of the first who tried to scientifically explain the concept of intra-industry trade was the Swedish economists Steffan Linder (1961). Linder started to formulate his hypothesis not from a supply perspective but from a demand perspective. What he claims is that "the more similar the demand structures of two countries, the more intensive, potentially, is the trade between these two countries" (p.94). Moreover, he adds that "similarity of average income levels could be used as an index of similarity of demand

structures" (p.94). The "Country Similarity Theory", as it has been called, could be a solution to the Leontief's paradox: taking for example the U.S., according to Linder, it makes sense that American exports are more labor intensive than its imports as they are exchanged among countries with similar factor endowments. To make another example, if we follow this reasoning, we can understand why there is trade of different car brands among Western countries. If we followed only classical theories, it would not make sense that a country like Germany exports and imports similar kind cars at the same time. Linder also adds that demand structure is also influenced by culture, language, geographical position and so on, which further explains why Western countries trade among themselves.

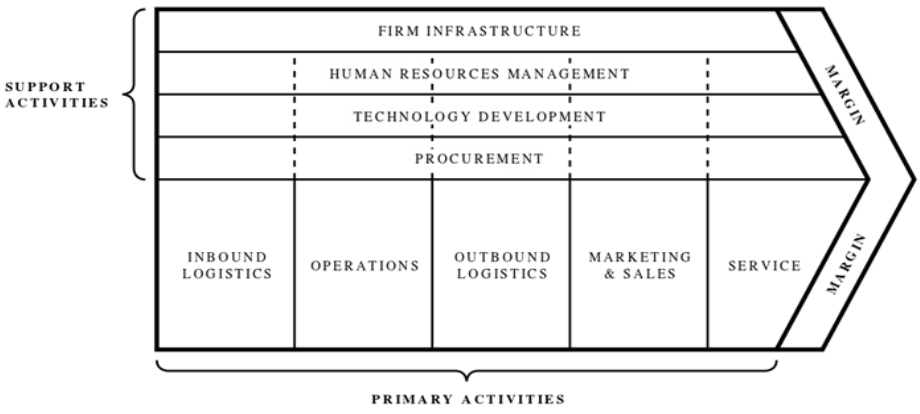
Another theory being developed in the sixties was Vernon's product life cycle theory (1966): Vernon introduced new assumptions and concepts in order to improve on the limitations of classical trade theories. First of all, he focused on the role of product development, which is performed by developed countries that, as a result, produce high-income and labor-saving goods. These new products are initially produced in the country where they have been developed; the product "matures" and when it becomes "standard", cost savings become important to make a profit, so production plant are relocated in low-wage countries. This theory is an explanation of possible trade patterns involving intermediate goods exchanged between high-income and low-income countries. A study by Mullor-Sebastian (1983) provides evidence that industrial groups behave in the world market as predicted by the product life cycle theory.

As it can be noticed, differently from the classical trade theories, after World War II, academics started to take into consideration the role and behavior of firms, especially multinational enterprises. As Helpman (1984) wrote, "existing general equilibrium theories of international trade have been developed without explicit treatment of the multinational corporation" (p.452). In his work, Helpman takes into consideration aspects like R&D and marketing, which are inputs that can be located elsewhere with respect to the production plants. He also underlines the fact that, when it comes to the choice of the location of the production stages, firms consider the possibility of achieving economies of scale which can be a crucial factor. The choice can be affected by the presence of external economies of scale which are determined by the size of the industry and not by the size of the firm (Krugman et al., 2012). The external environment is important because of possible spillover effects, labor pooling, specialized suppliers and so on. Thus, when we add external economies of scale into the equation, we have a different result with

respect to the classical trade theory: previous theories would expect price convergence between two countries trading with each other seeing an increase in prices in the cheaper country and a decrease in the other one. Following firm trade theories, theoretically, world production can be located in one single location, taking advantage of external economies of scale, and driving down costs everywhere (Krugman et al., 2012). This allows further specialization and a global division of labor.

It is also important to add Porter's value chain (1985) in this academic excursus: this model describes how competitive advantage cannot be understood by looking at the firm as a whole; it needs to be seen an ensemble of different processes and activities, each contributing at creating value somehow. To understand how these processes work together, the value chain is a useful representation of the separate steps of the value creation process. The chain (Figure 6) is divided in two parts: the four support activities and the five primary activities. The former type, as the name suggests, offers support to the primary activities in order to make them run more efficiently and help them to create as much value as possible; the latter are the ones that directly take care of the production and sale of the product, so they are the ones that create value. It is important to grasp the concept of the value chain because it is the basis to understand global value chains: just as we can dissect the process of value creation, we can also relocate some activities in it, keeping in mind that a firm pushes to achieve competitive advantage, which can take the shape of differentiation or cost leadership. Especially the latter kind is what drives firms to place production plants in low-wage countries where they can achieve substantial cost savings. This and the international division of labor are two aspects that need particular attention for the sake of this thesis' aim.

Figure 6: Porter's Value Chain



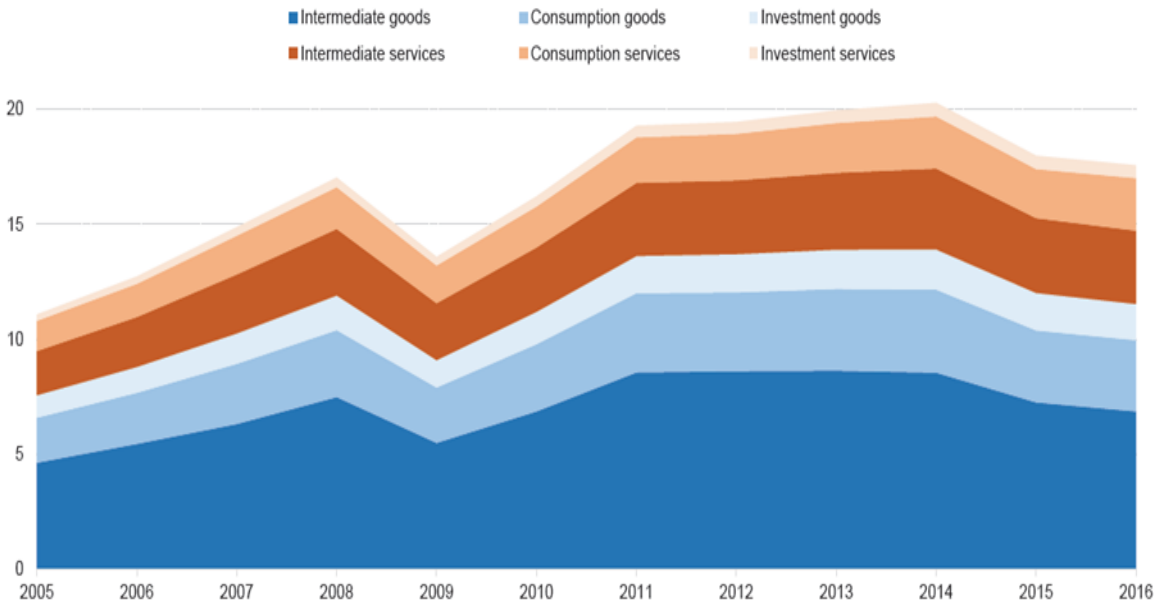
Source: Porter (1985)

1.3 Global Value Chains

After having identified what a value chain is, the next step is to understand what we mean by global value chain (GVC). Gereffi and Fernandez-Stark (2016) define that "value chain describes the full range of activities that firms and workers perform to bring a product from its conception to end use and beyond (…) In the context of globalization, the activities that constitute a value chain have generally been carried out in inter-firm networks on a global scale" (p .7). This definition tells us two important features of GVC: the activities that constitute it are dispersed among different firms and they cross national borders.

As I mentioned before, the second unbundling of globalization, global networks of production started to grow, reaching all continents, leading to more focus on intermediate goods. Especially countries like China, Korea, India, Indonesia and Thailand have increased their participation in global trade since the seventies (Baldwin and Lopez-Gonzalez, 2013). Nowadays, 70% of international trade involves GVCs[10] (Figure 7).

Figure 7: Decomposition of world gross exports 2005-2016



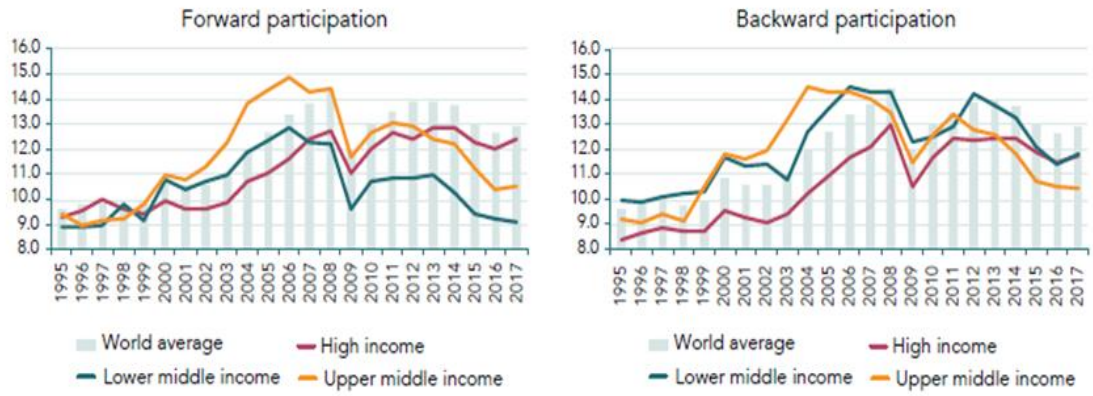
Source: OECD (2020)

There are two types of participation in a global value chain: backward participation consists of imports of goods and services, forward participation is export of intermediaries (WTO, 2019). As we can see from Figure 8, GVC participation kept rising by a rate of 4.6% per year between 2000 and 2008 until the financial crisis struck. 2010-

[10] https://www.oecd.org/trade/topics/global-value-chains-and-trade/

11 saw a comeback in GVC trade but that reversed in 2012 due to the slowdown of global trade (WTO, 2019).

Figure 8: GVC participation by income groups.



Source: WTO (2019)

Gereffi and Fernandez-Stark (2016, p.7) identify six dimensions in which GVC can be analyzed, the first half are global dimension while the second are local.

1) An input-output structure: it describes the transformation of raw materials into finished goods, it identifies the firm that participates in the chain, and it analyzes how the different stages adds value.
2) Geographical scope: how a GVC is dispersed and where are the activities that compose it, it is firstly based on global supply and demand, and it analyzes the trade flows that involve each activity of the chain.
3) Governance structure: how firms monitor and control GVC, different kind of governance structure emerge depending on the complexity of information, how the information can be codified and the level of supplier competence; there are five different kind of governance:
    - Market: when transactions are simple and information is easily transmitted, price is a valid mechanism to monitor exchanges;
    - Modular: when complex transactions are easily codified, suppliers meet customers' specific request but switching costs are low;
    - Relational: information is complex and it is not easy to transmit, the relationship between buyer and supplier requires trust as the interactions are frequent;
    - Captive: this is the case of big buyer on which a lot of small suppliers depend, high degree of monitoring and power asymmetry;

- Hierarchy: vertical integration, it happens when products are complex and it is difficult to find competent suppliers.

4) Upgrading: it describes the dynamic flows within the GVC and how producers shift between stages, how firms can move to higher-value activities in order to increase the benefits of global production. Bamber et al. (2017) identify 6 ways of upgrading:
    - Process upgrading: leading to more efficient and higher productivity;
    - Product upgrading: producing a product with higher value;
    - Functional upgrading: moving to higher value segments in the value chain;
    - Chain/intersectoral upgrading: moving to another sector using the capabilities developed in another chain;
    - End market/channel upgrading: entry into new markets;
    - Upgrading into production technologies: shifting towards design and fabrication of capital equipment.
5) Institutional context: the local economic and social aspects surrounding the GVC.
6) Industry stakeholders: how local actors interact with the industry.

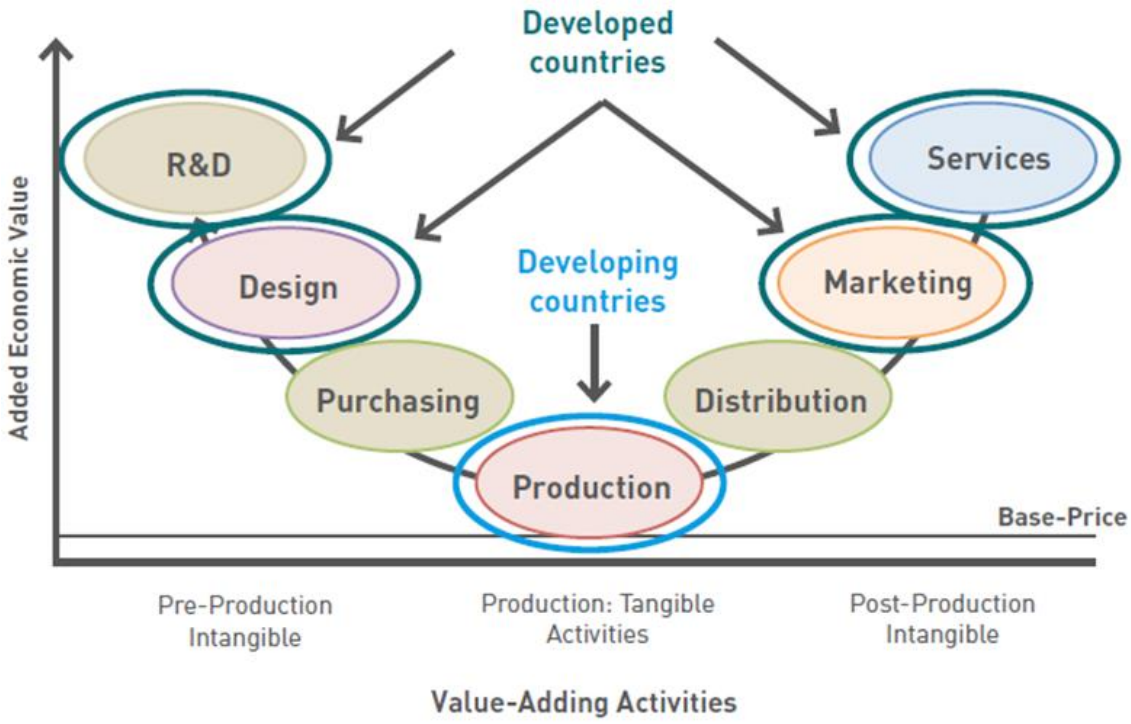
Strange (2020) identifies four main advantages of participating in a GVC: first, inputs and intermediate goods can be found at a cheaper price in the global market with respect to the domestic one; second, the domestic economy may not have a sufficient output capacity; third, unsystematic risk is reduced and, fourth, consumers value a bigger amount of choices coming from abroad.

Baldwin and Venables (2013) defined a new dichotomy to identify the different ways a GVC can be developed. They distinguish "spiders" and "snakes": the former happens when several components are sent to a single location where they are used to assembly a new intermediate product or a final good; the latter is a sequence of different steps taking place in different locations where, each time, intermediate goods are incorporated with other intermediate ones, or they are worked further until the final good is ready. Most GVCs are a mix of the two: taking for example a computer, it could be said that its components are produced in snake-kind GVCs but the computer itself is assembled resembling a spider-kind GVC.

Each step in the GVC process adds value and they can be identified and differentiated by that. We could understand the composition of the activities in the value

chain and the consequent distribution of the activities around the globe by following the smile-curve logic (Baldwin and Ito, 2021).

Figure 9: the smile curve



Source: Gereffi and Fernadez-Stark (2016)

As we would expect, given the fact that firms have offshored activities requiring low skills to low-wage countries, we can see in Figure 9 that production (and assembly in some cases) is the activity that adds less value. Meanwhile, pre and postproduction activities, which are intangible, are usually kept in the home country and add more value as they require higher skills to be performed. Consequently, they have higher costs as the home country is typically high wage, however, it has been mentioned before, that Baldwin (2019) expects service activities to be possibly offshored too in the future. To give an example of this, we can think of the phone industry: the product is designed in the home country, raw materials are extracted from African mines, inputs are brought to China where the phone is assembled, and it is then shipped to the home country where all the pre and after sale services are located. In this process, almost half of the value is created by the lead firm with design, marketing, customer service etc., while materials and assembling count together for a little bit more than 25% of the total value (Lee et al., 2013).

Production of intermediate goods can take shape in different ways as described by Antràs and Helpman (2004): depending on the industry characteristics, firms take different decisions. For example, integration and dependency on imported goods are more

prevalent in sectors with more productivity dispersion, integration is also more relevant in industries with higher headquarter intensity. In general, firms trade off different benefits of offshoring production depending on the shape of the value chain they are in. Antràs and Helpman propose two examples: Intel and Nike. Intel adopts an FDI strategy: the company has wholly owned subsidiaries scattered in China, Costa Rica, Malaysia and the Philippines, where it assembles its microchips. Nike, on the other hand, adopts an arm's-length import strategy subcontracting its manufacturing to independent firms in Thailand, Indonesia, Cambodia and Vietnam.

Given the fact that the GVC model is sustained by intermediate goods, there are three basic concepts about it, as Baldwin and Lopez-Gonzalez (2013) describe them: importing to produce, importing to export and value-added trade. The first concept, shortened as I2P, deals broadly with the fact that in a global network, companies import inputs (that could be raw materials, technology, capital and so on) in order to complete the production process, therefore "the classic trade-theory view of each nation's production depending only on its own factors and technology is invalid" (p. 7).

The second concept, I2E, conceives countries as "nodes in a more extensive international production network" (p.7). This means that intermediate goods can be imported to produce goods that are subsequently exported once again. This is the case of the iPhone value chain: components from various countries like South Korea, Japan, Germany and France are imported in China where the phone gets assembled, afterward it is then exported to the US and Europe to be sold (Brennan and Rakhmatullin, 2015). A specific kind of I2E trade is reimporting: this happens when just a single stage of production is offshored, so an intermediate good is imported back in the country after being processed abroad. Reexporting is the other way around.

The last concept is value-added trade, and it can be understood by identifying two identities. "The sale value of a product equals both: i) the cost of intermediate inputs (domestic and imported) and the 'direct' domestic value added in the exported product's sector, and ii) the sum of value added accreted domestically and abroad in the product's sector and all sectors that provide it with intermediate inputs." (p.8). Intermediate goods' value also depends on these identities and the breakdown between domestic and foreign value-added. According to Baldwin and Lopez-Gonzalez, we can reach important conclusions about global trade networks by looking at value-added flows. Moreover, the emergence of GVC has challenged the traditional way of interpreting trade data since intermediate goods could influence results and be double counted (Cigna et al., 2022).

In 2017, Bamber et al. identified four main trends developing in GVC after the 2008 financial crisis. The first is rationalization: in recent years, lead firms are relying on fewer suppliers. Supply chain can run more efficiently by having few but strategically located suppliers. This has two main consequences: first, large supply firms for intermediate goods develop and, second, smaller firms are pushed away from participating in global networks. However, Barber et al. specify that this trend is relevant in sectors where large economies of scale are required, niche sectors requiring high customization allow and encourage small firms to participate. The second trend is the reorientation towards Asia of certain activities: this fits right into the narrative mentioned before of lower wages and abundancy of low-skill workers that make Asian countries a valid choice to offshore activities that do not require high skills. This is also clear by looking at the rising trade share of these countries and the consequent decrease of G7 countries' trade share (Figure 3). The third and fourth trends are correlated to Baldwin's prediction about the third unbundling: automation/additive manufacturing and servicification. The former is the rise of automated production lines and high value technologies like 3D printing. It also includes digitalization of processes with tools and innovations like Big Data analysis, autonomous robots, simulations, Internet of Things, cybersecurity, augmented reality and cloud data storage. Finally, services are becoming more and more relevant in GVCs and in new shapes like subscriptions or pay-by-use. Recalling Baldwin's concepts (2019) once again, these service activities could be offshored as well in the future due to the development of new technologies of data sharing and communication. Bamber et al. also list three impacts that these trends have on value chains: new technologies alter the value distribution within GVCs, they shift the balance of power within chains and the geographical distribution of activities is impacted too (p.9). The degree of impact of the first one will depend on the sector as after-sale services have become as important as production in some cases, which means that, for example, automation may have a lower effect in certain industries. The second consequence can represent a threat for some lead firms that are seeing the rise of powerful and capable suppliers able to leverage their position. Finally, as it has been previously mentioned, new ways of communication can expand the access to labor market and pave the way to the relocation of services. At the same time, new technologies, that allow less dependence on labor, can lead firms to relocate production activities closer to the home country.

1.4 The Concept of International Division of Labor

The idea of a global division of labor was very well alive since the days of Smith and Ricardo, given their idea that specialization would give benefit to any country who would focus and engage in trade involving products and sectors that it produced more efficiently. In the 19th century and the first half of the 20th century, the world could have been divided as colonies (or third world countries later) and Western countries, the former just being exporters of raw materials and natural resources, while the latter were importing them and producing final goods thanks to their industrial apparatus. As Petras wrote in 1981, initially, third world countries continued to keep their status as exporters of materials even decades after achieving independence from Western nations. However, as Petras adds, "as third world countries become more 'developed' they will begin to modify their position in the world division of labor" (p.28). Then, it is clear that in the eighties, when the second unbundling of globalization was already taking place, academics recognized that a "New division" (NIDL, New International Division of Labor) was taking shape. Petras identified countries like South Korea, Taiwan, Pakistan, Philippines and so on, as having a decreasing dependence on primary export commodities. Even though, at the time, the global networks that we know nowadays had still a long way to go, there was already a contrasting pattern with respect to the old international division of labor. We now know that some Asian middle-income countries have become crucial hubs for the global value chains described in the previous paragraph. This means that countries that initially participated in global trade just as exporters of commodities, like natural resources and agricultural products, began to be incorporated into trade flows as producers of goods. Recalling the smile-curve (Figure 9), in GVCs it is possible to identify how different economies have different roles in the whole process.

In this context, academics started to put in doubt the old paradigms of international division of labor that were still following Smith and Ricardo's concepts. According to Mittelman (1995), with globalization, the old divisions regarding the global labor market, industrialization of countries and core-periphery dichotomy, became obsolete as multinational companies brought third world countries into the global working class while looking to maximize their profits. The power and the sophistication of transnational companies has driven the erosion of the status quo and changed global economic and financial patterns. The increasing globalization of capital has driven the search for new markets and the inclusion of new classes into the global labor force, furthermore the

location of production factories is independent of geographic distance. According to Mittelman, the electronics industry has been the first who developed a fully integrated global assembly line. However, Mittelman adds that supporters of the New Division of International Labor have overstated the importance of cheap labor because it does not explain relocations in countries like Singapore where it is more costly relative to neighboring countries. Another flaw is that the new and the old division are coexisting in some sectors (like agriculture) and that is not taken account.

Mittelman identifies some dynamics of the New Division and, first of all, also a limit of the old theories: the role of culture and society was never take into account while underrating the role of the state and liberal institutions limits the range of analysis of contemporary phenomena. Knowing and understanding the history and culture of a country can be a crucial aspect for analyzing its economy. The first dynamic that Mittelman identifies is the coexistence of regionalism and globalism: "Varied regional divisions of labour are emerging (…) Within each region, sub-global hierarchies have formed, with poles of economic growth, managerial and technological centers, and security systems." (p.279). Asia (Japan, China, Taiwan, Hong Kong, Korea and ASEAN countries) is proposed as an example since the economic growth of Japan has created a hierarchy that differs for each sector. This regionalism still has to be considered in the global scene: Hong Kong and Singapore are identified as regional hubs for attraction of foreign investment. Mittelman also believes that regionalism is not a setting of regional blocs competely among themselves but more of states being in global regions trying to improve their position.

In the new division of labor, it is also important to remember migration that has reached unprecedented levels. In 2020, migrants all over the world have been 281 million, 3.6% of the global population, with $702 billion in remittances[11]. According to Mittelman, migration works as a redistribution of labor and it forms clear geographic division of labor. Migration is both inter-regional (creating new connections between the North and the South of the world) and intra-regional. Moreover, he adds that labor flows are an integral part of global commodity chains which can be helpful in identifying the various divisions.

Considering the fact that Western firms invest in developing economies, one could think that FDI brings new skills and possibly the chance for these regions to improve and

[11] https://worldmigrationreport.iom.int/wmr-2022-interactive/

develop their industrial apparatus. Petras (1981), however, shows a different side of the NIDL: according to him, the type of activities offshored to countries in Asia and Latin America do not offer the chance for the local population to improve their set of skills. Asserting that most of them are assembly plants, little training is required, and foreign companies exerts a big influence on the economy and governments, meaning that developing countries suffer a loss of sovereignty and do not actually retain the benefit of "national" production. Petras also adds that FDI actually fragment production in these countries and there are no signs of integrated processes. Nevertheless, a study conducted by Hale and Xu (2016) reveals that FDI benefits the labor market of host countries by raising wages, productivity and skill level, with some spillover effects on local companies. Still, the study shows that FDI can lead to inequality if it leads to a surplus of unskilled labor and a shortage of skilled labor.

In general, we can conclude that the division of labor nowadays generally follows the dichotomy of Global South and Global North: the South deals with low added value activities, the North focuses on high added value tasks. However, Fengru and Guitang (2019) assume that in the future there will be a decentralization of production networks, meaning that there will be more investment in R&D localized in emerging economies. Moreover, southern countries will be more involved in production of more sophisticated technological products and components. The resulting consequence would be more collaboration between the producing county and the innovative country (meaning the country where the headquarters and R&D plants are located). Then, according to Fengru and Guitang we should witness a more balanced equilibrium of the distribution of production and research in the future, a less clear-cut division of international labor. Of course, it is too soon to tell whether this prediction might come true, especially considering the possible developments of the third unbundling of globalization that Baldwin predicted. Indeed, as already mentioned, the Globotics revolution might change again the international division of labor bringing the service sector away from Western countries. At the same time, the possible effects of reshoring could lead to a different phenomenon, leading to a certain degree of reindustrialization of developed economies. This will be analyzed further in the next chapter. Anyway, as change already happened in the past, international division of labor is dynamic and it will depend on future economic, political and technological trends.

1.5 Disruptions of GVCs and FDI

As already mentioned in Paragraph 1.1.3 and Figure 5, the last two decades have not been easy for global trade due to two major disruptions: the Financial Crisis of 2008 and the Covid-19 pandemic. It is important to address these events in order to understand the context and the possible triggers for reshoring that will be analyzed further in this thesis. This is because the two unfortunate events had a different impact on FDI and firms had to take into consideration different aspects in each situation, given their different nature.

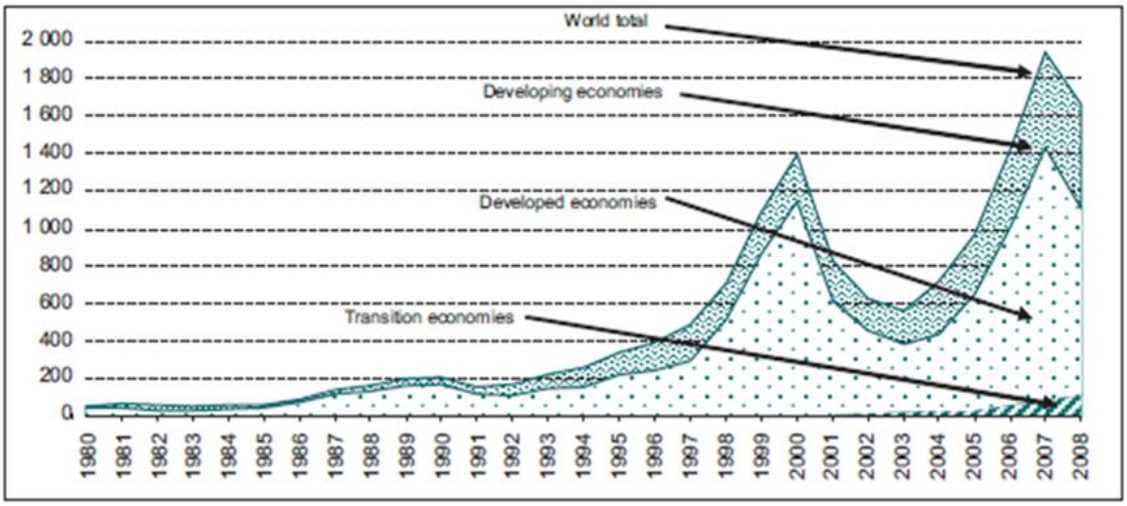
1.5.1 The financial crisis of 2008

First of all, it is important to assess the situation before the crisis: as the UNCTAD (2009) reports, the financial crisis of 2008 put an end on a growth cycle for foreign investments that had FDI reaching globally $1.9 trillion in 2007. In the period between 2003 and 2007, "FDI flows followed an upward trend, fueled by steady world economic growth, ongoing liberalization in investment regimes and the implementation of large-scale internationalization strategies by a growing number of transnational corporations" (p. 3). This is clear looking at Figure 10, where the growth of FDI is identifiable in the nineties and steadily picked up again in 2003. According to the UNCTAD, FDI in 2008 declined by 15%.

The way the crisis developed is well known: in October 2008, many American financial firms and institutions like Lehman Brothers, AIG, followed by European ones, started to show symptoms of collapse, which got worse with time. The crisis expanded to both developed and developing economies, some of the latter had to ask for assistance to the IMF. The negative shock then had its repercussions to the "real" economy: Alfaro and Chen (2010) state that GDP in industrial countries decrease by 4.5%, average real GDP, growth in emerging countries dropped from 8.8% to 0.4% between 2007 and 2009, unemployment rose to more than 10% in some OECD countries and trade decreased by more than 40%. Alfaro and Chen conducted a study to understand the effects of FDI and how multinational companies performed with respect to local firms during the crisis. The result of the study showed that in countries where the crisis hit the aggregate demand very harshly, multinational enterprises had a significant advantage over local firms; however, MNEs headquartered in countries with lower demand and worse credit conditions performed worse. Also, FDI aimed at vertical integration proved to be more resilient than

investments towards horizontal integration. In general, the conclusion is that networks depending on multinational firms proved to have a better performance.

Figure 10, FDI inflows by group of economies



Source: UNCTAD (2009), based on FDI/TNC database (www.unctad.org/fdi statistics) and UNCTAD own estimates.

The general situation of instability created a critical scenario where firms were not willing to invest and expand their capacity while global demand was decreasing. This is also proved by the data and a study by Ucal et al. (2010) as they proved that financial crisis has a negative effect on FDI while, in 2009, it has decreased by 40% in Turkey and India, and by 20% in China.

Recalling Figure 5, FDI bounced back in 2010 but the annual increase was not as big as the period pre-crisis; moreover, the effects of the crisis on FDI flows seem to be persistent until the Covid-19 pandemic as the level of investments never came close to reach again the peak of 2007.

1.5.2 Covid-19 Pandemic

As everybody knows, between February and March 2020, the biggest pandemic in the last 100 years began to affect the whole world. Factories stopped production, national health systems were at the brink of collapse in some countries, uncertainty and fear were spreading around just like the virus. Baldwin and Freeman (2020) define the effect of the pandemic on manufacturing as the "Covid concussion" since the pandemic has affected all the biggest manufacturing economies in the world at once. The fact that China has been the first country to be hit by the virus is something particularly relevant as

manufacturers around the world depend on China for the production of intermediate goods (Baldwin and Weder di Mauro, 2020). Also Japan, Korea and Singapore, three important nations for the global supply chains, have been hit in the first stages of the pandemic. Ocean and air freights decreased by, respectively, 10.1% and 19% in the first three months of 2020 (IFC, 2020).

Strange (2020) identifies three features of the pandemic: first, it is a global phenomenon; second, it is different and more difficult to control with respect to the financial crisis given the fact that it has effects on public health; third, no country is immune to the economic effects given the interconnections among economies created by GVCs. The economic downturn is the sum of two different kind of shocks, according to Baldwin and Weber di Mauro (2020).

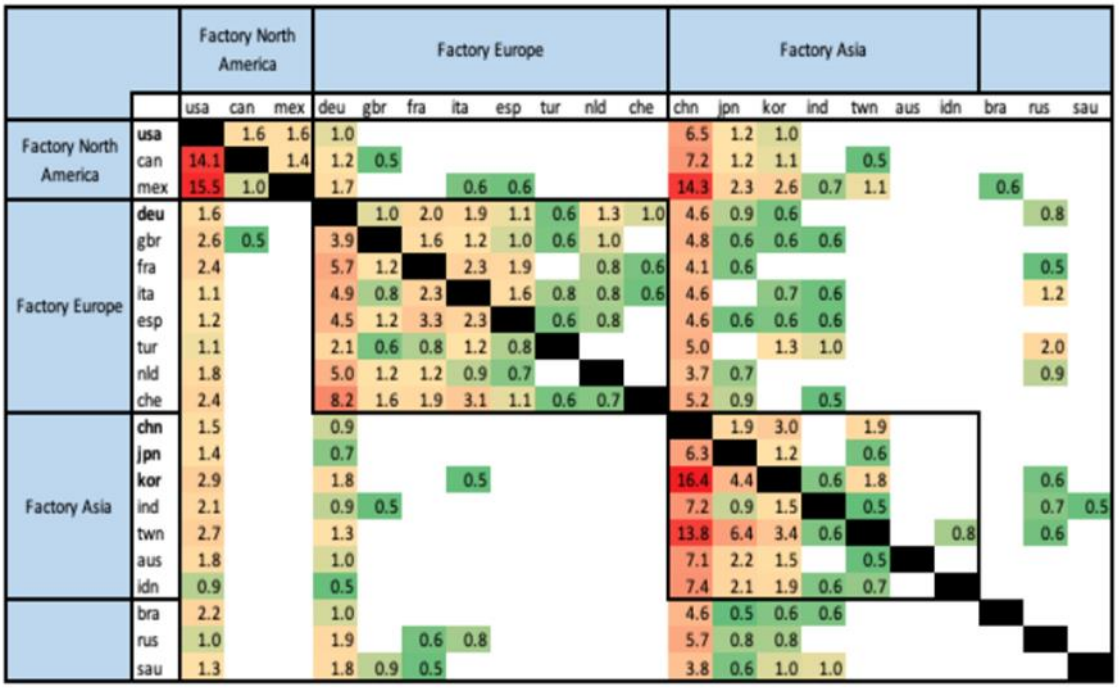
1. Drop in aggregate supply: due to quarantine and containment restrictions, intended to slow the spread of the virus, output is diminished given the less amount of workers in the production plants. This has two different effects: direct supply disruption in the most industrialized regions (East Asia, Europe and North America) and also in the less affected countries due to the difficulty in finding inputs from the most affected regions.
2. Drop in aggregate demand: consumers and firms tend to consume less, "wait and see" behavior increased and investments got delayed.

These two shocks have also natural consequences on exports and imports: the former are affected given the drop in output, the latter are affected by the drop in income. Given the interconnections among economies, this creates a vicious cycle that is complicated by the complex relations that GVCs create propagating the negative shocks (Baldwin and Freeman, 2020). Exposure and dependence on foreign inputs is relevant in this case, Baldwin and Freeman identify three important patterns (Figure 11).

1. "China is the workshop of the world" and inputs coming from Chinese economy make up for 3.6% of the output of major manufacturing countries.
2. German inputs are important not just for European economies, but also for Korea and Taiwan. In turn, Germany relies on other foreign inputs while countries rely on US inputs not as much as those coming from China and Germany, with the sole exception of Canada and Mexico.

3. Supply chain trade is regionalized identifying three macro regions: Factory Asia, Factory Europe and Factory North America.

Figure 11: Total exposure of row nations to column nation's manufacturing sectors.



Source: Baldwin and Freeman (2020), data elaborated from OECD, https://www.oecd.org/sti/ind/inter-country-input-output-tables.htm

The pandemic has created major problems for the GVCs' network, Strange (2020) identifies five of them:

1. expatriate staff or people involved like pilots, drivers and so on, can be affected by the virus and may not be allowed to cross borders;
2. international air freights have been severely cut down;
3. social distancing and health controls create delays;
4. many firms lacked goods and services that were important inputs for their production;
5. the pandemic has increased skepticism on free trade.

According to Strange, even when the virus and the pandemic will be completely under control, there will be much debate on how better responses can be formulated, in order to mitigate future pandemics' effects. Firms could change how they behave in the international context, possibly considering diversification of revenue streams since it can reduce the risk of severe economic losses. Strange considers reshoring as a phenomenon

that will acquire relevance in the future, with the reconfiguration of GVCs possibly being influenced by governmental responses.

CHAPTER 2: RESHORING BETWEEN MYTHS AND REALITY

As already mentioned, the last 15 years have not been smooth for international trade and GVCs. The financial crisis of 2008 and, especially, the Covid-19 pandemic have cast a light on the weak spots of the current models of global production. Some of the firms that previously offshored, trying to take advantage of the factors that developing economies had offered, started to rethink the location of their production plants. Giants, like Google, General Electrics, Ford and Apple, decided to relocate some of their production capacity back to the USA or to expand their capacity on home soil (The Economist, 2013). The clear advantages of offshoring seemed at least to diminish in the last decades for various reasons. It is also important to take into consideration the fact that the global context has changed after the outbreak of Covid-19. The causes behind reshoring strategies could have changed after this last disruption, and the debate whether the risks now outweigh the advantages of offshoring has intensified (OECD, 2021). However, it has to be taken into account that this kind of phenomenon is very recent, so, consequently, the number of sources of data may not be extensive, just like the literature available (Piatanesi and Arauzo-Carod, 2019). Moreover, it may be too early to determine whether Covid-19 has had an effect on reshoring strategies.

Nevertheless, reshoring has already captured much attention and some studies already focused exclusively on it. As a matter of fact, Eurofund (the EU agency for improvement of living and working conditions)[12] have worked together with a team of Italian universities (Udine, Catania, L'Aquila, Bologna and Modena & Reggio Emilia), named Uni-CLUB MoRe, to track reshoring activity. The research team, called European Reshoring Monitor[13], collected information on firms bringing manufacturing back to Europe from 2015 to 2018. This study is particularly important because it provides data on the phenomenon and also tracks down whether firms decided to relocate to their home country or to another close European nation. This is important because the word "reshoring" can be used for different kinds of relocation. As a matter of fact, academics have also identified another type of similar relocation strategies that entail bringing production back to a neighboring or closer country, but not home. For this reason, before investigating quantitatively the size of the phenomenon, we first need to define it, to understand its possible causes and whether they have changed with the Covid pandemic.

[12] https://www.eurofound.europa.eu/
[13] https://reshoring.eurofound.europa.eu/research-team

2.1 What is reshoring? Definitions

As reshoring is a fairly recent concept and academic interest sparked just in recent years, it needs to be first seen whether reshoring has a specific definition and whether the terminology about it is rather standardized. As Foerstl et al. (2016) write, the lack of specificity of the terminology might hinder the understanding of the drivers behind reshoring. Foerstl et al. sum up the definition of reshoring as the "relocation of value creation tasks from offshore locations to geographically closer locations such as domestic or nearshore countries" (p.5). Foerstl et al. also add that it reverses a previous decision to offshore, it may involve all or just a portion of the offshored activities and it doesn't depend on the type of ownership in the foreign country. After having established these characteristics of reshoring, it is necessary to get deeper into the concept and to differentiate the various ways it can be acted by a firm. Then reshoring must be differentiated into *backshoring* and *nearshoring*.

Backshoring is identified as the partial or full relocation of production activities from a foreign country to the home country of the company in a production plant owned by it (Fratocchi et al., 2014) (Kinkel & Maloca, 2009). Instead, nearshoring is defined as the partial or full relocation of production activity from a foreign country (relatively far away) to another foreign country place in the same region of the home country of the firm (Fratocchi et al., 2014). So, for example, a German firm relocating its production from China to France is engaging a nearshoring strategy. Same goes for an American firm relocating from Vietnam to Canada or Mexico. According to these definitions, it is then important to also consider firms that decide to nearshore, especially when it comes to a region such as the European Union where free exchange of goods and people significantly decreases the distance, not just the geographical one, between potential new production plants and the headquarters of a firm. When it comes to relocation strategies, there is also a third option that is completely different and not of interest for this thesis; however, for the sake of argumentation, I am going to mention the possibility of "further offshoring" that involves moving production, that was already offshored, to a country that is even further away from home.

Even though we can group nearshoring and backshoring together under the concept of reshoring, depending on the drivers that make a firm decide to relocate, one option can be more advantageous than the other. There are reasons to relocate which are

common to both nearshoring and backshoring such as lower transportation costs, stronger intellectual property protection, faster reaction to changing conditions and so on. Also, if one of the reasons to relocate is the institutional context that can be very different in other continents, then nearshoring can still be a valuable option as a neighboring country is very likely to have institutions and laws similar to the firm's home country's. Same thing goes for the labor market, as there might be highly skilled workers in neighboring countries as well. Piatanesi and Arauzo Carod (2019) take as an example the advantages that an American firm might have in relocating to Mexico or Latin America after having offshored in Asia: first of all, they are key markets; second, Mexico is just at the border and has cheaper, highly skilled and educated workforce; third, Mexico has also a strong regulation regarding intellectual property; finally, the NAFTA agreement favors trade and movement of goods. We could say the same for Central and Eastern Europe with respect to West European firms: it is interesting to notice that East Europe has become a popular destination to outsource IT[14]. Gál (2010) reports that Eastern Europe countries (especially Romania, Poland, and Hungary) have experienced a 20% increase on average of offshored activities within the service sector. A country's membership in the EU makes it very attractive considering the absence of customs and common or similar regulation. Piatanesi and Arauzo Carod (2019) suggest that nearshoring has several advantages that overcome the possible drawbacks of offshoring; at the same time, it retains benefits such as cheaper labor, potential tax breaks and so on. It is also worth mentioning that the reshoring strategies do not consist of sudden and drastic actions as Fratocchi et al. (2014) state that "reshoring is not a once and for all decision but rather a possible phase of the firm's long-term internationalization strategy of production activities" (p.57). To exemplify this, they mention the Italian fashion firm Belfe's relocation steps in the last years: after having offshored and outsourced the production in East Asia, in 2004 Belfe decided to relocate its production capacity in Bulgaria and in Italy; then, in 2012, they decided to move the entirety of their production in Eastern Europe.

As it is clear then, relocation of production is a dynamic process that can continue to evolve with no definitive decision. This is also a consequence of the changing conditions of international economy of the last two decades and the relevant shocks of the Financial Crisis of 2008/09 and the Covid-19 pandemic that made firms reconsider

[14]https://iaoppulse.net/why-eastern-europe-is-becoming-the-worlds-new-outsourcing-destination/

their own previous strategies. In case of reshoring, the choice between nearshoring and backshoring should take into account various factors. Considering the freedom of movement for people and goods within the EU, placing a factory in another European state is not complicated and problematic like it was in the past. Of course, producing in the home country means having everything under control and within reach, perfectly knowing the environment and so on. Moreover, if the "made-in effect" (described in the next paragraph) is strong, then a firm could consider domestic production as the only option. Still, if a firm is looking for cost cuts while maintaining the possibility to react quickly to possible changes, then nearshoring could be more useful. Nevertheless, the crucial point is that both these strategies are a correction of previous offshoring strategies that didn't pay out as expected or whose advantages are now fading away.

2.2 Weaknesses of Offshoring Strategies

Advantages coming from offshoring were taken for granted for decades. However, as mentioned already, in the last decades, various disruptions started to wear down the certainty that offshoring is almost a perfect choice. Some of the benefits associated with relocating production activities have been discussed in lights of the changes in the global economic and trade scenery in the last years. The impact of Covid-19 has also sparked new discussions and problems for GVCs. For this reason, it is important to analyze the weaknesses of the GVC model with respect to the pre-pandemic situation and to the new risks and shocks that sparked as a result of the pandemic.

2.2.1 Factors of Risk in Offshoring pre-Covid

The cracks in the GVC model started to show before the 2020-22 Pandemic. Academic interest on the subject already started to be alive in the aftermath of the Financial Crisis of 2008-09. Fratocchi et al. (2014) revised the literature about the risks concerning the establishment of offshored activities: the first risk they identify is the danger of losing control of critical information and the difficulty to protect intellectual property even if protected by patents. Being in a foreign legal environment could be a challenge for offshoring firms, especially SMEs who do not have a lot of experience in foreign markets. Inexperienced managers could ignore the legal processes needed to ensure that the intellectual property of the firms is well protected. In a paper by the Italian Trade Commission in Bejing (2012), it is said that a lot of times, firms enter the Chinese market

with no knowledge of the legal framework regarding intellectual property. Moreover, some still believe in false myths and legends that there is no protection for intellectual property in China, while contrarily, in the last decades, the Chinese government implemented new laws on the subject. Also, inefficient communication could be one of the "invisible costs" of offshoring (Stringfellow et al., 2008). This could result in loss of information that might damage the business strategy and consequently might hurt the firm. This leads to the second risk Fratocchi et al. (2014) identified which is the cultural and geographical distance: similarly to different legal framework, firms that find hard to adapt to the cultural and social environment of the host country will struggle. As Stringfellow et al. state, "culture and language barriers impact the quality of interaction" (p. 167), which means that this kind of differences creates a distance that is hard to overcome among the staff of a firm scattered across different countries. While language differences may create ambiguities when exchanging information, cultural differences affect norms, values and how the work environment is constructed. There are various cultural dimensions related to work that differ between countries like power distance, the focus on individualism rather than collectivism, universalism versus particularism, time orientation, formal versus informal communication style (Stringfellow et al., 2008). As a consequence, offshoring firms should be cautious before imposing any work culture in a foreign country as it might not fit into the social context. Another risk that Fratocchi et al. underline is the risk of opportunistic behavior of suppliers in case of offshoring-outsourcing strategies. A local supplier might exploit its better knowledge of the economic and legal framework of the host country and harm the firm while going unnoticed. This in turn is related to the aspect of having less control on the whole production process when some activities are offshored far away from the home country.

Consequently, one can deduce that having long GVCs introduces exogenous variables in the whole process, meaning that external factors can have a more substantial impact. If we think about the logistics involved in shipping goods across the globe, it is important to think about the risks associated with this (The Economist, 2013) , like piracy (even though the number of pirate attacks have decreased in the last ten years)[15] or incidents like the Suez Canal blockade in March 2021, caused by the container ship Ever Given being stuck and blocking one of the most important sea routes for global trade. It

[15] Source: https://www.statista.com/statistics/266292/number-of-pirate-attacks-worldwide-since-2006/

is estimated that the blockade held up 10$ billion of goods every day and affected global supply chains even more considering that they were already under stress due to the Covid-19 Pandemic[16].

Another aspect to consider is the geographical distance between production and R&D activities: recalling the smile-curve (Figure 9), R&D activities tend to be located in developed countries as they need high-skilled human capital which is usually found in the home countries of offshoring firms. However, this distance between production and R&D seems to have negative effects on innovation. Actually, successful development seems to be more likely when manufacturing and research are placed in the same location. Moreover, now factories are not always seen just as cost centers, which was the reason why they have been the first to be offshored. The option of offshoring R&D too, however, is risky as it can lead to loss of intellectual property and idea theft as mentioned before (The Economist, 2013). It is also important to stress that this aspect is important especially for firms working in highly advanced and research-intensive sectors. Heyman and Gustavsonn Tingall (2012) actually show that this kind of firms are more reluctant to offshore, especially if the potential host country has weak institutions that may not prevent possible misconduct and harm towards the intellectual property of the firm.

All the weaknesses mentioned so far are worth being mentioned, nevertheless there's a factor to consider that had the most substantial impact on offshoring strategies: as The Economist (2013) reports, wages in low-cost countries have substantially increased in the last years, especially in China (ILO, 2016). At a slower degree, also wages in Southeast Asia have increased, with rising manufacturing costs, as a consequence, in countries such as Vietnam (Figure 12). Yet, this growth in costs does not concern just factory workers but management too: now wages for a senior manager in China, Turkey, Brazil, and many other developing economies, almost matches wages for the same role in Europe and America (The Economist, 2013). Moreover, it is important not to forget the recent developments on automation which could lead to more efficient and cheaper production even without offshoring to low-cost countries.

[16]https://eu.usatoday.com/story/money/2021/03/26/suez-canal-blockage-how-impact-consumers/7010047002/

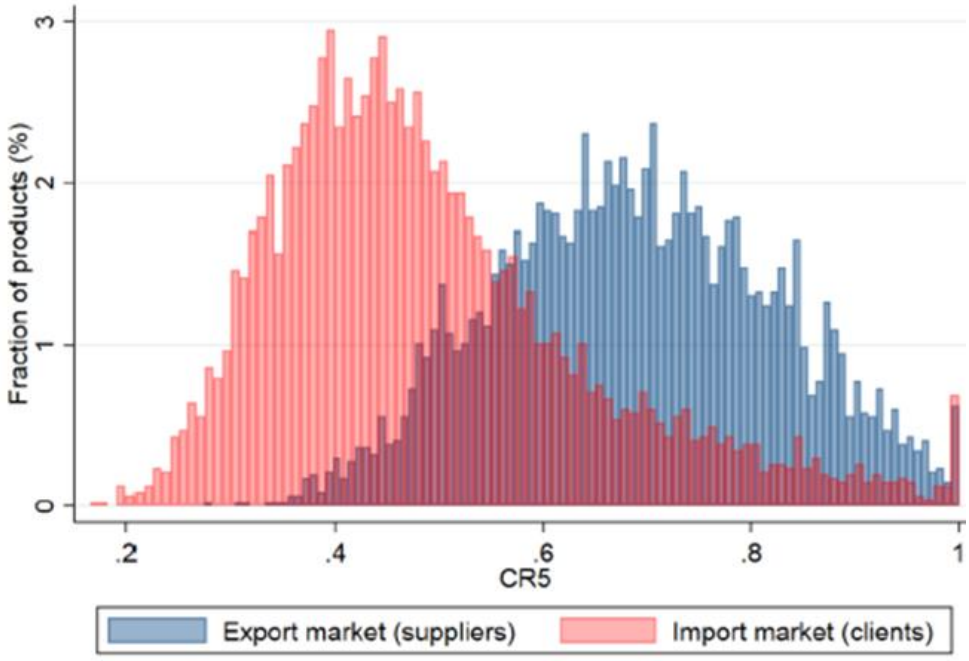
Figure 12: Real wage growth in Asia and the Pacific, 2006–15

Source: International Labour Organization (2016)

As a result, we can say that estimated benefits of offshoring strategies have eroded with the changes in the work environment, meaning that the competitive advantage of locating activities abroad have decreased substantially (Fratocchi et al., 2014). Connected to this aspect, firms are starting to consider their offshoring strategy also in terms of closeness to their markets: more than looking for a cheaper place to locate production for their global demand, companies now focus more on being close to their customer. This is the case for China, which is being seen more and more as a huge market rather than a manufacturing location (The Economist, 2013).

It is also worth noticing how GVC actually tend to have a concentrated distribution of suppliers with respect to the distribution of the demand. This is important to notice (especially considering the next subparagraph about Covid-19) because that means that the participation in GVCs do not eliminate the dependency on suppliers. In a report by the OECD (2021), it is mentioned that just three countries (China, South Korea and Vietnam) supply three quarters of specific inputs in the GVCs of the telephone industry. So, exports tend to be more concentrated in a few countries while serving a bigger amount of importing countries, In Figure 13 by OECD (2021), we can see that the share of top-5 biggest countries (CR5) for exports in the market is concentrated to the right, meaning that they are responsible for the majority of exported goods. Meanwhile, when it comes to imports, they are concentrated to the left as the share of world imports is more fragmentated.

Figure 13, Distribution of concentration ratio of the top-5 countries,



Source: OECD (2021)

Another aspect to consider is the so called "made-in" effect: firms try to signal the quality of their product by producing it in their home country to appeal the customers who care about products manufactured domestically (Van den Bossche, 2014). This is especially important for firms working in the fashion and luxury sectors where the origin of the product is highly taken into consideration. In general, all sectors dealing with design and artisanship are more affected by this kind of effect.

Finally, it should not be underestimated the effect that automation can have, especially in the future. As it is claimed in the World Investment Report of 2020 (UNCTAD) "as the price of robots decreases further over the next 10 years, the synergy between automation and reshoring will be the major driver of GVC patterns" (p.157). However, this is relevant for high-tech industries as lower-tech ones might still prefer low labor costs rather than automation.

2.2.2 The effect of Covid-19 on GVCs

First of all, it is important to say that the outbreak of the Covid-19 pandemic created an unprecedented situation in the post-World War II world, with lockdowns and a trade downturn that has never been seen before in the era of globalization. Regular supplies of products, especially key goods, had been given for granted for decades and that caught off guard a lot of countries, especially in the first months of the crisis.

In general, it is possible to claim that shortages of goods have been caused by both supply and demand shocks: on the supply side, lockdowns and restrictions obstructed the regular production capacity of factories and this effect has been magnified by global trade relations; on the demand side, certain goods, like medical supplies or electronical components, have seen a huge demand increase (Di Stefano, 2021).

It is then important to ask whether GVCs actually helped the propagation of shocks. Di Stefano (2021) reminds that existing literature already consider GVCs as important transmission channel for supply and demand shocks. The latter is caused by the "bullwhip effect": the demand variability is amplified along the chain and the upstream suppliers are the most affected ones. When it comes to supply, the degree to which GVCs can increase the effect of supply shock depend on how much the intermediary goods are substitutable.

It is important to remember that, firstly, Covid-19 pandemic has been a health crisis. This means that, in the first months of the outbreak, the most affected countries desperately needed masks, visors, medical devices such ventilators and so on. Unfortunately, in those months, shortages of these products were common, and it is easy to understand why: China has been the first country to be hit by the virus and restrictive health policies affecting its production capacity while being the global leader in the production of masks. Before the pandemic, Chinese factories were producing 20 million of masks per day, 50% of global production. The demand for them exponentially increased almost instantly and, considering the size of the Chinese population, that meant that they were really difficult to find. On top of that, millions of workers were stuck at home because of the hard quarantine imposed by the government even though all sorts of factories changed their production to health devices to face the crisis[17]. By the time the pandemic became a serious issue in Europe, shortages of all useful equipment were already in effect. This is a powerful example to understand how Covid-19 proved that the whole world can be highly dependent on some countries due to specialization brought by trade (Brenton P. et al., 2022). The presence of some clusters in GVCs, where suppliers or clients are concentrated, can increase the propagation of disruptions, both from the demand and supply side (OECD, 2021).

[17]https://www.corriere.it/esteri/20_marzo_12/coronavirus-nuovo-dominio-cinese-produzione-mascherine-antivirus-f79427ce-6441-11ea-90f7-c3419f46e6a5.shtml, Guido Santavecchi, 12th March 2020.

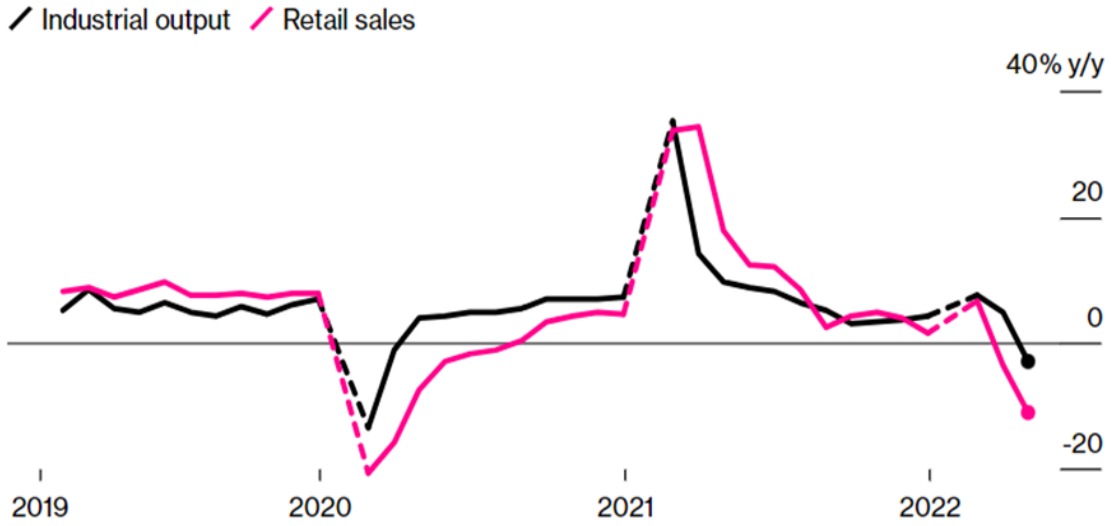
Another example is given by the semiconductor crisis: the increase of work from home in the initial period of the pandemic caused a very strong demand increase for computers, smartphones, tablets and so on. This also affected the automotive sectors since chips are fundamental parts of modern cars. As a result, manufacturers of semiconductors (basically all located in Asia) were unable to satisfy the peak of demand while facing the restrictions due to the health crisis. Producers are still investing trying to increase their production capacity (and in the future this will result in oversupply), but this shortage is expected to last until 2023 at earliest[18]. The pandemic has forced several firms to rethink their production strategy: some supply chain will abandon just-in-time manufacturing model, as it might be not ideal in case of such disruptions, and 70% of firms are rethinking their supply from low-cost vendors (FedEx Report, 2021). The automotive sector in particular seems to be forced into structural changes that could affect the respective entire value chain[19]. Just-in-time production meant that the stockpile of critical components, such as the previously mentioned semiconductors (like chips, microelectronics, etc.), was low when the pandemic caused the shortage. This was never a problem in the past as low inventory was intended, however, such a disruption was never expected. Toyota, which was the first company to introduce JIT production in the sector during the 50s, had to close some of its plants because electronical components were out of stock[20]. However, the Japanese manufacturer managed to handle the crisis better than the competitors because of its stockpile of key components: after the 2011 Fukushima disaster, Toyota decided to stockpile a certain amount of chips that could sustain production for six months[21]. It is interesting to notice how a previous emergency made the company aware and capable of preventing unfortunate consequences caused by situations way beyond the control of the firm.

As it might be anticipated, Chinese supply chains are no longer seen as reliable as before[22]. The situation does not improve (while there are still Covid cases in the country) because of the Covid Zero Policy that President Xi imposed: the Chinese government has implemented very stringent measure to prevent any new possible increase of Covid cases.

[18]https://www.jpmorgan.com/insights/research/supply-chain-chip-shortage
[19]https://www.sourcengine.com/blog/automakers-moving-away-from-jit-inventory-model-post-global-chip-shortage
[20]https://fortune.com/2021/08/02/toyota-cars-chip-shortage-semiconductors/
[21]https://www.reuters.com/article/us-japan-fukushima-anniversary-toyota-in/how-toyota-thrives-when-the-chips-are-down-idUSKBN2B1005
[22]https://www.mhlnews.com/global-supply-chain/article/21143303/supply-chain-management-shifts-due-to-covid19

This means new lockdowns and economic consequences such as fall of industrial output by 2.9%, decrease of retail sales by 11.1% (Figure 14) and an increase of unemployed population, especially among the youth, which is at 6.1% (May 2022)[23]. As Brendan Murray reports for Bloomberg[24], this is causing new shortages of important goods for the health sector such X-ray chemicals (in a similar way to the situation previously mentioned for masks and ventilators) and logistic problems for several carmakers.

Figure 14: industrial output and sales decrease in China



Source: China's National Bureau of Statistics, taken from Bloomberg.com[23]

Nevertheless, Chinese supply chains have proved to be capable of bouncing back in the second half of 2020 and throughout 2021 because of their high degree of regionalization: as Di Stefano (2021) claim, interconnected and regionalized value chains are less vulnerable to global risks.

Right now, it is probably too soon to tell whether Covid-19 will have long-term consequences for investment decisions by multinational companies. What's sure is that the pandemic has raised some questions about the economic sustainability of the current GVC model, some of them had already been asked before 2020. Di Stefano (2021) focuses on two points: first, de-globalization trends could be increased and, second, consumers might change their perceptions on global trade integration. After such a major event, skepticism towards products coming from other continents may increase. As a

[23] https://www.bloomberg.com/news/articles/2022-05-16/china-s-economy-contracts-sharply-as-covid-zero-curbs-output
[24]https://www.bloomberg.com/news/newsletters/2022-05-16/supply-chain-latest-china-s-lockdowns-squeeze-factories-far-and-wide

matter of fact, Euromonitor has highlighted the popularity of local products as one of the consumers' trends of 2020 as an aftermath of the pandemic[25].

In a 2020 report, Confindustria highlights a few aspects that have been rethought in light of the Covid emergency. First of all, the possibility to increase control on the production chain seems to have raised some interest as the pandemic has prevented companies to use their production capacity in China. Second, the creation of new demand and new market opportunities might be taken by companies with different production strategies: this is especially true for high value-added goods that have been put at the margin of consumer choice by low-cost goods produced abroad, especially in Asian countries.

WTO (2021) highlights the vulnerability of small and medium enterprises to shocks, causing problems to multinational companies which used to get supplies from them. On a separate matter from Covid, but very contemporary, WTO also warns about possible risk coming from the geopolitical scenario (the war in Ukraine is a perfect example) and from environmental emergencies which could lead to more natural hazards and to changes in policies that could potentially affect transportation and production.

2.3 Quantitative Analysis of reshoring

Having assessed the definitions and the possible causes behind a potential reshoring strategy, it is now time to understand the trend of the phenomenon in recent years. First of all, it is important to underline that the phenomenon is very recent and has caught some attention just in the last few years. For this reason, it is very difficult to look for studies and databases trying to give a quantitative dimension to the phenomenon. Another aspect to consider is that it is impossible to find precise data about reshoring activity unless a survey including a vast amount of firm is conducted. Of course, this gives only a limited picture of the phenomenon as it is difficult to contact a sufficient number of firms in order to have results that are relevant in the big picture.

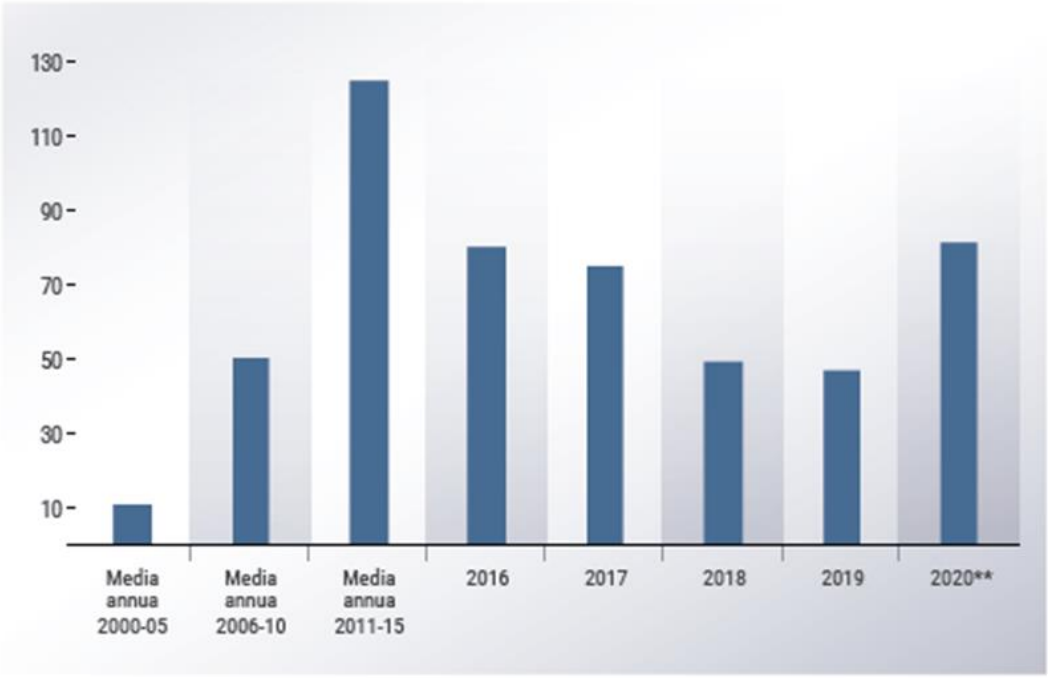
Nevertheless, another valid method is analyzing data on FDI, trade of intermediary goods and added value in imported and exported goods. Basically, this means that by analyzing data on offshoring, we could extract some conclusions on reshoring. However, signs that offshoring is slowing down or is decreasing might not be

[25]https://www.euromonitor.com/the-impact-of-coronavirus-on-top-10-global-consumer-trends-2020/report

definitive proof of reshoring, but they might help us understanding the state of the international strategies adopted by firms, and in turn, whether reshoring might be happening.

Confindustria (2020) elaborated a series of data and concluded that reshoring cases have been increasing in the last 20 years (Figure 15). Moreover, they estimated that there have been 1430 cases of reshoring strategies in the world from 2000. European firms are responsible for 58% of these cases, while 32% are American firms that relocated. Asian firms are accountable for 8.5% of cases, mainly Japanese firms and in smaller measure South Korean companies. China is the country from where firms have moved away the most in this period (631 cases) while the country that got most firms back on their soil are the United Kingdom (85 cases), Italy (143), France (151) and the USA (443).

Figure 15, number of reshoring cases in the world.



Source Confindustria (2020)

** first eight months of the year

2.3.1 The European Reshoring Monitor database

As previously mentioned, there are not yet many studies about reshoring. However, that does not mean that there are no studies at all. As a matter of fact, in 2015 a group formed by scholars from some Italian universities (Udine, Catania, L'Aquila, Bologna and Modena & Reggio Emilia) formed the Uni-CLUB MoRe. With the collaboration of

Eurofund, they started the European Reshoring Monitor[26] which collected data and reports about European reshoring cases from January 2015 to December 2018. As stated on the website, "The European Reshoring Monitor is a Eurofound initiative whose goal is to identify, analyze and summarize evidence on the reshoring of manufacturing and other value-chain activities to the EU"[27]. For the scope of this thesis, the project is an important database as it collects articles from several sources such policy reports, research articles, newspapers and so on, and it defines several characteristics of each reshoring case. For this reason, it can be very useful as some conclusions can be drawn from the size of the reshoring firms, their sector, why they reshored and from where and so on. However, it is important not to forget that it includes just around 250 cases in the span of four years. This means that further data and enquiry is needed to address the phenomenon. Nevertheless, it can be a good starting point to have concrete examples. Using the database of reshoring cases available on the project website[28], we can start analyzing the cases and draw some graphs.

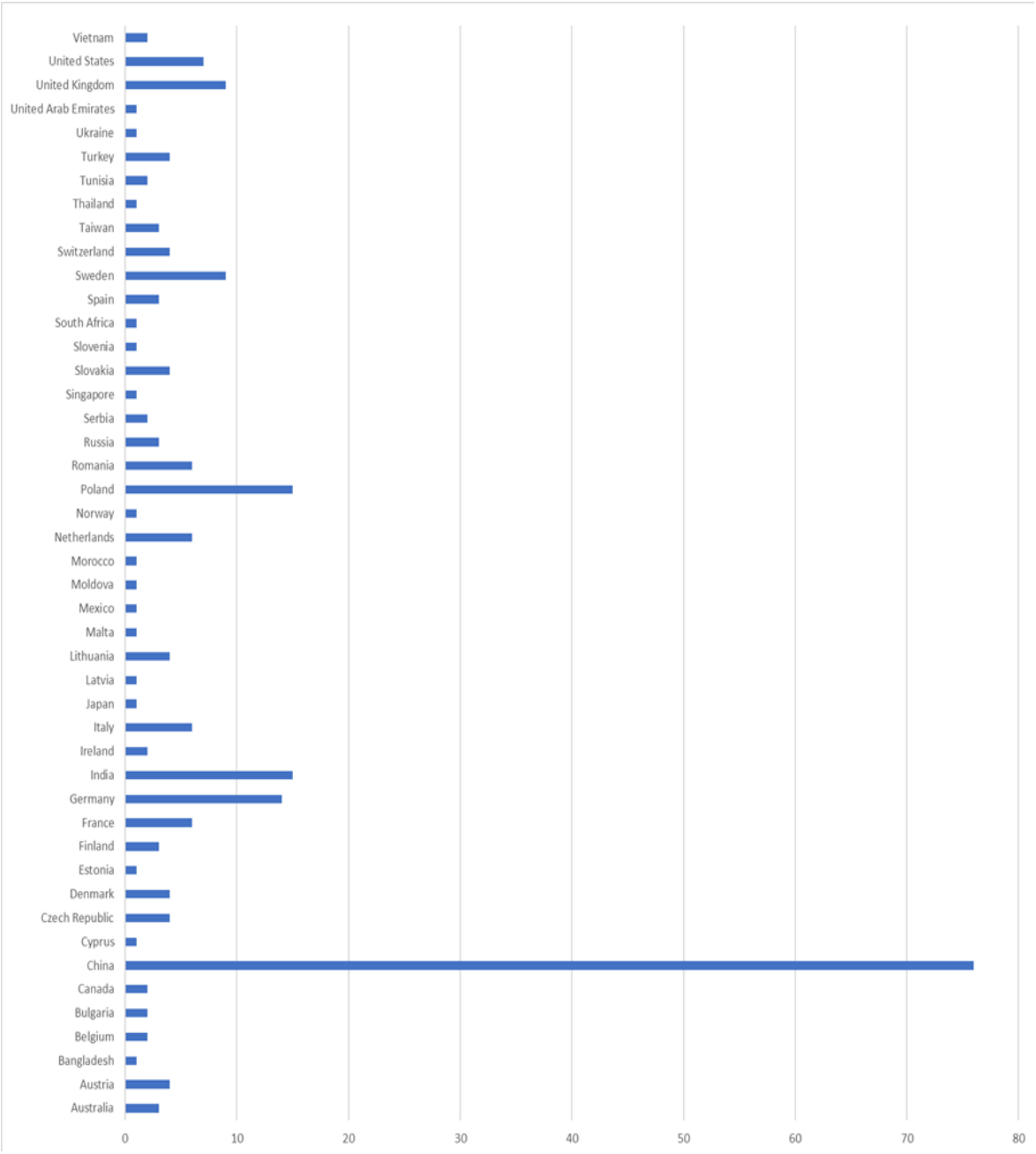
Where firms offshored and reshored to

The database shows both the country where firms previously offshored and where they relocated afterwards. It is interesting to notice that some firms relocated to other European countries first and then decided to relocate to their own.

First of all, we see where they offshored to previously: as it clearly noticeable in Figure 16, China was the preferred choice with 76 cases; Poland and India were chosen by 15 firms; interesting to notice that 14 firms had chosen Germany as a country to relocate; same for Sweden and United Kingdom (9 cases). We can see the presence, with smaller numbers, of other European countries (especially Eastern ones such as Romania, Lithuania, Bulgaria etc.) and also of Asian countries such as Taiwan (3 cases), Vietnam (2 cases), Bangladesh, Thailand (one case for both). Also, North American countries are shown with the USA having 7 cases while Mexico just one.

[26] https://reshoring.eurofound.europa.eu/research-team
[27] https://reshoring.eurofound.europa.eu/
[28] https://reshoring.eurofound.europa.eu/reshoring-cases

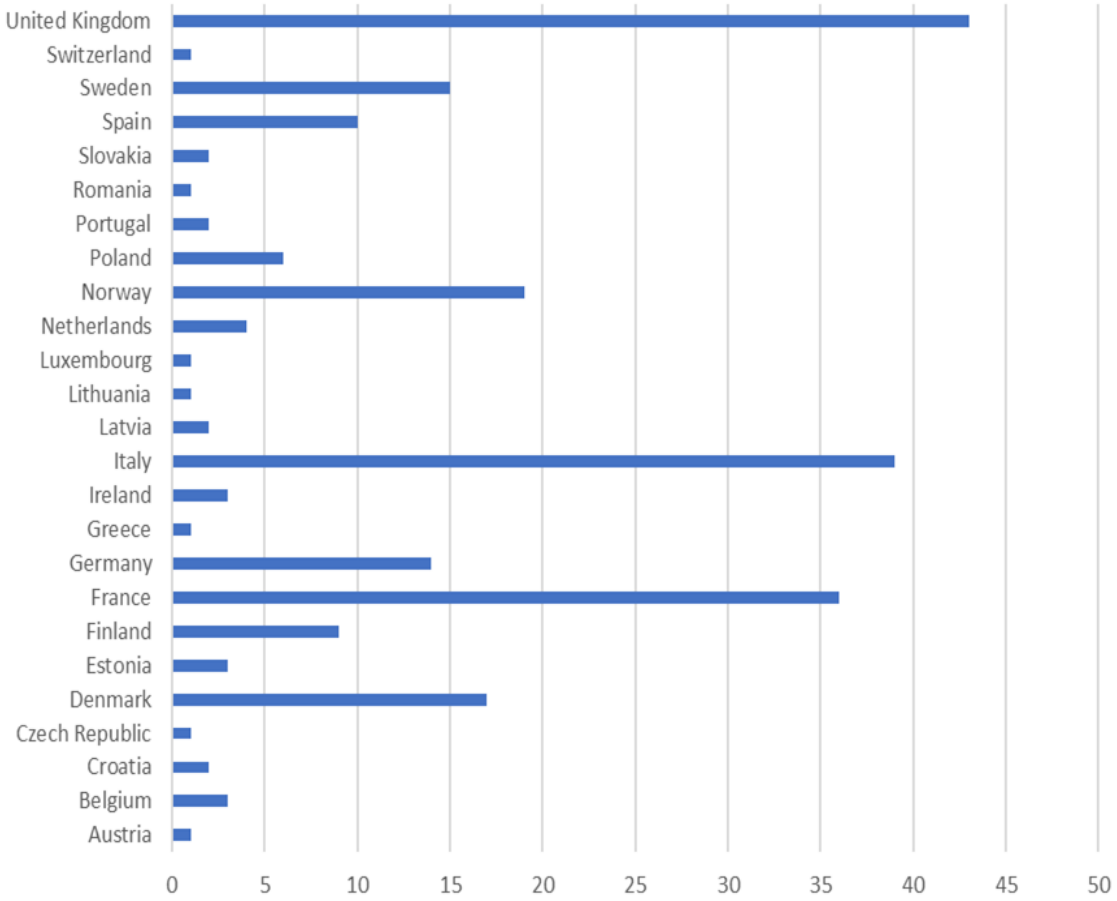
Figure 16, offshoring countries



Source: European Reshoring Monitor database

We now move to understand where they have relocated. Of all 250 firms, just 14 decided not to relocate in their own country but in another European one. Then, we can say that 5.6% of firms opted for nearshoring, being Poland the preferred location with 6 cases. The rest of the firms decided to go back to their own country: United Kingdom, Italy and France are the countries with most backshoring cases (43, 39 and 36 respectively), also the Scandinavian countries have a considerable amount of backshoring firms (51 combined), while Germany has 14.

Figure 17, reshoring destinations

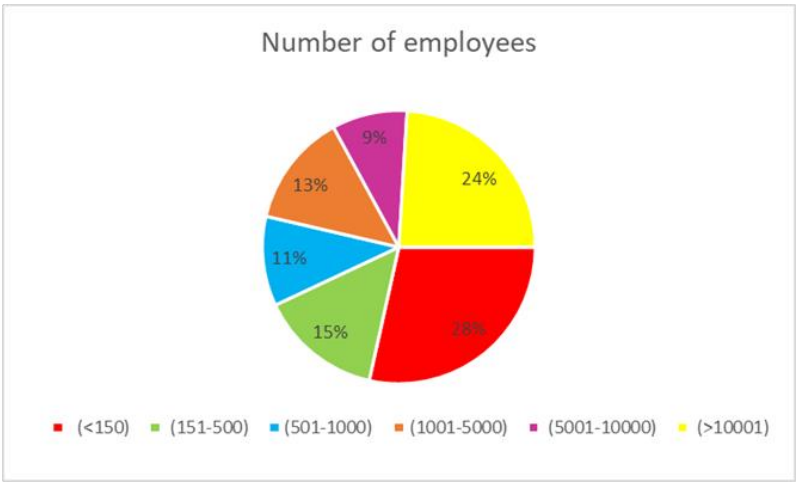


Source: European Reshoring Monitor database

Size of reshoring firms

Another characteristic of the firm that is taken into account in this study is the size, the number of employees. The team did not manage to collect data on this regard for all firms, but it did for the majority (179 cases).

Figure 18: size of reshoring firms



Source: European Reshoring Monitor database

As Figure 18 shows, more than half of cases are either of firms with less than 150 employees or more than 10000. The latter is understandable as bigger firms are more likely to offshore (and consequently the probability that a reshoring case concerns a big firm). It is interesting to notice that 28% of cases have to do with small firms.

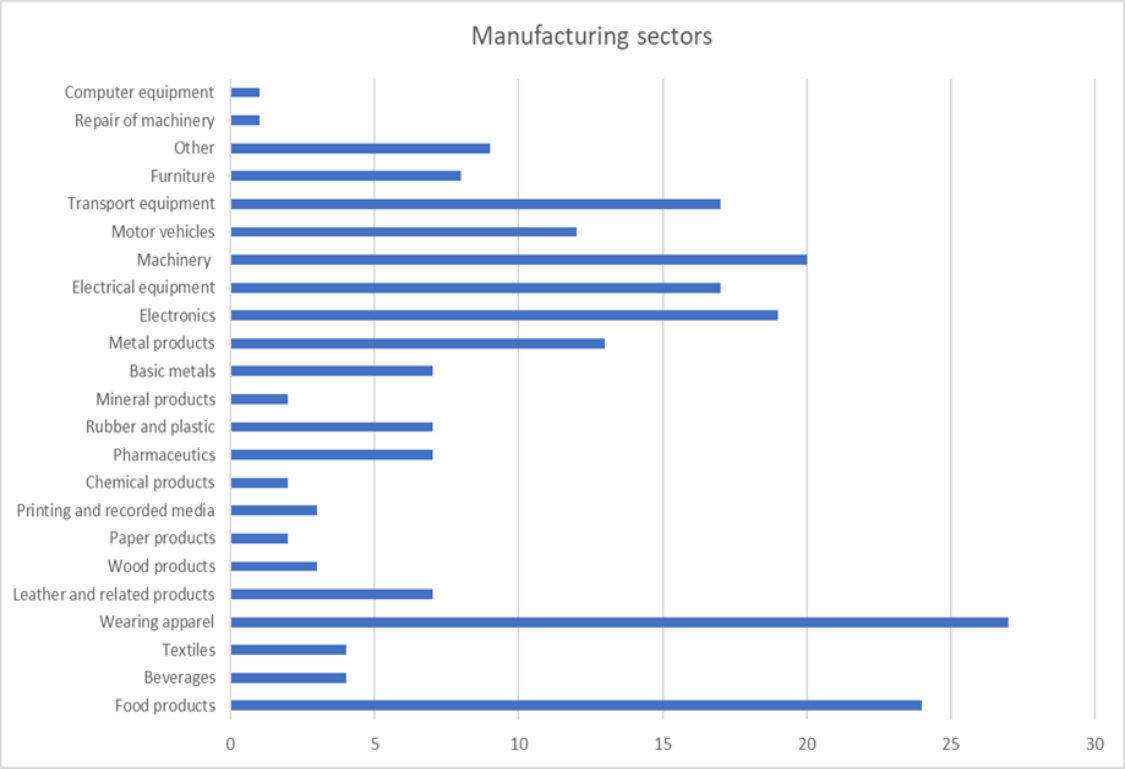
Sector of firms

Regarding the sectors of the firms involved in the study, the research team has grouped them into 10 groups: agriculture, forestry and fishing; mining and quarrying; manufacturing; construction; wholesale and retail trade and repair of motor vehicles; transporting and storage; information and communication; financial and insurance activities; professional, scientific and technical activities; administrative and support service activities.

This categorization is very generic and broad and as a result, it results in 216 cases being included in the manufacturing group. Luckily, the research team has included some sub-groups in order to specify what is the industry in which the firms operate. As it is shown in Figure 19, the wearing apparel industry is the sector most frequently involved but also other ones are very relevant such as the production of food, machinery, electrical equipment, electronics, transport equipment, metal products and motor vehicles.

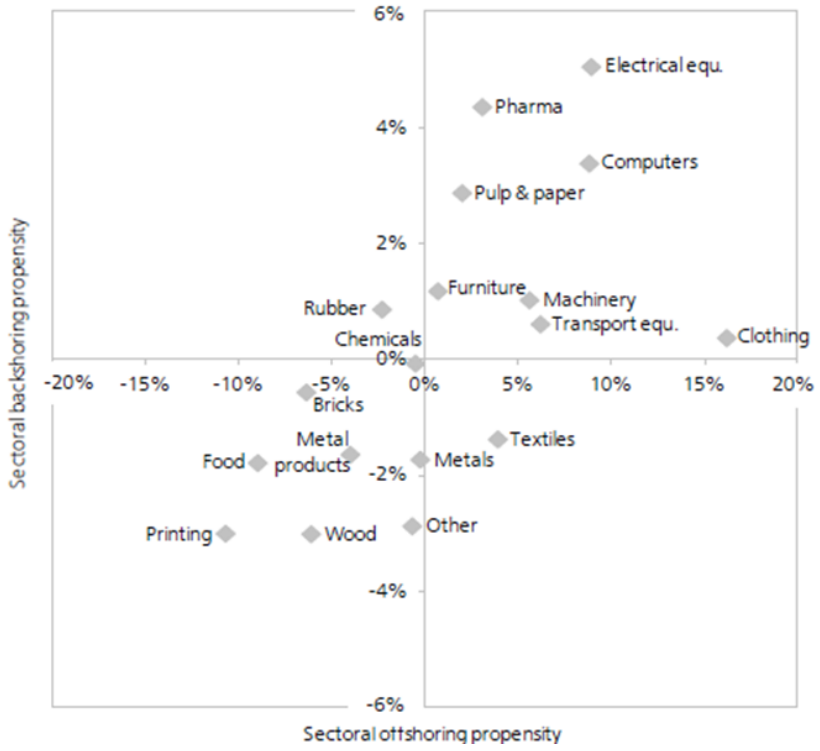
Taking into consideration these results, it is interesting to compare with the results of a study conducted by Dachs and Zanker (2014): based on a number of 3293 observations taken from the European Manufacturing Survey of 2012, they noticed that reshoring is less frequent in low technology sectors, contrarily it's higher in high technology industries. This is interpreted as a sign of Europe's competitive advantage in high skill tasks. In Figure 20, it is possible to see the propensity to offshore by sector (horizontal axis) and the propensity to reshore by sector (vertical axis). The authors define the north-east quadrant as "mobile sectors" (p.5) as they have a high propensity to both offshoring and reshoring, although the former is always higher than the latter. Here in fact, we can see sectors that were the most frequent to appear in the European Reshoring Monitor study like the production of electrical equipment, computers, clothing and so on. Dachs and Zanker believe that, from a policy point of view, the north-east quadrant is the most interesting as they show low tendency to offshore but, as it can be seen, there are almost no industries there.

Figure 19: manufacturing sectors of reshoring firms



Source: European Reshoring Monitor database

Figure 20: offshoring and backshoring propensity per sector.



Source: Dachs and Zanker (2014)

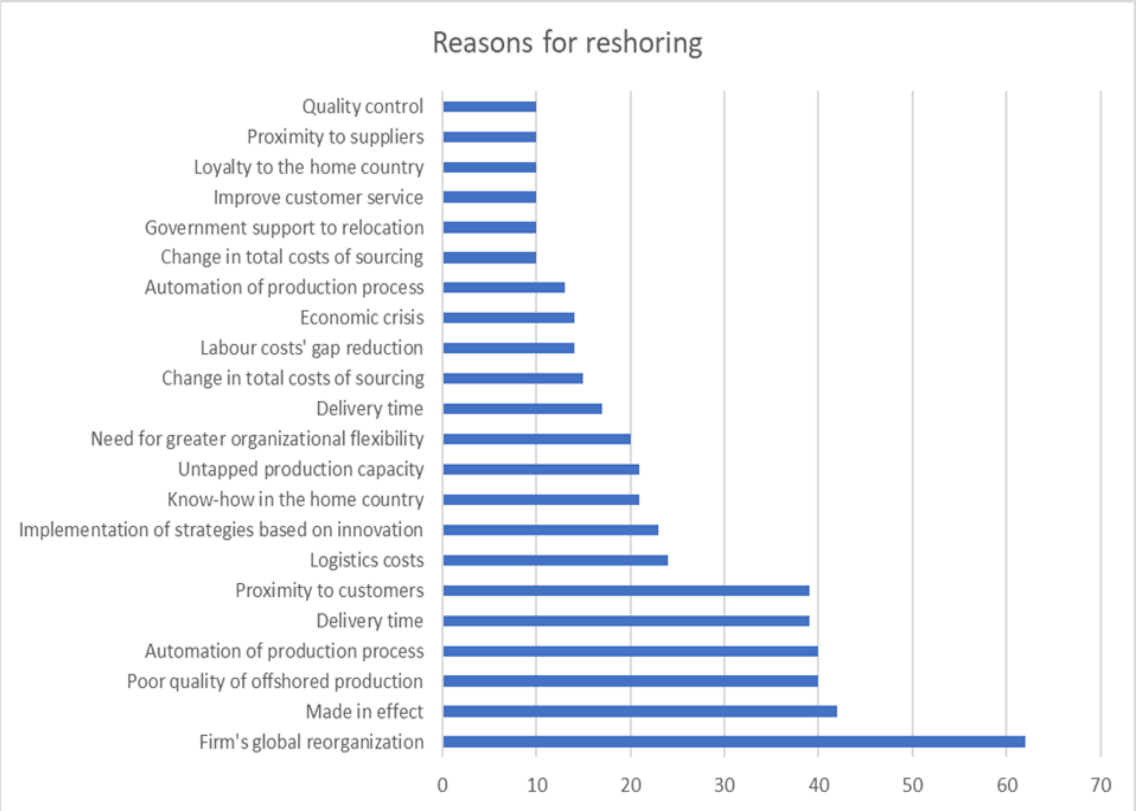
Reasons for reshoring

The research team has managed to collect the reasons why these firms decided to relocate and go back to Europe or their own country. Some firms had more than one reason to reshore. Figure 21 shows the most frequent reasons for which the firms relocated.

The most popular one is the reorganization of the firm at the global level: this seems to a very broad category, and it could be the combination of several variables that emerged in the organization as a whole and not just in the offshored facilities.

Interesting to notice that the "Made in effect" is very frequent (43 cases), closely followed by poor quality of offshore production and automation of production process (40). There are various reasons concerning quality and improvement, as some products and services might be performed better in the home country, given the presence of human capital with higher skills. This is the case for motivations such as quality control, know-how in the home country, implementation of innovative strategies.

Figure 21, firms' reasons for reshoring



Source: European Reshoring Monitor database

Another kind of reason is the one concerning costs: as said in the previous pages, costs have risen also in Asian countries, the wage advantage that some countries had in the previous decades is now not strong as it was before. Automation and efficient

production could be a more viable choice for firms in order to maintain low costs. Distance is also considered as a reason to relocate, with some firms trying to be closer to customers, suppliers, and R&D departments (6 cases for the latter), but also with the aim to lower logistic costs and delivery time.

2.3.2 Analyzing offshoring data to measure reshoring

The European Reshoring Monitor's research is for sure a very useful and interesting study that collects numerous cases of reshoring. Using its database is a good way to analyze important variables such as the reasons for reshoring, the size of the firm, their sector and so on. However, it has to be said that it is very limited as it considers only a limited amount of time (from January 2015 to December 2018) and only European firms. For the aim of this thesis, it makes sense to look for other sources of data in order to understand the size of the phenomenon at a global level and in a longer timeframe. For this reason, using data from institutions such as the WTO, the UNCTAD and the OECD is valuable to enlarge the analysis.

Before going deep into the second part of the quantitative analysis of this thesis, an assumption has to be made: there are no precise data regarding reshoring, it is very difficult to quantify unless time-consuming methods are used such as surveys or case studies considering many firms. Consequently, it is necessary to measure the trends of the opposing phenomenon which is offshoring. Measuring FDI, trade of intermediate goods and added value of exported and imported goods can be the way to spot possible reshoring trends or a decrease in offshoring decisions. However, it has to be clarified that a decreasing offshoring trend do not necessarily mean that there is a corresponding increase in reshoring cases, but it could signal a change in the strategies of international companies.

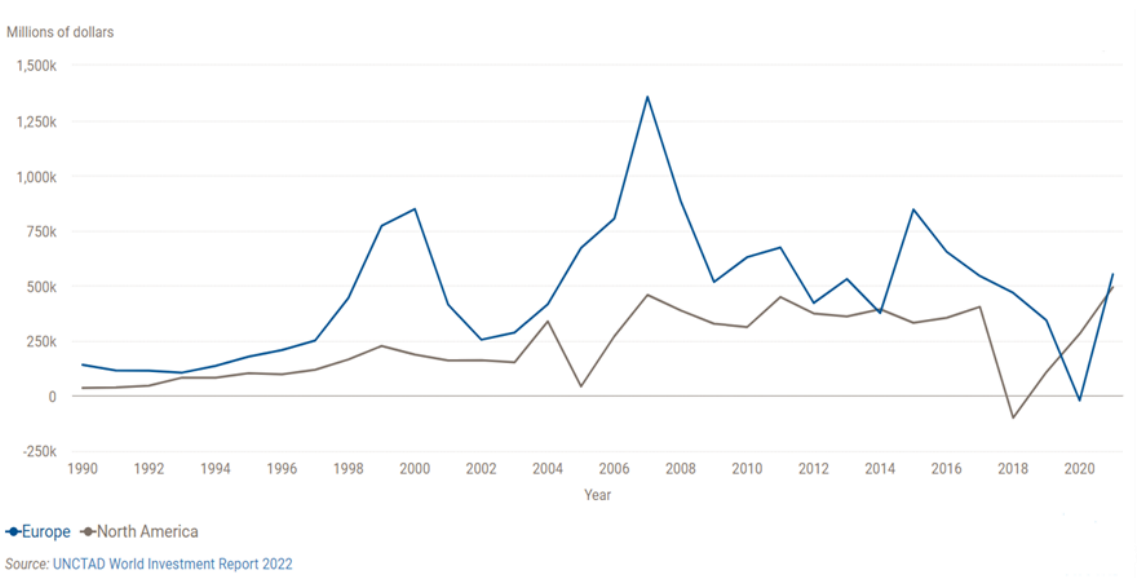
Trends in FDI

The first dimension of offshoring that is going to be analyzed is FDI trends. As it is claimed in the World Investment Report of 2020 by UNCTAD, reshoring can cause a decrease in FDI especially in high-tech GVC-intensive industries, led by key drivers such as automation but also policy environment. Regarding the latter aspect, analyzed in the following chapter, governments may start to see reshoring as a solution for mitigating GVC's risks and expanding their industrial capacity.

UNCTAD website shows the FDI flows over the last 30 years[29]. First, taking a look at Figure 22, it is easy to notice a stable increase of FDI outflows in the nineties until early 2000s and the trend for both Europe and North America seems to be similar. It is clear that with the Financial Crisis of 2008-09 the positive trend in FDI stopped and then stagnated. Investments abroad have never reached the levels of 2007 after that, and flows have considerably diminished. Nevertheless, relatively speaking, North American FDIs seems to be not as affected as the European ones. When it comes to the last years, American FDI have considerably dipped in 2018 (OECD data[30] report a negative value of 128.316 USD millions) but bounced back later. In 2020, it is interesting to notice that European countries saw a negative value of FDI outflows (-20.572 USD millions) while FDI from North America increased with respect to 2019.

It is clear by the graph that FDI outflows from developed economies bounced back, European investments went from a negative value of 21 USD billions to 552 USD billions. Germany was the second largest investor in the world after the USA which tripled FDI outflows to Mexico and increased by 25 USD billions of outflows directed to Singapore.

Figure 22: FDI Outflows for Europe and North America

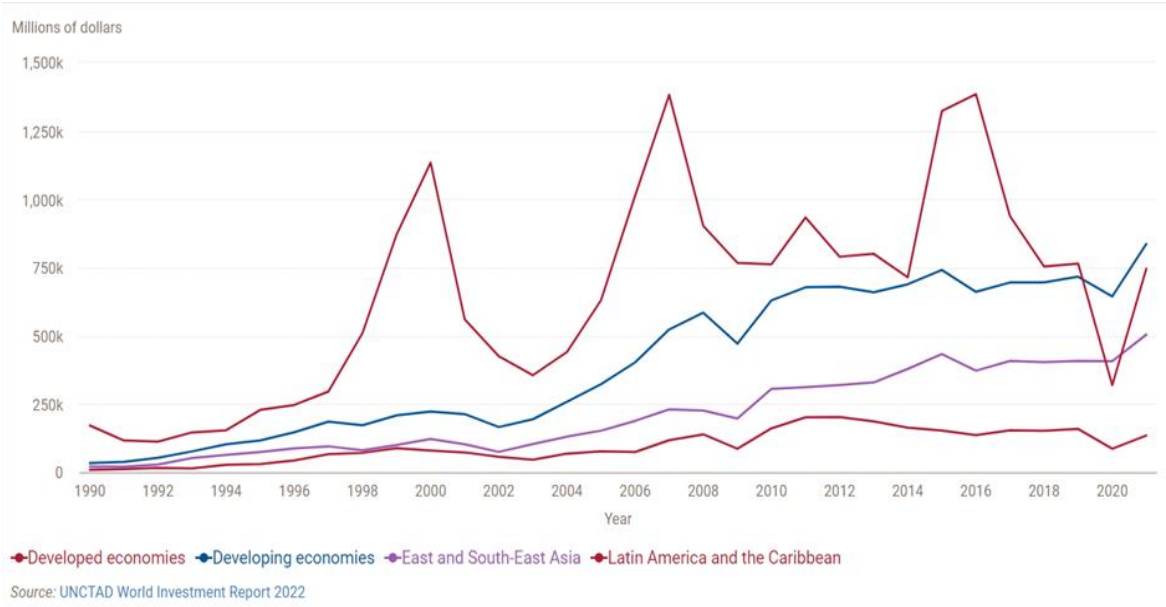


Looking at FDI inflows, Figure 23, for developed economies (Europe, North America, Japan and Australia), we can see a similar trend to what we have just seen while for developing economies we see a stable growth, with just a slight decrease in 2008 and 2020. It is also worth mentioning that FDI inflows for developed economies have been

[29] https://unctad.org/topic/investment/world-investment-report/fdi-flows-2022
[30] https://data.oecd.org/fdi/fdi-flows.htm

affected more both in absolute and relative terms: this is mainly due to a decrease of FDI inflows for European countries with a decrease of around 320.000 USD millions in FDI inflows between 2019 and 2020. Because of the Covid pandemic, East and South Asia just saw a stagnation of investments but not a decrease.

Figure 23: FDI Inflows for group of countries



UNCTAD underlines that FDI recovered really well in 2021, global FDI inflows has grown by 64% globally, most of developed economies saw an increase in FDI (the result can be seen in the graph), especially the US which have seen inflows doubling. Developing economies registered an increase of 30% and FDI reached 837 USD billions, an all-time record, thanks to a steady increase of inflows directed to Asian countries and Latin America bouncing back with new foreign investments.

Unfortunately, the recovery is being stopped in 2022 due to the negative consequences that the war in Ukraine has set off. Risk aversity and uncertainty among investors are surely increasing as prices for commodities and energy are worsening inflation and debts. This results in lower involvement by MNEs abroad: "According to preliminary data, the number of greenfield project announcements in the first quarter of 2022 was 21 per cent below the quarterly average in 2021. Cross-border M&A activity was 13 per cent below the 2021 average and international project finance deals were down 4 per cent" (UNCTAD, 2022, p.4).

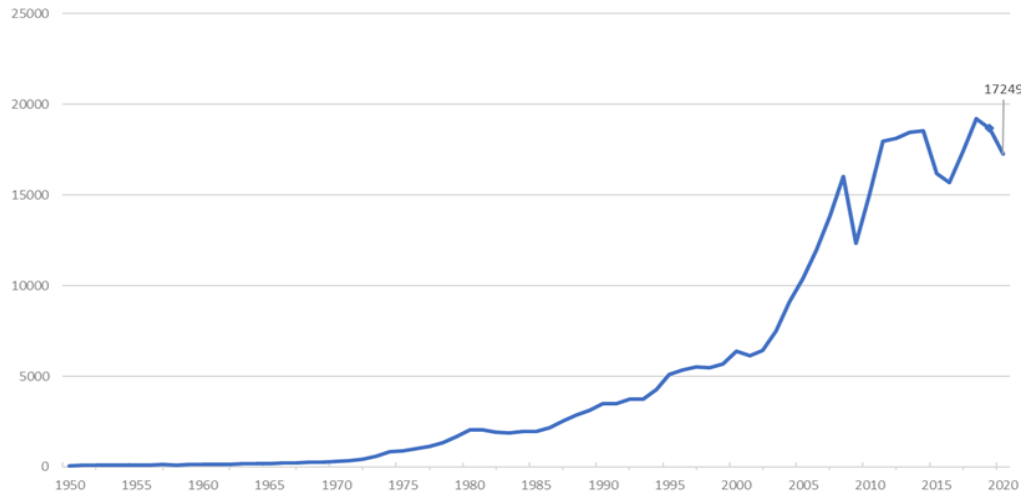
To sum up, it is difficult to spot a real trend of decline in investments abroad: Asian countries have been receiving inflows steadily in the last 30 years, developing economies now have received more FDIs than developed economies since 2019. These

aspects could be seen as a sign that MNEs are not actually decreasing their investments in low-cost countries even if a decrease in FDI outflows from Europe and North America after 2008 has been considerable. However, data on FDI does not show any considerable sign that reshoring is becoming a relevant factor that is changing the global investment scenario, at least for the moment. Nonetheless, UNCTAD (2020) warns that reshoring processes could accelerate and are expected in the future considering variables such as possible protectionist policies and decreasing costs for automation. Finally, it might be worth to mention that because of the global FDI decrease due to the pandemic, China is now the biggest recipient of FDI, overtaking the USA[31].

Trade of intermediate goods and GVC participation

Global trade has been on the rise since the end of WWII with the increasing phenomenon of globalization, reducing the geographical distance between people and economies. As seen in Paragraph 1.1, trade has evolved in "size and shape" throughout the years (Figure 24), with exports and imports increasing as a share of global GDP from 27% in 1970 to 621% in 2008 (Franco-Bedoya & Frohm, 2020) and intermediate goods increasing their importance and share in global trade. In 2021, global trade reached an all-time high of $28 trillion, following the same recovery trend of FDI seen previously and surpassing trade levels of 2019[32].

Figure 24: global trade in USD billions 1950-2020.



Source: WTO[33]

[31]https://www.ispionline.it/it/pubblicazione/investimenti-esteri-crollo-record-ma-cina-batte-usa-29171

[32]https://unctad.org/news/global-trade-hits-record-high-285-trillion-2021-likely-be-subdued-2022

[33] https://www.wto.org/english/res_e/statis_e/trade_evolution_e/evolution_trade_wto_e.htm

Comparing Figure 24 to the previous graphs regarding FDI (Figure 22 and 23), we notice similar trends in the last 15 years as trade too has suffered negative shocks caused by the Financial Crisis of 2008-09 and Covid-19. Nevertheless, for the scope of this thesis, the focus is on intermediate goods as they are moved along global value chains. A decrease in trade of intermediate goods can be interpreted as a reduction of activity of GVCs and consequently as a sign of reshoring.

The following data is taken from WTO statistics[34], focus is on growth of intermediate goods imports and exports in recent years. Taking 2010 as a starting point, the Financial Crisis had time to affect firms' strategies.

First of all, Table 2 shows the percentage change in intermediate goods trade between 2010 and 2020: negative values, highlighted in red, are seen just six times and it is interesting to notice that Japan and France had a negative percentage both in exports and imports of intermediate goods. A possible explanation could be an overall slight decline in trade for both countries: Japan was the fourth biggest global exporter in 2010 but became fifth by 2020, accounting now 3.6% of global exports of goods; similar trend for France, sixth in 2010 with 3.4% of exports and ninth in 2020 with 2.8% (UNCTAD)[35]. Nevertheless, both France and Japan record an increase in trade of intermediate commercial services during the same period of time, with the former recording an increase in imports and exports of such services of 3.9% and 4.1% respectively, while the latter recorded growth percentages of 7.1 and 4.8. The rest of the selected countries show positive growth, but it is worth noticing that developed economies had lower growth than developing economies which registered interesting percentages such as Cambodia, Vietnam, Philippines, China, Turkey and so on. It is safe to assume that this it is normal that such countries show relative growth much higher than developed economies. This is also a sign that firms have kept choosing those countries to relocate throughout the last decade, justifying the high growth in intermediate goods flows.

[34] https://www.wto.org/english/res_e/statis_e/miwi_e/countryprofiles_e.htm
[35] https://unctad.org/topic/trade-analysis/chart-10-may-2021

Table 2: growth in IG goods and GVCs participation

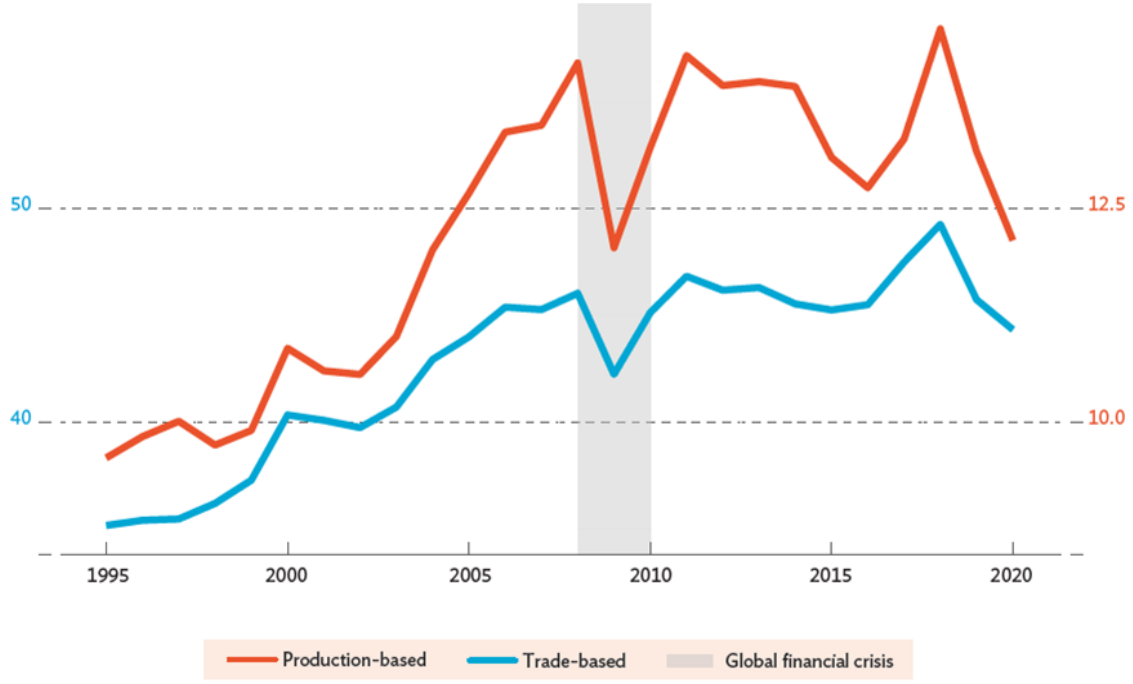
	Growth in IG trade (2010-20)		
Country	Exports of intermediate goods (%)	Imports of intermediate goods (%)	Annual change in GVC participation 2010-18
Austria	0,9	1,2	4
Australia	2,3	0,5	3,5
Belgium	0,5	0,8	2,5
Brazil	1,2	-0,2	2,1
Canada	0,1	0,3	2,8
Switzerland	7,7	8,6	2,1
Chile	-0,6	0,7	-1,1
China	6	4	6,8
Germany	0,8	0,7	3,6
Denmark	1,4	1,5	2
Spain	1	0,7	4,2
France	-0,9	-0,5	3,8
UK	1,3	2,9	2,9
Hong Kong	5	4	2,3
Indonesia	1,4	1,9	1,6
Italy	0,5	0,5	2,8
Japan	-2,4	-0,3	1,5
Cambodia	10,9	14,6	12,8
Mexico	3,6	2,2	6
Netherlands	1,6	2,6	5,4
Philippines	6,2	4,1	4,6
Poland	4,6	4	7,1
Singapore	1,1	2,3	5,8
Thailand	1,7	0,8	3,8
Turkey	3,9	3,7	5,8
USA	0,5	3,4	4,5
Vietnam	18,4	13,2	16,5

Source: WTO

However, the analysis should not stop here, as the last column shows the annual change in GVC participation between 2010 and 2018, which is very important in order to spot possible reshoring tendencies. Apart from Chile's case, all countries show positive annual change in GVC participation, especially Asian countries, just as expected given the recorded high increase in intermediate goods trade. The GVC participation index is important to understand the magnitude and influence of GVCs on trade. Looking at Figure 25, the two lines represent two different approaches: the trade-based one computes the GVC participation as the share of indirect trading in gross exports (Borin and Mancini,

2019), while the production-based measures it as the share of unfinished exports of domestic value added in total value added generated (Wang et al, 2017). In the GVC Development Report of 2021 by WTO, it is possible to find an analysis of GVC participation trends in the last 35 years: until the financial crisis, GVCs developed quickly as that was the phase of "hyperglobalization"; 2008-09 meant a sharp but temporary decline as participation rates went back to pre-crisis levels in 2010. However, rates have not increased since then but, as it is claimed in the report, rather stagnated. What is also reported is that indirect exports reached a record level in 2018 with 13.6 USD trillions, which confirms the healthy state of the GVC model.

Figure 25, GVC participation rate in the world 1995-2020



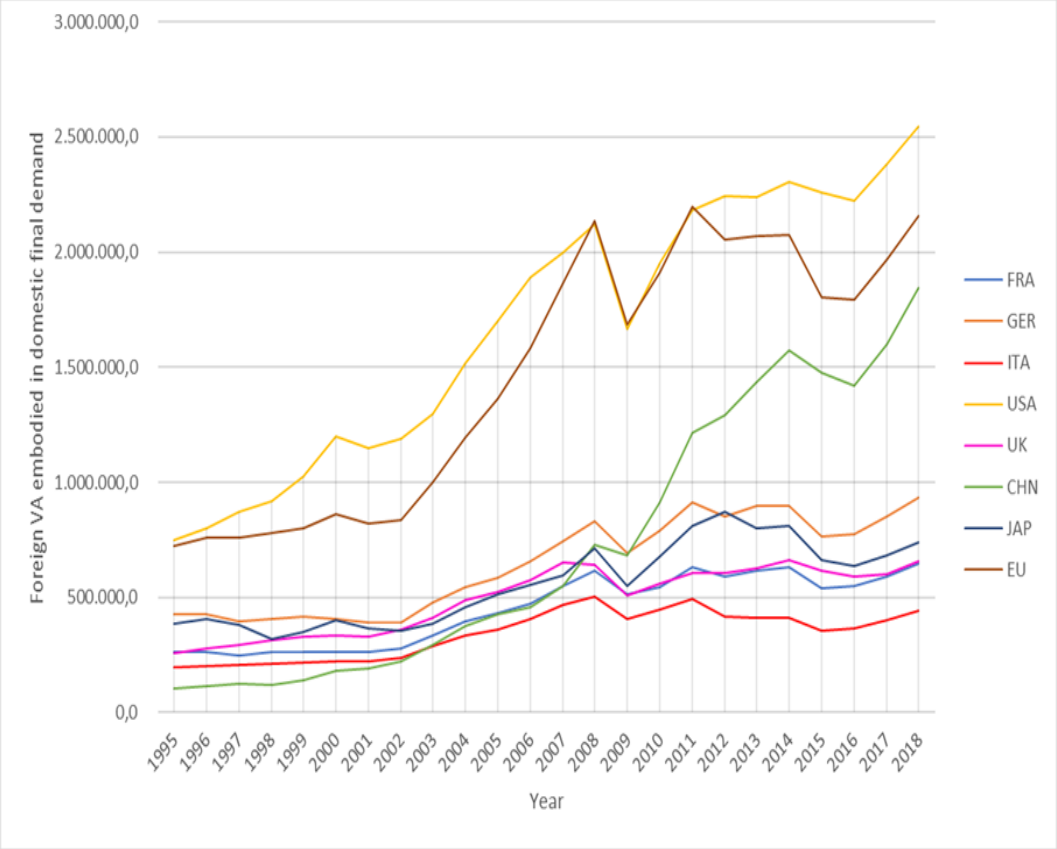
Source: WTO

The numbers then show that the era of hyperglobalization has ended with the financial crisis but trade, and in this case for intermediate goods, has maintained decent levels. Recalling also Figure 7, intermediate goods and services still represents a considerable portion of global trade. Intermediate imports and exports bounced back in 2021 as they have increased by 47% in the second quarter, 27% in the third and 21% in the fourth[36]. It is too soon to say how much trade in 2022 will be affected by rising prices and geopolitical insecurity but it is safe to say that there will not be a growth such as the one in 2021.

[36] https://www.wto.org/english/news_e/news22_e/stat_25may22_e.htm

Trade in Value Added

Figure 26: levels of foreign VA in domestic final demand.



Source: OECD

Evaluating the value added in imported and exported goods is important to understand the commercial relations that a country's economy has with other states (Martins Guilhoto et al., 2022). Indicators about value added in imports and exports also tell a lot about how much a country is integrated in GVCs networks and where the value added in final goods comes from. OECD has a database[37] dedicated to indicators regarding trade in value added.

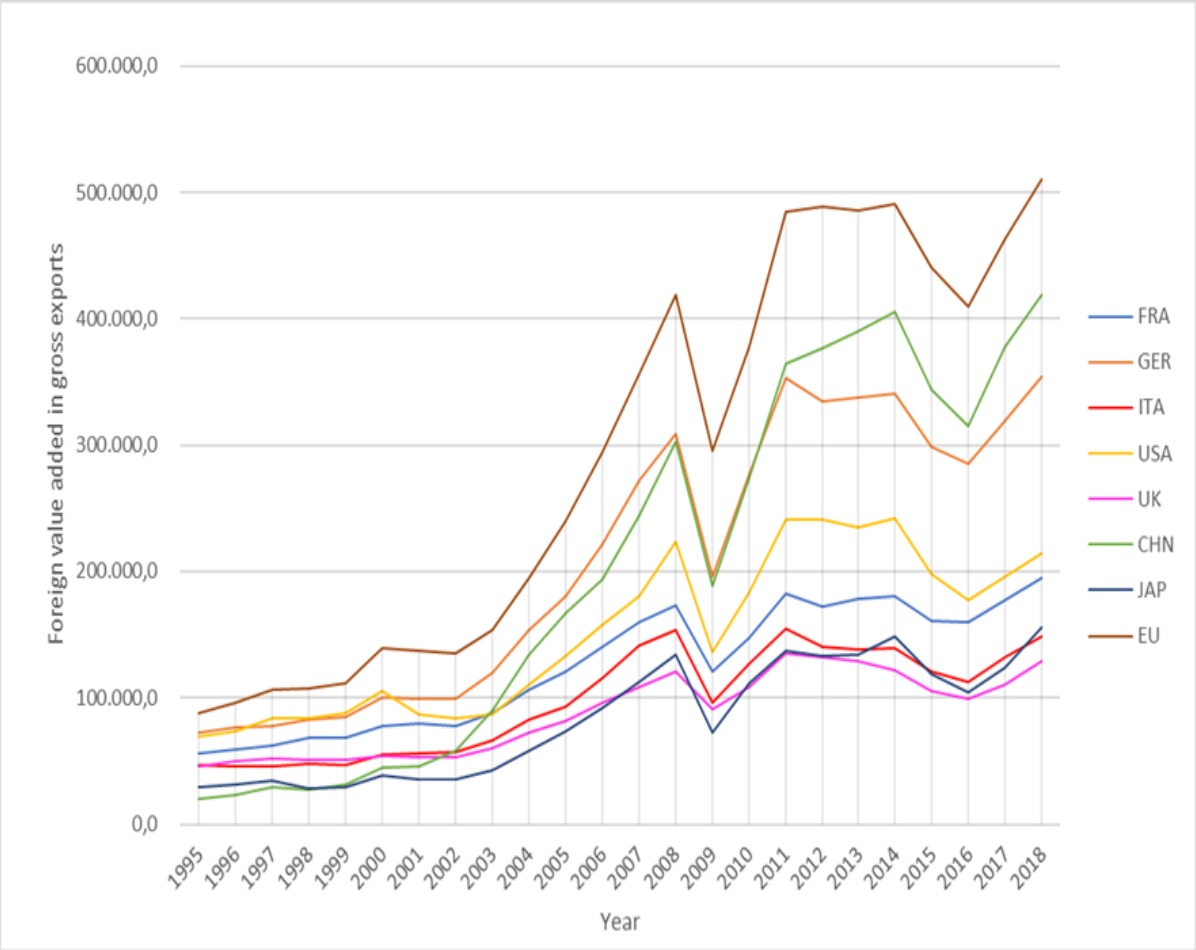
First of all, taking a look at Figure 26, we can see the amount of foreign value added embedded in the domestic final demand (USD millions as measure unit). This is interesting as it shows how much value added coming from abroad final consumers "buy". A couple of notes can be taken by this graph: first of all, we generally see a trend resembling the ones regarding FDI and intermediate goods, with a constant increase until 2008 and a decline for all countries in 2009; secondly, we see a positive trend after the

[37] https://stats.oecd.org/Index.aspx?DataSetCode=TIVA_2021_C1

crisis reaching pre-2008 levels, in case of European countries, and surpassing them in cases such as China and the USA.

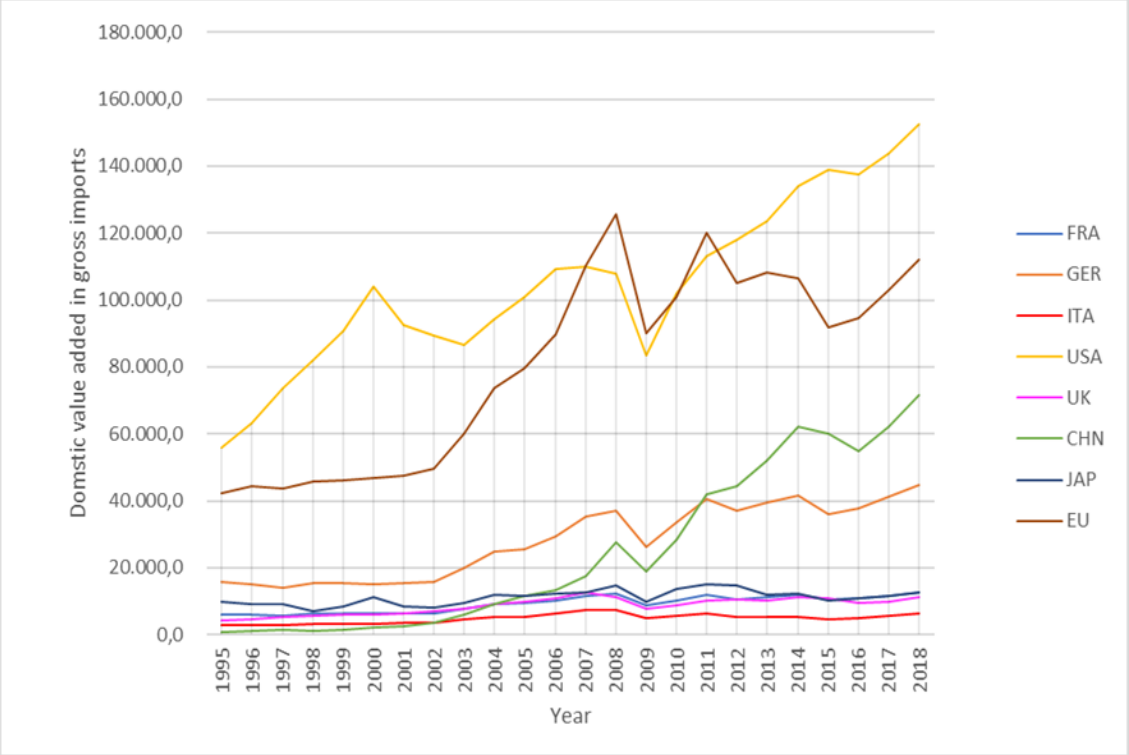
For the scope of the analysis, another important indicator is the level of foreign value added in gross exports: this can gives us an idea of the GVC integration of a country. Taking a look at Figure 27, it is possible to see again some of the characteristic trends seen before like a clear and sharp decrease in 2009 followed by a recovery that brought back the pre-crisis levels. In this case, in relative terms the decrease was really sharp: for the European Union, foreign value added in exports decrease by almost 30%, for China Germany and Italy was almost 40%, while Japan's was around 45%. Despite this, already in 2010 levels were around pre-crisis period for most of the countries and if not, they were in 2011 at latest.

Figure 27: Foreign value added in gross exports, 1995-2018



Source: OECD

Figure 28: Domestic value added in gross imports, 1995-2018



Source: OECD

To have a complete picture, considering the nature of GVCs, it is worth to consider the domestic value added that comes back with imports. Trend in Figure 28 is similar, we see a post-crisis increase even though it's not steep as the previous graphs. China has a steep increase which could also be a sign of the increasing consumerism in the country, meaning that some products passing through GVCs having Chinese factories "go back" once they are final goods. This could be especially true for ICT and electronic goods which belong to the largest export sector for the country.

The graphs above are surely helpful in understanding the recent developments of trade in value added, however, taking a look at OECD countries' notes[38] allows a deeper analysis. For example, China's case, OECD's notes suggest that some changes occurred in recent years: first of all, Chinese firms are relying more on domestic sourcing for intermediate inputs; second, production is shifting to focus more on domestic consumption; third, regional integration with its neighboring economic partners, such as Cambodia and Vietnam, has substantially increased in recent years. The latter aspect is

[38] Available at https://www.oecd.org/sti/ind/measuring-trade-in-value-added.htm#access

very common among the countries in this analysis, especially in Europe: France, Germany, Italy are all intertwined in their supply chain ties, and they all have European countries as their top 5 biggest trading partners. Nevertheless, OECD specifies that, if we take the European Union as a whole economy, the levels of non-EU value added embodied in European exports have been stable between 2008 and 2018, passing from 15.7% to 15.8%. This means that European value chains have not become less reliable on other countries. Japan also shows signs of regional integration exporting intermediate goods to China, Korea, and Taiwan. The same can be said for the USA with its neighbors.

An interesting aspect is that one of the key findings, for most of the analyzed countries, is that foreign value-added of exports, as a percentage, has declined after 2008. In the US' case, this is due to the increasing exports of services with high domestic value added. However, Italy, Germany, France, UK and Japan experienced an increasing percentage of foreign value added between 2016 and 2018, reverting the declining trend in the aftermath of the financial crisis. In China's case, foreign value-added percentage has declined, as said before, because of the increasing trend to source inputs within Chinese borders, especially for ICT and electronics.

2.3.3 Concluding remarks on the data

As said before, reshoring does not have a precise parameter to use to measure the phenomenon, this makes it not easy to detect the amount of reshoring factories. The research conducted by the European Reshoring Monitor is extremely useful as it collects real cases and gives an idea of which are the firms who might decide to relocate and why. It also gives a hint, as it is easy to expect, that China is the most affected country by reshoring cases, given the fact that it was the preferred offshored destination in the previous decades. It also helps to understand the sectors which might be more involved in the phenomenon. In general, it is also useful because it gives concrete proof that reshoring is real and can be an option for firms with different sizes, of different industries and from different countries. Nonetheless, as previously said, it is limited and does not really quantify reshoring as a global potential trend.

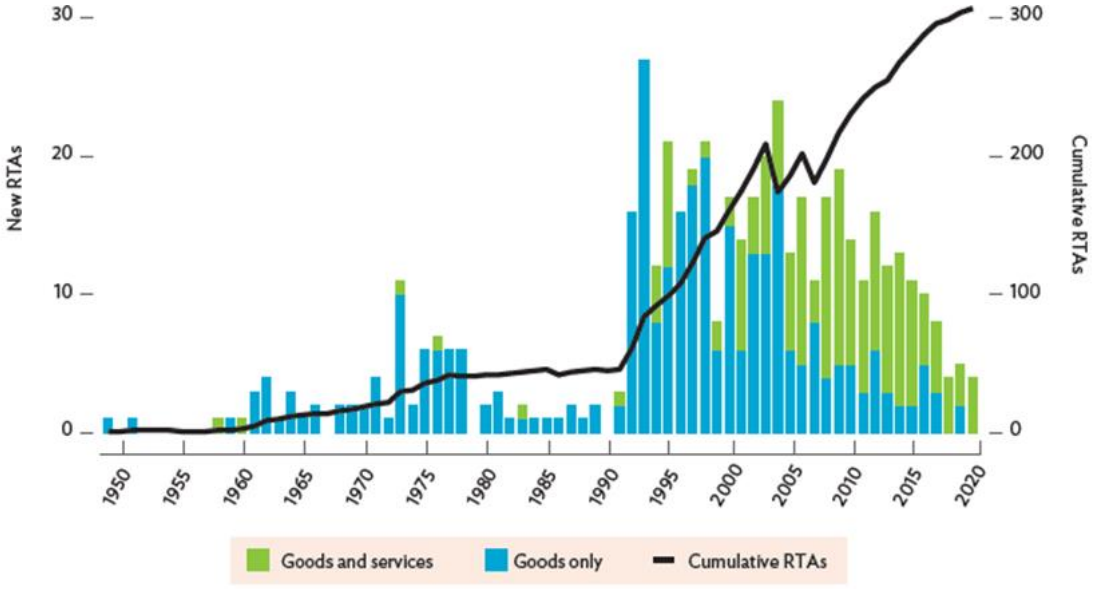
Still, various studies proved that reshoring cases have increased in the last fifteen years (Figure 15), but is reshoring really becoming more widespread in the global economy? By looking at the data taken from WTO, OECD and UNCTAD, the trend for offshoring and GVCs seems to be the same for each parameter: a steep, but just

temporary, decline in 2009 due to the financial crisis, followed by a recovery that set levels back approximately to the ones pre-2008. Even so, this does not mean that the global framework is the same as it was in the early 2000s as economic globalization developed and is developing in different ways. One thing is sure: the amazing acceleration of hyperglobalization started in the nineties has ended; according to Antràs (2021), the collapse of the Soviet Union and China joining the GVCs network on a vast scale were the two causes for that. As a result, with the passing of time, the phenomenon would have slowed down sooner or later. However, a slowdown does not mean reversing completely the trend: in the GVC Development Report of 2021 by the WTO, it is claimed that "GVCs are more likely to evolve than to shut down" (p. xx). This era of so-called "slowbalisation" has seen regionalism surviving, with a stable increase in regional trade agreements (Figure 29).

One might think that this is a sign that nearshoring has become the main trend in global production. Actually, as it is claimed in the Report, there are two main conclusions (p.38): first, major economies have actually slowed down their GVC integration but in the meanwhile, developing economies such as Bangladesh and Vietnam have become more and more globalized; second, regionalism has not prevented the need and will for "inter-bloc trade", which means that economic agglomerations such as the EU and NAFTA are not able to rely solely on their members to meet their internal demand. The underlying conclusion is that globalization is slowing down but not uniformly all around the globe, this means that "reshoring has not become any more pervasive than before" (p.38). Moreover, complete regionalism might not be the optimal solution as Di Stefano (2021) writes since this could lead to suboptimal allocation of scarce resources. Despite the disruptions and the weaknesses that have been exposed, the Pandemic has not pushed many firms to opt for a reshoring strategy but rather GVCs have proved to be more resilient than expected and key sectors have not experienced a lot of relocation strategies (Menont, 2022)[39]. Di Stefano (2021) adds that this may be a result of the "stickiness" of some kinds of production caused by high sunk costs, which means that all activities that have to be performed close to these types of facilities cannot move as well.

[39] https://www.channelnewsasia.com/commentary/covid-19-supply-chain-reshoring-us-china-trade-war-tariff-vietnam-2788266

Figure 29: increasing regional trade agreements.



Source: WTO (2021)

Another aspect to consider is the proliferation of digital technologies that can foster global business models: as defined by Baldwin (2019), Globotics is the new framework towards which world economy is going nowadays, with the combination of the forces of globalization and digitalization. This opens up new scenarios for the future that do not just concern manufacturing and production, on which the analysis has focused, but also deal with the service sector. While the cost decrease in transportation and the opening up of developing economies caused offshoring of manufacturing activities, new communication technologies could cause a "digital migration" of some activities. According to Baldwin (2022), a prominent trend in the future will be the trade of intermediate services which do not have high barriers except for technological ones. With the proliferation of digital tools, global networks could be reinforced through trade of this kind. Baldwin also underlines that there are very few limiting factors for trade of services: it is hard to tax service imports; technological barriers are lowering down; developing nations already have workers providing intermediate services like accountants, assistants, sales agents, and so on; there is no need to invest in physical buildings like new factories; services can be traded anywhere in the world in a fast and easy way and compete at a global scale. As the pandemic has accelerated the process of digitalization in the work environment, it follows that it could foster the evolution of global business models and

expand them to other activities that were previously performed exclusively in the headquarters of MNEs.

To conclude, there is not much evidence to say that reshoring has now become a major trend in the global economy, even though it should still be looked at with attention now and in the future. Much will depend on how institutions will behave and whether they will propose incentives to firms to reshore. Moreover, it should be questioned whether reshoring could be a shock-proof strategy for value chains. Finally, the degree in which reshoring can be a valuable option for firms vastly depends on the sectors in which the same firms operate and consequently on what variables have a major effect on decision makers. For now, it seems that neither the Financial Crisis of 2008 nor the Covid-19 Pandemic have disrupted global production in such a way that a vast number of companies are running away from their past decision.

CHAPTER 3: TOWARDS A NEW INDUSTRIAL POLICY

As previously said, reshoring has become a subject of interest in recent years, driven by the end of the hyperglobalization era and the consequences of the Financial Crisis of 2008-09. In 2012, the loss of jobs caused by the crisis, sparked a heated public and political debate during the US Presidential Campaign. Much focus was given to bringing back manufacturing jobs that offshored abroad in the previous decades. Before 2008, this subject was not considered a big problem but after the crisis hit and unemployment increased, then offshored jobs became an issue and politicians started discussing policies in order to create new jobs or to "get them back"[40].

As seen in Chapter 2, global economy and trade recovered, but the degree of trade integration and GVCs expansion stagnated rather than increased like it did in the 90s and 00s. Even though the financial crisis triggered the reorganization or, at least, questioning of the global production processes, what really exposed the vulnerability of GVCs, and offshoring strategies was the Covid-19 pandemic. Considering what has been said in the previous chapter, the shock due to the pandemic raised additional questions about the resiliency of GVCs.

In this delicate situation, governments stepped up trying to mitigate the supply shortages that afflicted health products in the first months of the pandemic and reshoring became a potential economic policy tool for many. The Policy Department for External Relations of the European Parliament completed a study (Damen et al., 2021) focused on the use of reshoring as a possible policy option, especially when it comes to the production of strategic assets. Right now, governmental decision could be crucial in reshaping the relocation strategies of companies (Elia et al., 2021) and according to De Meyer (2020) politics have now taken back priority over economics because of the pandemic. What was first conceived mainly as a tool to create jobs, reshoring is now also included in the debate to identify ways to ensure supply of key products and technologies. With the return of geopolitics and turmoil due to the war in Ukraine and the constant rivalry between China and the US, having an independent supply of critical goods and commodities such as microprocessors, pharmaceutical products and so on, could be necessary in the future (Elia et al., 2021). For this reason, in 2016, the European

[40] https://www.reuters.com/article/us-usa-elections-jobs-idUSTRE69C5BF20101014

Commission introduced the concept of Open Strategic Autonomy covering five macro areas: geopolitics, economics, technology, environment and society. The economic area, as expected, deals with the strengthening of resilience of crucial assets and industries[41].

This chapter then will focus on how reshoring could shape future policies to change firms' relocation strategies, especially when it comes to certain sectors and manufactured products. However, it has to be taken into account that reshoring has some critics, and it may not be the solution to many problems and drawbacks of offshoring that have been previously mentioned. Then, to give a complete picture of the phenomenon and the policies that could be associated with it, it is fitting to address and mention potential weaknesses.

3.1 Strategic Autonomy

In the previous chapter, I have mentioned the disruption of supply for medical devices and PPEs in the first months of the Covid-19 Pandemic. This situation meant that, more than ever, countries found themselves exposed and vulnerable because of the high dependency on foreign countries (especially China) when it comes to important products, particularly in the case of a health emergency. When a region is too dependent on another country providing critical goods and materials, a disruption of such supply could be highly detrimental. We are seeing this with the case of the Ukraine War when many European countries, even with the will to support Ukraine, have to buy Russian gas, with the ever-presenting risk that its supply could get interrupted[42].

Nevertheless, the ambition of achieving autonomy over specific assets and technology has been talked by the European Union, its member states and the United States before the pandemic started. In the last years, we have seen the comeback of geopolitics, a trade war between the US and China and many other factors that increased the need to address the safety of supply for important goods. As Damen et al. (2021) claim, political conflicts, cyber-attacks, natural disasters, and other exogenous shocks will increase potential supply disruption in the future. They also add that "Industrial and technological capabilities and capacities are considered crucial elements for the international competitiveness of the EU economy vis-à-vis the increasingly geopolitical

[41]https://knowledge4policy.ec.europa.eu/foresight/looking-future-eu%E2%80%99s-open-strategic-autonomy-2040-beyond_en
[42]https://www.infodata.ilsole24ore.com/2022/02/25/quali-paesi-europei-dipendono-piu-dal-gas-russo/

strategies employed by the US and China" (p.ix). They especially stress the importance of "technological sovereignty" in digital technologies which could be a crucial input in achieving strategic autonomy in the future.

It is important to define the concept and to understand why reshoring is included in the debate to achieve it. The European Commission's communication on Next Generation EU of 2020 gives some insights on what strategic autonomy entails. First of all, it is necessary to say that, as European Union means strategic autonomy, it might be more appropriate talking of open strategic autonomy as the intention is to preserve the benefits of trade and not harm exchanges. The latter concept means "shaping the new system of global economic governance and developing mutually beneficial bilateral relations, while protecting ourselves from unfair and abusive practices" (p.13). What also transpires is the intention of investing heavily in key technologies and value chains, creating a resilient EU capable of carrying on autonomously despite potential negative shocks. The "key technologies" mentioned in the document include various factors aimed at improving "digital society", developing 5G networks, expanding the available bandwidth for health, logistics, transports and crucial infrastructures. In general, the goal is to invest in the digital capabilities of member states such as AI, cybersecurity, data and cloud infrastructure, blockchain. Special attention is also put into pharmaceutical products and raw materials, especially in light of what happened during the Covid pandemic. The aim here is to build solid value chains which could strengthen European competitiveness and industrial sector, and generally to protect the EU from future crises. To do all of the above, it is also important to invest in innovation and research, facilitating the access to research infrastructure and having policies aimed at supporting the scientific world. The concept of strategic autonomy has to intersect, according to Akgüç (2021), with well-functioning and fair labor markets, meaning that the EU should also focus on training workers in the specific areas needed to boost innovation and productivity in key sectors. This is necessary, Akgüç adds, considering the ageing and shrinking workforce. This means that strategic autonomy does not concern just economic and geopolitical factors, but also socioeconomic and environmental ones.

The question of reshoring key assets is strictly linked to specific sectors that have potential benefits to be reshored. Elia et al. (2021) identify two groups, depending on the factors behind a possible relocation. The companies that could be driven to reshore because of economic factors are those working in the electronics sector, machinery and electrical equipment sector and transportations. The reasons are the ones previously

mentioned such as increased flexibility, automation and shorter lead times. The sectors that could be driven by political factors, and the ones strategic reshoring focuses on, are medical products, chemicals, pharmaceutics, aerospace, communication automotive, semiconductors. These sectors are perceived as very important at a national security and supply security level. For some of them, it is easy to understand why, especially considering the last two years. For example, the health market is dominated by few multinationals located in the US and Europe, but several Asian countries have now a critical role in the supply chains of products such as face masks, gloves, bandages and so on (Elia et al., 2021).

3.*1.1 The Semiconductors Value Chain*

A very interesting case is the semiconductor sector: chips and processors are now more important than ever, considering the increasing digitalization of society. Computers, smartphones, but also cars, automated machinery and so on could not work without them. This means that semiconductors can be considered the "backbone of modern society" (Kleinhans and Baisakova, 2020) and the shortages caused by Covid-19 affected several sectors, including automotive. The crisis is also expected to keep going to 2025 and beyond[43] which imply potential changes in the short term. Considering the dependency that modern society has, having a safe supply of chips is crucial not only for economic reasons but also communication, military, and infrastructures. However, as Kleinhans and Baisakova analyze, despite its crucial importance, no country has achieved autonomy or self-reliance in this sector, even though some moves have been made by China and the US regarding this aspect. It is impossible not to mention the friction between the USA and China when talking about semiconductors are they are a big asset in their contention, especially when it comes to the control of Taiwan[44] which is a crucial country for the production of chips as TMCS is the largest chip manufacturer[45]. It is no secret that China has aimed at reducing its dependency on foreign inputs regarding semiconductors, but this is extremely difficult considering the high interdependencies between the key actors

[43]https://www.mckinsey.com/industries/semiconductors/our-insights/semiconductor-shortage-how-the-automotive-industry-can-succeed
[44]https://www.cnbc.com/2022/08/04/pelosi-taiwan-visit-puts-tsmc-back-in-spotlight-of-us-china-rivalry.html
[45]https://theconversation.com/taiwan-dominates-the-worlds-supply-of-computer-chips-no-wonder-the-us-is-worried-188242

which are Taiwan, United States, South Korea, Japan and Europe (Kleinhans and Baisakova, 2020). Each of them has an advantage in a step of the production process (apart from Europe who has fallen behind in recent years), but the role of Taiwan is crucial and the huge global dependency on TSMC makes it the critical point with the most potential for trouble (Kleinhans and Baisakova, 2020).

Considering what has been said above, it is natural that both China and the US are working towards being less reliant on foreign chips and processors. China is trying to catchup on technology as it arrived late in wafer fabrication: Chinese biggest foundry, SMIC, is not currently producing advanced chips at the same level of TSMC and Samsung according to Kleinhans and Baisakova. It is neither sustainable nor efficient at the moment, as producing advanced semiconductors costs almost the same as producing less advanced one, which are basically useless in a sector such as this[46]. Moreover, the development process has been put at risk by US sanctions intended to prevent technological advancements in the field by SMIC. However, despite that, it is recent news that SMIC has probably advanced its chips, catching up with Samsung and TSMC, putting in doubt whether the US efforts to cutting China off some crucial technological support has been actually useful[47]. Moreover, Chinese sales of semiconductors have increased substantially in the last 5 years and in 2020 almost 15000 Chinese companies registered as working in the semiconductors industry[48].Nevertheless, China has also begun stockpiling chips as much as possible[49] to be prepared in case of another shortage in the following years.

The US have not just tried to damage China's technological development; in recent years they tried to strengthen their semiconductor production capacity as well. US' share of global semiconductor manufacturing went from 40% in 1990 to 11% nowadays (Wessner and Howell, 2022). In June 2020, a new bill was introduced in the US congress named "CHIPS for America Act"[50]: the intention of the bill is "to restore American leadership in semiconductor manufacturing by increasing Federal incentives in order to

[46]https://www.project-syndicate.org/commentary/china-semiconductor-industry-leapfrog-us-competition-by-keun-lee-2022-06
[47]https://www.bloomberg.com/news/articles/2022-07-21/china-s-top-chipmaker-makes-big-tech-advances-despite-us-curbs
[48]https://www.semiconductors.org/chinas-share-of-global-chip-sales-now-surpasses-taiwan-closing-in-on-europe-and-japan/
[49]https://www.bloomberg.com/news/articles/2021-02-02/china-stockpiles-chips-and-chip-making-machines-to-resist-u-s#xj4y7vzkg
[50] https://www.congress.gov/bill/116th-congress/house-bill/7178/text

enable advanced research and development, secure the supply chain, and ensure long-term national security and economic competitiveness". In July 2022, the Senate passed the Chips and Science Act which includes incentives to companies, funds for R&D centers, education and workforce training, national defense, and investments for wireless technologies for a total budget of $54.2 billion plus tax credits. Moreover, the Act specifies that potential recipients of federal money have to agree to restrict their future expansion of semiconductor manufacturing in China. Joe Biden commented the act underlining that "For the sake of our economy and jobs and costs and our national security, we have to make these semiconductors in America once again"[51].

It is worth mentioning that even before the Chips Act, the State of New York achieved excellent results in the manufacturing and developments of semiconductors as presented by Wessner and Howell. New York is now one of the key regions in nanotechnology and host America's biggest semiconductor manufacturing foundry, GlobalFoundries, in its capital Albany. Wessner and Howell use this example to the advancements of the New York region could be replicated at national level if the federal government consider a whole spectrum of factor, even though considering the wider area, it will face tougher challenges. The role played by the collaboration between universities and companies, such as IBM, has been crucial and laid down the foundation for the competitive advantage of the region. This has not been a rapid process, but the result of decades of investments, bipartisan policies and continuous improvements of existing facilities and infrastructures. This has fostered a local ecosystem with high human capital, advanced R&D, manufacturing capacity, creation of jobs and a bipartisan agreement to push the industry with long term aims. In light of the Chips Act, reinforcing the industry in New York, and using it as a model for other centers in the country, could be a trigger to develop the whole US semiconductor industry.

While the two global giants are making moves, the EU is not watching and is making concrete moves similar to the US. In her State of the Union Address of the 15th September 2021[52], Ursula von Der Leyen underlined the importance of investing in digitalization and of achieving technological sovereignty. Because of the shrinking importance that EU has had in recent years in the supply chain, a reaction is needed, and

[51]https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/08/02/remarks-by-president-biden-marking-the-signing-of-governor-whitmers-executive-directive-to-implement-the-chips-and-science-act-of-2022/

[52] Available at https://ec.europa.eu/commission/presscorner/detail/en/speech_21_4701

for this reason von Der Leyen presented the European Chips Act, which passed in February 2022. The declared objective is "to jointly create a state-of-the-art European chip ecosystem, including production. That ensures our security of supply and will develop new markets for ground-breaking European tech". Very similarly to its American counterpart, this Act is intended to achieve objectives such as strengthening of research towards more advanced chips; supporting design innovation, manufacturing and packaging of chips; improving skills of European human capital; increasing production up to 20% of the global share; developing deep understanding of the entire supply chain. The total amount of investments is around €43 billion to spend until 2030 and it is expected to be matched by private investment.

Semiconductors are a very nice example of a key asset nowadays, and probably is the one that is attracting the most significant attention from governments. Considering the constant friction caused by Chinese ambitions towards Taiwan and the supply shortage that will keep going for the next years, it is no surprise that governments are rushing trying to secure their supply and make it more resilient.

3.2 Pro-reshoring policies: examples and results

Policies incentivizing reshoring did not come out just after Covid. In the previous decade, some policymakers already focused on the matter. According to De Backer et al. (2016), in the US, the policy debate on reshoring started with the Obama administration in 2012 with the "Blueprint for an America built to last". The document[53] introduces four main pillars: manufacturing, skills, energy, and values. The first two pushed for reshoring policies such as taxes on profit for companies producing abroad, lower taxes for companies creating jobs in America, creation of collaborations between colleges and firms, help for research and innovation, investments in high-school education, and facilitation for unemployed workers relocation in the job market. Then, the idea is a mix of convincing companies to backshore with tax cuts while improving the existing human capital in a way that potential reshoring firms can find ready and high skilled workers. However, as De Backer et al. mention, Obama administration has encountered difficulties to put into practice the proposed ideas, especially for tax incentives. Nevertheless, the

[53]Available at https://obamawhitehouse.archives.gov/sites/default/files/blueprint_for_an_america_built_to_last.pdf

government investment was around $80 billion to finance subsidies, covering 20% of reshoring costs and to improve logistic infrastructures: the end result was 1800 projects supported by states and 25 cooperation plans (called "Manufacturing Universities") between universities and companies (Centro Studi Confindustria, 2020).

Attention on reshoring was put especially by the Trump administration between 2017 and 2020, which was expected considering the statements about China in the presidential campaign of 2016. Trump, in his own way, kind of warned about the possible risks of US' high dependency on Chinese manufacturing capacities and started a trade war against the global rival[54]. President Trump often focused on the need of "bringing back" manufacturing jobs and according to Forbes[55], in his first 30 months almost half a million manufacturing jobs were created. Rather than focusing its policies on investments on innovation and research like Obama, Trump administration counted on cutting production costs and a hostile trade policy towards China with high import duties (Elia et al., 2021). However, this kind of policy didn't seem to have achieved good results for the aim it was intended for: according to the Robert E. Scott (2020) offshoring continued during Trump presidency, and whatever job was gained, it has been lost because of the Covid-19 pandemic. America has kept losing manufacturing plants since 1998, as it can be seen in Figure 30.

After Trump's presidency, the theme of reshoring continued to be a matter of policy debate with Biden, who focused on securing critical supply chains and building their resilience since the first months of its presidency[56]. The approach taken by the Democratic president looks similar to Obama's one with incentives and easy access to financing. The main features of the Biden-Harris' plan are the following: strengthening US manufacturing exports financing operations of SMEs; expanding access to capital for small manufacturers; promoting an environment of innovation and collaboration among firms, unions and innovative startups; improving logistics by investing in infrastructure; expanding domestic production and process of critical minerals and easier securing of government contracts for American manufacturers under the Buy American Act[57]. Biden

[54]https://www.industryweek.com/the-economy/trade/article/21154656/biden-vs-trump-on-reshoring-a-review-and-a-critique

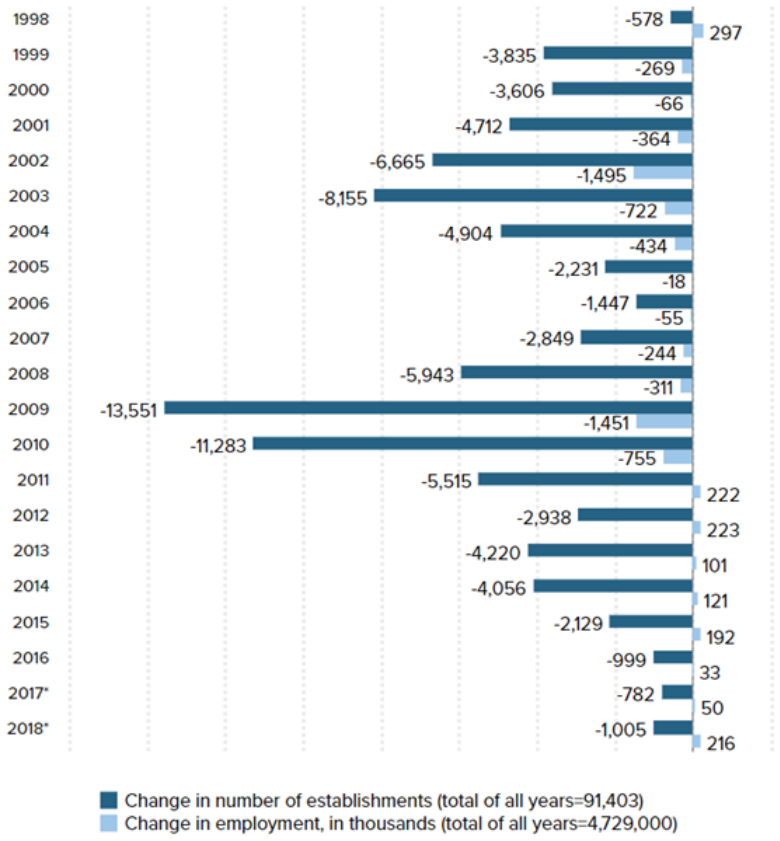
[55]https://www.forbes.com/sites/chuckdevore/2019/07/10/in-trumps-first-30-months-manufacturing-up-by-314000-jobs-over-obama-what-states-are-hot/?sh=2d5807b42677

[56] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/02/24/executive-order-on-americas-supply-chains/

[57] https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/24/the-biden-harris-plan-to-revitalize-american-manufacturing-and-secure-critical-supply-chains-in-2022/

also supported reshoring in his State of the Union Address in March 2022 claiming "instead of relying on foreign supply chains, let's make it in America"[58].

Figure 30, change in manufacturing establishments and jobs in the US 1998-2018



Source: Economic Policy Institute (2020), data taken from Bureau of Labor Statistics, U.S. Census Bureau Business Dynamics Statistics and U.S. Census Bureau County Business Patterns

Moving to Europe, for the moment there has not been a policy promoting reshoring at EU level. Nevertheless, there are still examples of European governments designing policies to trigger reshoring. France was the first one in Europe to implement this kind of policies in 2013: the basis for this policy was an online questionnaire called Colbert 2.0, addressed to French SMEs with offshored activities, to evaluate whether they would be prepared to relocate and their potential benefits from a possible decision to do that[59]. After completing the questionnaire, potential reshoring companies were supported by a dedicated service consisting of having a single person assisting the company with bureaucratic practices related to the relocation phase. This was complemented with a specific fund to help firms (Elia et al., 2021). Moreover, even before the policy, in 2010,

[58] https://www.whitehouse.gov/state-of-the-union-2022/
[59] https://estory.corriere.it/2013/07/29/colbert-delocalizzazione-made-in-france/

the association *Origine France Garantie*[60] was created for French companies who wanted to promote a transparent and voluntary certification for goods produced in France. It is also useful to know that the policy was designed by the then Minister of Economy, Arnaud Montebourg, who really pushed for *relocalisation* and *Made in France*[61] as the debate about it was starting to get attention in that period. Elia et al. (2021) add that Colbert 2.0 and services linked with it were deactivated some years later. However, that was not France's last attempt at pro reshoring policies.

In 2017, under the presidency of Emmanuel Macron, the Minister of Economy, Bruno Le Maire, launched a new project called *La French Fab.* As it can be seen in the dedicated website[62], it is intended to "bring together the industrial ecosystem across France". It is interesting to notice that there is a specific macroarea dedicated to strategic autonomy, security & defence industries in which it underlined the need to invest in technology and expertise in order to develop a French production chain capable of responding to new challenges. In 2019, it was also created the French Fab Investment Desk to accelerate new industrial investments for French companies who desire to expand their productive capacity in France instead than abroad, all done collaborating with local and regional institutions[63].

The pandemic outbreak brought even more public and government attention on local production. In particular, the focus was on key goods and sectors that were heavily hit by shortages. France responded by starting an initiative to reshore production of pharmaceutical products beginning with paracetamol. Interesting to notice is that France has been hit by medicine shortages before Covid-19 between 2008 and 2018[64]. President Macron stated to prepare a fund of €200 million to support an expansion of the production capacity of the French pharmaceutical sector[65]. However, the idea seems to be quite challenging to put into practice since the majority of inputs for traditional medicines are sourced from Asia[66]. Hichem Jouaber, pharmaceutical industry consultant, interviewed by the Financial Times[64], sounded skeptical about reshoring paracetamol production

[60]https://www.originefrancegarantie.fr/
[61]https://www.lexpress.fr/actualite/politique/arnaud-montebourg-ex-ministre-et-defenseur-du-made-in-france_1804634.html
[62]https://lafrench-fab.com/
[63]https://www.economie.gouv.fr/french-fab-investment-desk-agnes-pannier-runacher-recommandations-claude-imauven
[64] https://www.ft.com/content/80a4836b-ca25-48e0-996d-458186e968dc
[65] https://www.reuters.com/article/health-coronavirus-sanofi-macron-idUKFWN2DT09I
[66] https://www.npr.org/sections/health-shots/2020/04/24/843379899/pandemic-underscores-u-s-dependence-on-overseas-factories-for-medicines?t=1660066034849

unless satisfactory government subsidies are given away. Without them, it is just not convenient, he claims.

According to Le French Fab's website[67], in the last two years, the development of new industrial sites has increased considerably, and the government helped: 782 projects have been subsidized, 107 of which in the electronics sector and 120 in metals, materials, chemicals and recycling. The subsidies amounted to a total of €1.6 billion, one company out of three received governmental support. This is all in line with the French recovery plan which targets reshoring industrial production for five sectors: health, inputs essential to industry, electronics, agrifood industry and industrial 5G applications[68]. French government tried to implement this agenda also on the automotive sector, especially with Renault since the state own part of the company share. The government offered a saving plan worth €5 billion in exchange of the will to start a process of relocation in France, but the car manufacturer actually announced job cuts instead[69].

United Kingdom also has already an experience in reshoring policies, starting from 2014 with the "Reshore UK" policy (Elia et al.,2021) acted by the UK Trade & Investment Agency and the Manufacturing Advisory Service. The aim was to help firms who wanted to reshore with complete support to identify local suppliers and to understand the best business strategies. Moreover, the service was offered to SMEs willing to become suppliers to these potential reshoring companies as well. This policy was aimed at improving UK's industrial capacity and it was not limited to offer support to British firms but also foreign ones, hoping to attract new investments from abroad and create new jobs[70]. In 2014, the UK government also launched the Advanced Manufacturing Supply Chain Initiative (AMSCI), a competitive fund for investments in capital, research, development and training, targeted at strengthening the competitiveness of firms within large supply chains. The main tool was subsidies in order to improve the productivity and skill level of human capital. AMSCI can be defined as a pro reshoring policy because it was also aimed at promoting FDI and identifying British companies willing to reshore, attracted by new projects and the possibility to spend money on capital and R&D

[67] https://lafrench-fab.com/news/industrial-reshoring-picking-up-pace-in-france/
[68]https://www.diplomatie.gouv.fr/en/french-foreign-policy/economic-diplomacy-foreign-trade/promoting-france-s-attractiveness/france-relance-recovery-plan-building-the-france-of-2030/
[69]https://www.france24.com/en/20200531-france-s-renault-highlights-obstacles-to-reshoring-industries
[70] https://www.gov.uk/government/news/new-government-support-to-encourage-manufacturing-production-back-to-the-uk

(Department for Business Innovation and Skills, 2015). Also in 2017, Make UK was founded: as it can be seen in its website[71], it is the British Manufacturers' Organization, grouping companies that together account half of UK's exports and 60% of R&D in the country. Make UK supports manufacturing firms and try to foster UK industrial capacity, possibly having a voice on industrial policies that could bring investments.

It is also important not to forget that the UK has not only recently suffered the Covid pandemic like the rest of the world, it has also undergone the process of Brexit which changed its economic and industrial scenarios. According to a survey by Make UK, reported by the Financial Times, 75% of British companies have increased the number of their British suppliers and 10% of the interviewed companies plan to reduce their reliance on Asian suppliers[72]. As the effects of Brexit are already visible on matters of trade, British manufacturers have also suffered an additional obstacle in their supply chain with the pandemic outbreak. The Financial Times also interviewed various managers of manufacturing firms and it emerged that the priority now is flexibility, reduced lead times and reduction of uncertainty. For this reason, more companies are now willing to reshore their supply chain, which means looking for local suppliers for their production plants based in the UK. Make UK recommended a series of initiatives to the government to improve the resilience of British supply chains: institution of resilience taskforce composed by members of various industries and government officials; better supply chain data management; publishment of lead times on raw materials to improve and help business plans; government and industry working together to improve visibility of supply chains and to share information to SME with limited scope; tax breaks and subsidies for firms using innovative digital solutions; supply chain support through regional institutions and long-term initiatives[73].

Differently from the countries just discussed, Italy for the moment does not have any pro-reshoring policy, at the national level at least. As Confindustria (2020) reports, there have been some regional policies like the one in Emilia Romagna: the regional government, collaborating with four local universities, financed projects in order to understand the drivers and size of the reshoring phenomenon, to outline the presence of regional companies abroad and to gather ideas and proposals from regional stakeholders

[71] https://www.makeuk.org/
[72] https://www.ft.com/content/8127dbfd-a464-4ee5-9581-ff1edb22e20c
[73] https://www.export.org.uk/news/605495/Manufacturers-call-for-new-supply-chain-resilience-taskforce-as-survey-highlights-reshoring-trend.htm

about potential policies to support the reshoring process. Nevertheless, the public attention on the subject is increasing together with the tendency for sustainability and the increasing importance to the "Made in Italy"[74]. Confindustria and workers unions are favorable in discussing some potential policies with the national institutions, but it would require fiscal incentives, investments in infrastructures and faster bureaucracy[75]. Antonio Misiani, Vice Minister of Economics and Finance under Draghi's government, has put forward the idea of a task force working on attracting foreign firms or Italian companies willing to come back. According to Misiani, Southern Italy could attract investments with the proper tax breaks and investments, aiming at attracting high value-added firms like companies working in the hi-tech sector[76].

Apart from public statements and press releases, in Italy there has been no concrete work in the political arena regarding reshoring for the moment. Still, it seems like reshoring is getting more and more attention from political leaders[77] of different ideologies. A lot depends on the composition of the next Italian governments, but it is safe to guess that, with increasing interest and popularity among companies and Confindustria, pro reshoring policies will be drafted in the future.

As Confindustria (2020) reports, pro reshoring policies have been activated also in Asian countries like Taiwan, South Korea, India and Japan. The former has focused on 5G and industrial innovation, with a total amount of investment of €230.5 billion. Firms can take advantage of facilitated access to financing, support to find qualified staff, instant supply of water and electricity and support to identify land to settle new plants. More than 60000 new jobs have been created. South Korea started giving out incentives and tax breaks since 2013 but Confindustria reports that these tools have been ineffective. In 2020, pro reshoring policies have been strengthened and limitations were lifted, so now all Korean firms willing to reshore have access to these incentives. In 2020 also Japan started developing reshoring policies, putting subsidies at firms' disposal, especially for firms working in the health products sector. Moreover, Japan, India and Australia are working together to enact a trilateral pact, the Supply Chain Resilience Initiative, to

[74]https://www.ilsole24ore.com/art/reshoring-e-sicurezza-filiere-nuova-agenda-le-imprese-AE2AifUB?refresh_ce=1
[75]https://www.ilfoglio.it/economia/2022/05/20/news/re-shoring-e-investimenti-in-italia-le-opportunita-della-nuova-globalizzazione-un-girotondo-4021721/
[76]https://www.ilfoglio.it/politica/2022/05/17/news/antonio-misiani-caro-governo-il-pd-chiede-una-cabina-di-regia-sul-reshoring--4009297/
[77] Various statements from party leaders and spokespeople can be found online

improve supply chain resilience in the area, which can also mean attracting firms that previously offshored to China[78]. India has proposed incentives and the constitution of three industrial parks dedicated to treatment of raw materials and ingredients that are key for the pharmaceutical sector. Moreover, investments in logistical infrastructures and subsidies for collaboration among universities and companies are expected.

It is definitely too early to evaluate the policies that governments designed in response to the pandemic, but most of the previous policies did not seem to be backed up and supported by a constant effort to make them work. The French case proves that France is willing to keep pushing on reshoring policies even without Covid, regardless of the ideologies in the government. In UK, the need for and popularity of this kind of policies is increasing but after the 2014 policies, it seems that there has not been a real effort, despite the increasing pressure from associations and companies. Nevertheless, reshoring cases are increasing even without governmental support. The US looks like the country that has put the most amount of effort trying to promote reshoring: the most plausible reason for this is the increasing geopolitical rivalry with China. Job creation is also important but being able to withdraw investments of American companies in China is in the interests of the United States as it enables to improve their industrial capacity while retaining important assets. It is important to underline that this is part of the agenda of both the Republicans and Democrats as the Biden administration is also pushing reshoring like Trump, but with different tools and mechanisms. In general, the theme of reindustrialization in the West has got a lot of attention in the last years. Alberto Tajani in 2013, at the time European Commission Vice President responsible for Industry and Entrepreneurship, stated that "Europe must change, enacting reforms and policies for commerce, the internal market, research, energy, the environment and infrastructure. All these policies must be coherent with European reindustrialization"[79]. Then, reshoring can be seen as a new possible route to achieve reindustrialization, but some caution is needed. Reshoring as a tool for creating new jobs should not have high expectation when automation, as previously mentioned, could be one of the drivers for it, meaning that the need of actual workers could be low. Moreover, with the development of communication technologies and the new era of *Globotics,* as defined by Baldwin (2018), governments

[78]https://www.dfat.gov.au/news/media-release/joint-statement-supply-chain-resilience-initiative-australian-indian-and-japanese-trade-ministers-0
[79] https://ec.europa.eu/commission/presscorner/detail/fr/SPEECH_13_1008

should address carefully potential job losses in the service sector as remote work could transform the labor market at the international level.

3.3 Drawbacks and criticism of reshoring

Up until this point, the discussion dealt only with the possible benefits of reshoring but, as it always happens, there is criticism, potential drawbacks, and weaknesses. There are both institutions and academics claiming that reshoring may not be the solution of the problems previously mentioned and that it should not be overrated. Many have expressed their opinion on reshoring to discuss whether it's the best option to ensure resilient supply chains and have a consistent level of key resources and assets.

First of all, after what has been discussed in previous paragraphs, it can be said that the main reason why governments would push for reshoring policies is to increase the resilience of the country with respect to external production shocks. The rationale behind this is that if a country relies more on its own production capacity, then it would be less affected by potential disruptions such as Covid-19 or the Suez Canal blockade of 2021. However, there are several scholars disagreeing on this: the WTO World Trade Report of 2020 lists several reasons why reshoring production might not be the optimal solution in this respect. Three main explanations are proposed: first, a country must have the production capacity, the machinery, inputs and specialized skills necessary to reshore production of the required goods, which means that not all countries are able to enact reshoring strategies; second, reshoring policies can be very expensive as they involve (as shown in Paragraph 3.2) subsidies, private investments by firms, trade barriers and as a result they might cause higher prices for consumers; third, reducing reliance on foreign countries might not delete at all the risk for production disruption given the fact that the probability for domestic shocks would not be eliminated.

Reshoring would mean localize the whole supply chain or a consistent part of it, concentrating its activities in a specific geographical area. We know that one of the reasons why Covid-19 made a big impact on global supply is the concentration of key GVCs' players in China. Hubs of really high importance represent potential breaking point in the supply chain, just like Taiwan can be in the semiconductors sector. It follows that concentrating a consistent portion of the chain in a specific area can be risky in case that area is hit by local shocks. As a study by the OECD (2021) points out, less connections with GVCs and a more localized system usually bring two consequences:

first, economic activity and income are lower; second, shocks can be more powerful and bring greater instability. Countries that are more connected to GVCs are better off according to this study, given the fact that can mitigate local shocks by accessing the global market and relying also on countries that are less or not affected at all.

OECD (2021) conducted a simulation to compare economic parameters between "interconnected regimes" and "localized regimes": the former represents GVCs production fragmentation; the latter represent the case in which there is a rise in global trade tariff, subsidies to favor local production, constraints to switch to different suppliers and more rigid supply chains. The simulation has been conducted to see what effects policies favoring a localized regime during the pandemic would have had. Table 3 shows a consistent negative percentage change in real GDP, domestic production, import and export demand for all the interested regions and countries. OECD then concludes that localized regimes are actually more vulnerable than interconnected ones.

Table 3: Simulated change in a localized regime versus an interconnected regime during Covid-19 pandemic

Country	Real GDP % change	Domestic production % change	Import demand % change	Export demand % change
Argentina	-2.9	-3.2	-13.5	-8.3
Australia and New Zealand	-8.8	-8.6	-21.7	-19.6
Brazil	-2.5	-2.5	-16	-15.2
Canada	-13.1	-15.1	-25	-30
China	-2.6	-2.4	-23.4	-18.4
France	-5.1	-5.6	-9.9	-12.5
Germany	-5.1	-5.4	-11.4	-9.6
United Kingdom	-12.2	-13.4	-24.4	-33
Italy	-3.2	-3.5	-9.6	-9
European Union (24)	-4.2	-4.4	-7.9	-7.4
Indonesia	-3.2	-3.8	-21.3	-18.6
India	-1.1	-0.7	-11.4	-14.8
Japan	-3.9	-4.8	-20.4	-21.8
Korea	-7.4	-9.1	-24.1	-22.5
Mexico	-5.9	-8.2	-23.1	-26.8
Russia	-3.4	-2.9	-22.1	-11.2
South Africa	-6.9	-6.8	-22.2	-20.7
Turkey	-5.2	-7	-16.7	-29.5
United States	-6.9	-7.1	-20	-28.3
Latin America	-5.5	-6	-22.8	-21.8
South East Asia	-10.8	-15.2	-28.1	-28.8
Rest of the world	-6.3	-7.5	-20.2	-17.2
World	-5.5	-5.9	-18.1	-17.8

Source: OECD (2021)

The study admits that some downstream countries (France, Korea, Mexico, Turkey, United States and Southeast Asia) would have more stability given the fact that they some of the most integrated economies in the GVCs system. However, consequently, they would experience the high trade reductions and income decrease. Moreover, higher stability would cost in terms of efficiency: for example, those who rely more on foreign inputs would have to sacrifice a consistent amount of resources and income in order to be able to rely more on their own inputs. Upstream countries would even lose out both in terms of GDP and stability. It is also important not to forget that restructuring the supply chain to be more concentrated is very costly especially in case of specific assets and natural resources. Also, there would be less options for new suppliers in a localized regime than in an interconnected one.

Up until now, the critical points are presented through the perspective of policy makers and governments, not taking into consideration the fact that reshoring can be driven by spontaneous decision making by private companies. In Chapter 2, I presented possible reasons why multinational firms could decide to relocate their activities back to their home country. Nevertheless, even if a company decides to reshore to fix previous wrong decisions, that does not come free without costs. First of all, sunk costs have to be taken into account as, for example, production plants might be abandoned, along with their capital. It follows that demand or supply shocks must be permanent and considerable and able to dramatically change global trade and production in order to trigger the decision-making process that brings to reshoring (Di Stefano et al., 2021). In Chapter 2, the data presented showed that reshoring was not a major trend before Covid and there is no evidence that the pandemic stimulated an increase of the phenomenon[80]. Di Stefano et al. (2021) confirm that firms, especially MNEs, did not choose reshoring as much as it may have been expected. The potential benefits of reshoring, previously described, seem to be outweighed by the drawbacks for firms, for the moment. The costs and complexity of bringing back entire activities are very high: a relocation process has to be started (just like when the decision to offshore was taken), the firm has to invest in new or existing plants, infrastructure, it has to build or expand existing operations which means establishing new relationships with suppliers and new hires. Moreover, the skills and close ties that have been developed abroad are lost and it should not be given for granted

[80] https://www.ft.com/content/e06be6a4-7551-4fdf-adfd-9b20feca353b

that same or better conditions can exist in the home country[81] (Jaques, 2022). Even taking the current and future waves of automation into account, for the moment, the required investments might have costs that are too high for firms to be considered worth the expense. Another aspect to consider is that the initial (and most important) reason to offshore was the lower production costs in developing economies and even though the cost advantage is not as big as it used to be, it is still an advantage. Some companies might not be able to survive bringing back production activities given the higher costs. In the long run, the benefits of reshoring could be eroded by higher wages, stricter regulations and so on[82]. It follows that the decision to reshore absolutely needs a careful decision-making process as other solutions can be more suitable both in the short and long run.

Even taking into account weaknesses of reshoring, the question about the safety of global value chains still remains open and unsolved. It has been said over and over again that the GVC model has shown its fallacies and needs changes in order to be sustainable for the future. As a matter of fact, critics of reshoring propose other solutions that might avoid a complicated and expensive reorganization of the global division of labor (like reshoring). Instead of relocating activities elsewhere, a solution could be to strengthen the existing supply chains by making them more resilient. The supply disruptions and shocks of recent years proved that in a globalized economy some of the risks are shared and the efficiency of the chains relies on variables that are controlled or influenced by different countries. For this reason, the OECD (2021) put forward the idea of countries collaborating with each other and firms "on improving risk preparedness by identifying the range of potential threats to essential activities, mapping the local and international players involved in some essential logistic chains, collecting and sharing information on potential concentration and bottlenecks upstream, or by developing stress tests for essential supply chains" (p.15). To ensure the latter, firms and governments should work on examining strengths and weaknesses of said chains, but also specific trade arrangements between countries for goods such as medical devices could improve the safety of supply (OECD, 2020). Investing in infrastructure (for example digitalization) can have beneficial effects in case trade and transports are disrupted. GVC's resilience is especially important for countries that are more deeply integrated into them, like

[81] https://www.mhlnews.com/global-supply-chain/article/21234768/the-benefits-pitfalls-of-reshoring

[82] https://www.bloomberg.com/news/newsletters/2021-05-27/supply-chains-latest-weighing-costs-and-benefits-of-reshoring

developing economies in Asia. This is also needed in light of the climate change that is causing an increase of natural disasters that are more likely to hit these countries (Brenton et al., 2022). Likewise, better policies regarding logistics and border control can help smoother trade and flexibility.

OECD (2021) also proposes stockpiles as a potential tool for mitigating negative shocks: even at regional levels, stockpiles of critical goods can cushion supply chains in case of disruptions while waiting for production to recover again. However, stockpiles are not easy to achieve because they are costly and it is difficult to choose the product to buy, especially when they have a cyclical period (for example chemicals and drugs with an expiration date).

Finally, to conclude, reshoring seems to be seen by some policy makers as the solution to create jobs in the manufacturing sector (as seen in Paragraph 3.2). This is fairly a good assumption but probably reshoring's effects on employment should not be overestimated. Considering the increasing developments on automation, the human role in production is not the same as it used to be in the pervious decades. It follows that the capabilities of reshoring policies in creating jobs should be carefully addressed. Overestimating the potential of such policies can lead to money waste and public criticisms.

CONCLUSION

It is undeniable that reshoring is attracting attention by academics, politicians and possibly even the general public. To analyze the phenomenon, a review of the history of globalization and the literature on international trade was needed as the foundation for this thesis. Reshoring of course is strictly linked to the concepts of global value chains, offshoring and international division of labor and their definition was useful to prepare the ground for assessing what reshoring truly is. The definitions that I have collected depict reshoring in a broad way, as it is accepted to include strategies that do not just relocate to the home country, but also to the home region. This is important if we look at Europe, as we can see potential reshoring from a continental point of view, especially considering the role that the European Union, with policies and initiatives, could have in affecting MNEs' decisions.

The European Reshoring Monitor has been useful to understand the possible causes underlying reshoring strategies, the sectors in which the trend could be more prominent and the countries that are more popular for relocation. However, as mentioned in the second chapter, the database used is limited and does not allow an analysis at the macro level to understand the actual scale of the phenomenon globally. The data used, coming from UNCTAD, WTO and OECD, depicts a similar trend for all the variables taken into consideration: the hyperglobalization era ended with the financial crisis and foreign investments and GVC trade have recovered but they didn't surpass the levels reached before 2008. Then it is safe to assume that, while being severely hit by the Financial Crisis, MNEs still decided to pursue their offshoring strategies, taking into account existing sunk costs, but the incentives to expand their activity are not the same as they were back in the 80s and 90s. Nevertheless, reshoring did not become a major trend after 2008, despite regional networks have become more important. Regardless of the increase of costs in developing economies, offshoring strategies are still advantageous for firms looking for cheap production. Moreover, it is early to evaluate the effects that the Covid pandemic may or may not have had on the organization of global production. The available data hints that the GVC model has not being severely affected by it and should keep going unchanged for the majority of economic sectors.

Reshoring definitely attracted a lot of attention, especially by governments which sees an opportunity to increase jobs and recover some of the industrial capacity that the Western World (mainly Europe and the USA) has let go and relocated to Asia mostly.

The policies who incentivize firms to reshore include tax breaks, investments in education, or even trade barriers as it was the case for the Trump Administration between 2017 and 2020. I believe that reshoring should be more looked at in the light of the concept of strategic autonomy that has become a very strong topic in the last years due to the geopolitical tensions mainly concerning the USA and China, and, on top of that, the war in Ukraine. A safe supply of key assets such as semiconductors, pharmaceutical products (crucial during the early months of the pandemic) and the development of digital technologies will be critical for the sovereignty and autonomy of nation states. In this aspect, the pandemic highlighted the dependency on China for the production of many essential products and the semiconductors value chain has definitely become a geopolitical matter with many players in the mix.

Many academics and institutions are not convinced about the benefits that reshoring strategies can have at the moment. The issue of safety of supply is not solved by it as local shocks are actually more powerful if the economy is not well integrated in the GVC network. It would be a very expensive process for companies that can lead to a sharp increase in costs and the loss of capital (also human capital) that has been used abroad.

I also add that the proposed analysis has not taken into account the impact that the war in Ukraine is having and is going to have on the international production structure. Considering the geopolitical importance of the conflict and the balance of power at stake, the war may lead to more protectionist policies and to a stronger regionalization of GVCs. However, given the fact that it is ongoing, it is difficult to assess in what degree the war is going to affect international supply chains. One thing is sure: the Ukranian War is another disrupting element and another factor that has to be looked at carefully in the next future, considering the effect that is already having on prices, especially for energy.

I'd like to conclude this thesis, looking at a Tweet by Richard Baldwin concerning reshoring: in it[83], Baldwin presents data taken from a survey by EY reported by the Financial Times[84] that clearly indicates that the pandemic helped the hype around reshoring, but reality is different. While many companies considered reshoring during the first months of 2020, as soon as the situation has improved, the consideration of such kind of strategy has definitely dropped. In the same article by the Financial Times, Adidas

[83] https://twitter.com/baldwinre/status/1483713455614210053
[84] https://www.ft.com/content/deb2514d-acdf-4eb6-ad42-e60f946c1a74?shareType=nongift

CEO, Kasper Rorsted states that “It is an illusion to believe that you can move an industry that has grown over 30 years in Asia, to a very sophisticated industry, to some regions”. I can conclude that the discussion around reshoring can be very useful in order to understand some problems that can potentially affect global production and it should be definitely taken into consideration when it comes to strategic assets as previously mentioned. However, we should not be carried away by the hype and, from a business point of view, reshoring strategies are still a very expensive and unnecessary move for the majority of companies. Nevertheless, future developments on digital technologies and automation may change the international division of labor and supply chain all around the world. The diffusion of such technologies will have a big impact on production and could change the way global value chains are organized today, without any major relocation to MNEs’ home regions. Cooperation between governments will also affect GVCs’ resilience and international trade but the geopolitical tensions could completely change the situation.

REFERENCES

Abu-Lughod J. (1989), *Before European Hegemony: The World System A. D. 1250-1350*, p. 8, Oxford University Press

Akgüç M. (2021), *Europe's open strategic autonomy: Striking a balance between geopolitical, socioeconomic and environmental dimensions*, ETUI Policy Brief, available at https://www.etui.org/publications/europes-open-strategic-autonomy

Alfaro L. & Chen M. (2010), *Surviving the Global Financial Crisis: Foreign Direct Investment and Establishment Performance*, Harvard Business School, Working Paper 10-110, available at https://www.hbs.edu/ris/Publication%20Files/10-110_0b28c861-4aad-4b1d-8bfe-d40f0137d3f3.pdf

Antràs P. & Helpman E., (2004), *Global Sourcing*, Journal of Political Economy, Vol. 112, No. 31, University of Chicago, https://doi.org/10.1086/383099

Antràs P. (2021), *De-Globalisation? Global Value Chains in the Post-COVID-19 Age*, 2021 ECB Forum: "Central Banks in a Shifting World", available at https://scholar.harvard.edu/antras/publications/de-globalisation-global-value-chains-post-covid-19-age

Baldwin, R. & Martin, P. (1999), *Two Waves of Globalisation: Superficial Similarities, Fundamental Differences*, National Bureau of Economic Research, NBER Working Papers, No 6904, available at https://www.nber.org/papers/w6904

Baldwin R. (2006*), Globalisation: the great unbundling(s)*, Economic Council of Finland, eu2006.fi, available at https://repository.graduateinstitute.ch/record/295612/files/Baldwin_06-09-20.pdf

Baldwin R. and Lopez-Gonzalez J. (2013), *Supply-chain trade: a portrait of global patterns and several testable hypotheses*, National Bureau of Economic Research, Working Paper 18957, available at https://www.nber.org/papers/w18957

Baldwin, R. & Venables, A. J. (2013), *Spiders and snakes: Offshoring and agglomeration in the global economy*, Journal of International Economics, Elsevier, vol. 90, No. 2, pp. 245-254, DOI: 10.1016/j.jinteco.2013.02.005

Baldwin R. (2016), *The Great Convergence: Information Technology and the New Globalization*, The Belknap Press of Harvard University Press

Baldwin R. (2018), *If this is Globalization 4.0, what were the other three?*, World Economic Forum, available at https://www.weforum.org/agenda/2018/12/if-this-is-globalization-4-0-what-were-the-other-three/

Baldwin R. (2019), *The Globotics Upheaval. Globalization, Robotics, and the Future of Work*, Weidenfeld & Nicolson Ltd.

Baldwin R. & Freeman R. (2020), *Supply chain contagion waves: Thinking ahead on manufacturing 'contagion and reinfection' from the COVID concussion*, VoxEU CEPR,

available at https://voxeu.org/article/covid-concussion-and-supply-chain-contagion-waves

Baldwin R. & Weber di Mauro B. (2020), *Economics in the time of COVID-19*, CEPR Press VoxEU.org eBook, available at https://voxeu.org/article/economics-time-covid-19-new-ebook

Baldwin, R. & Ito, T. (2021), *The smile curve: Evolving sources of value added in manufacturing*, Canadian Journal of Economics/Revue Canadienne d'Économique, Vol.54, pp.1842-1880, https://doi.org/10.1111/caje.12555

Baldwin R. (2022), *Globotics and macroeconomics: Globalisation and automation of the service sector, Challenges for monetary policy in a rapidly changing world*, European Central Bank, available at https://www.ecb.europa.eu/pub/conferences/ecbforum/shared/pdf/2022/Baldwin_paper.pdf

Bamber P., Brun L., Frederick S. & Gereffi G. (2017), *Chapter 1: Global Value Chains and Economic Development*, Duke GVC Center in collaboration with Korea Institute for Industrial Economics and Trade, available at https://gvcc.duke.edu/wp-content/uploads/Duke_KIET_GVCs_Economic_Development_CH_1-2.pdf

Bentley J. H. (1996), *Cross-cultural interaction and periodization in world history*, AHR forum, American Historical Review 101, pp. 749-770

Borin, A. & Mancini M. (2019), *Measuring What Matters in Global Value Chains and Value-Added Trade*, Policy Research Working Paper No. 8804, World Bank, available at https://openknowledge.worldbank.org/handle/10986/31533

Brennan L. & Rakhmatullin R. (2015), *Global Value Chains and Smart Specialisation Strategy*, Joint Research Centre, Institute for Prospective Technological Studies, Publications Office, DOI: 10.2791/44840

Brenton P., Ferrantino M. J. & Maliszewska, M. (2022), *Reshaping Global Value Chains in Light of COVID-19: Implications for Trade and Poverty Reduction in Developing Countries*, World Bank, available at https://openknowledge.worldbank.org/handle/10986/37032

Brenton P., Ferrantino M. & Maliszewska M. (2022), *Stronger value chains, not reshoring, are needed after the COVID-19 shock*, World Bank Blogs, https://blogs.worldbank.org/trade/stronger-value-chains-not-reshoring-are-needed-after-covid-19-shock

Carbaugh R.J. (2018), *International Economics*,17th Edition, Cengage Learning

Centro Studi Confindustria (2020), *Scenari Industriali, Innovazione e Resilienza: i Percorsi dell'Industria Italiana nel Mondo che Cambia*, available at https://www.confindustria.it/home/centro-studi/temi-di-ricerca/tendenze-delle-imprese-e-dei-sistemi-industriali/tutti/dettaglio/scenari-industriali-Italia-2020

Christian, A. V., Zhang Y. & Salifou C. (2016), *Application of Promethee-Gaia Method in the Entry Mode Selection Process in International Market Expansion*, Open Journal of Business and Management, Vol. 4, No. 2, pp. 238-250, available at http://dx.doi.org/10.4236/ojbm.2016.42025

Cigna S., Gunnella V. & Quaglietti L. (2022), *Global value chains: measurement, trends and drivers*, Occasional Paper Series, No. 289, European Central Bank, available at https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op289~95a0e7d24f.en.pdf

Costinot A. & Donaldson D. (2012), *Ricardo's Theory of Comparative Advantage: Old Idea, New Evidence*, American Economic Review, Vol.102 No. 3, pp. 453-58, DOI: 10.1257/aer.102.3.453

Dachs B. & Zanker C. (2014), *Backshoring of Production Activities in European Manufacturing*, European Manufacturing Survey Bulletin No.3, available at https://www.isi.fraunhofer.de/content/dam/isi/dokumente/modernisierung-produktion/ems/EMS-Bulletin-3_en3.pdf

Damen M., Raza W., Grumiller J., Grohs H., Essletzbichler J. & Pintar N. (2021), *Post Covid-19 value chains: options for reshoring production back to Europe in a globalised economy*, Policy Department, Directorate-General for External Policies, European Union, available at https://www.europarl.europa.eu/thinktank/en/document/EXPO_STU(2021)653626

De Backer K., Menon C., Desnoyers-James I. & Moussiegt L. (2016), *Reshoring: Myth or Reality?*, OECD Science, Technology and Industry Policy Papers, No. 27, http://dx.doi.org/10.1787/5jm56frbm38s-en

De Meyer A. (2020), *It won't be business as usual after Covid-19*, Institutional Knowledge at Singapore Management University, Straits Times, A18-A18, Research Collection Lee Kong Chian School Of Business, available at https://ink.library.smu.edu.sg/lkcsb_research/6558/

Department for Business Innovation and Skills (2015), *Advanced Manufacturing Supply Chain Initiative (AMSCI): Impact and Economic Evaluation Scoping Study*, BIS Research Paper No. 234, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/472828/BIS-15-557-AMSCI-scoping-report.pdf

Di Stefano E. (2021), *COVID-19 and global value chains: the ongoing debate*, Questioni di Economia e Finanza, Occasional Papers, Banca d'Italia, No. 618, available at https://www.bancaditalia.it/pubblicazioni/qef/2021-0618/index.html?com.dotmarketing.htmlpage.language=1&dotcache=refresh

Di Stefano E., Giovannetti G., Mancini M., Marvasi E. & Vannelli G., (2021), *Reshoring and plant closures in covid-19 times: evidence from Italian MNEs*, EUI RSC, 2021/94, Global Governance Programme 458, available at https://hdl.handle.net/1814/73468

Elia S., Fratocchi L., Barbieri P., Boffellid A. & Kalchschmidt M. (2021), *Post-pandemic Reconfiguration from Global to Domestic and Regional Value Chains: The Role of Industrial Policies*, Transnational Corporations Journal, Vol. 28, No. 2, available at https://unctad.org/system/files/non-official-document/diaeia2021d2a3_en.pdf

European Commission (2020), *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. Europe's moment: repair and prepare for the next generation*, available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:456:FIN

European Commission (2022), *Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Region: A Chips Act for Europe*, available at https://digital-strategy.ec.europa.eu/en/library/european-chips-act-communication-regulation-joint-undertaking-and-recommendation

Farrell H. & Newman A. (2020), *Chained to Globalization. Why it's too late to Decouple*, Foreign affairs, available at https://www.foreignaffairs.com/articles/united-states/2019-12-10/chained-globalization

FedEx (2021), *Report 2021 di FedEx sulle tendenze del commercio internazionale*, available at https://www.fedex.com/content/dam/fedex/eu-europe/campaigns/h1-2020/trends-report/fedex_trade_trends_report_it-ch.pdf

Fengru C. & Guitang L. (2019), *Global Value Chains and Production Networks, Chapter 7: GPN Trends in the Postcrisis Era*, pp. 207-236, Elsevier Inc, https://doi.org/10.1016/B978-0-12-814847-1.00007-5

Foerstl K., Kirchoff J.F. & Bals L. (2016), *Reshoring and insourcing: drivers and future research directions*, International Journal of Physical Distribution & Logistics Management, Vol 46, No. 5, pp. 492–515, https://doi.org/10.1108/IJPDLM-02-2015-0045

Franco-Bedoya S. & Frohm E. (2020), *Global trade in final goods and intermediate inputs: impact of FTAs and reduced "Border Effects"*, ECB Working Paper Series No. 2410, available at https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2410~09d4199b9f.en.pdf

Fratocchi L., Ancarani A., Barbieri P., Di Mauro C., Nassimbeni G., Sartor M., Vignoli M. & Zanoni, A. (2014), *Il backshoring manifatturiero nei processi di internalizzazione: inquadramento teorico ed evidenze empiriche*, Atti del XXVI Convegno annuale di Sinergie; Manifattura tra processi di delocalizzazione e rilocalizzazione produttiva e internazionalizzazione, pp. 423-440, https://dx.doi.org/10.7433/SRECP.2014.27

Fratocchi L., Di Mauro C., Barbieri P., Nassimbeni G. & Zanoni A. (2014), *When manufacturing moves back: Concepts and questions*, Journal of Purchasing and Supply Management, Vol.20, No. 1, pp.54-59, https://doi.org/10.1016/j.pursup.2014.01.004

Gál Z. (2010), *Future Bangalores? The increasing role of Central and Eastern Europe in the global services offshoring market: evidence from trade statistics*, MPRA Paper No. 28360, available at https://mpra.ub.uni-muenchen.de/28360/
Graham E.M. & Krugman P. R. (1993), *Foreign Direct Investment*, University of Chicago Press, pp. 13-36, available at https://www.nber.org/books-and-chapters/foreign-direct-investment/surge-foreign-direct-investment-1980s

Gereffi G. & Fernandez-Stark K., (2016), *Global Value Chain Analysis: A Primer*, 2nd Edition, Duke Center on Globalization, Governance & Competitiveness, available at https://www.researchgate.net/publication/305719326_Global_Value_Chain_Analysis_A_Primer_2nd_Edition

Hale G. & Xu M. (2016), *FDI effects on the labor market of host countries*, Federal Reserve Bank Of San Francisco, Working Paper Series, Working paper 2016-25, available at http://www.frbsf.org/economic-research/publications/working-papers/wp2016-25.pdf

Helpman E. (1984), *A Simple Theory of International Trade with Multinational Corporations*, Journal of Political Economy, Vol 92, No. 3, pp. 451-471, The University of Chicago Press, available at https://www.jstor.org/stable/1837227

Heyman F. & Gustavsson Tingall P. (2012), *The Dynamics of Offshoring and Institutions*, IFN Working Paper No. 919, available at https://www.ifn.se/media/oyqdicbi/wp919.pdf

Hobsbawm E., (1994), *The Age of Extremes: The Short Twentieth Century*, 1914–1991. Abacus.

International Finance Corporation (2020), *The Impact of COVID-19 on Logistics*, available at https://www.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/infrastructure/resources/the+impact+of+covid-19+on+logistics

International Labour Organization (2016), *Wages in Asia and the Pacific and the Arab States*, available at https://www.ilo.org/asia/publications/WCMS_534369/lang--en/index.htm

Irwin D. (2017), *Ricardo and comparative advantage at 200*, Vox EU CEPR, available at https://voxeu.org/article/ricardo-and-comparative-advantage-200

Italian Trade Commission in Beijing (2012), *La Tutela della Proprietà Intellettuale nei Rapporti d'Affari in Cina*, Elementi di Strategia Aziendale – 1.1, available at https://www.unipi.it/ricerca/applicata/brevetti/Guida1.pdf

James P. & Steger, M. B. (2014), *A Genealogy of 'globalization': The career of a concept*. Globalizations, Vol. 11, No. 4, pp. 417–434.
https://doi.org/10.1080/14747731.2014.951186

Jaques A. (2022), *The Benefits & Pitfalls of Reshoring*, Material Handling and Logistics, available at https://www.mhlnews.com/global-supply-chain/article/21234768/the-benefits-pitfalls-of-reshoring

Kinkel S. & Maloca S., (2009), *Drivers and antecedents of manufacturing off-shoring and backshoring – a German perspective*, Journal of Purchasing and Supply Management, Vol. 15, No. 3, pp. 154–165, https://doi.org/10.1016/j.pursup.2009.05.007

Kleinhans J.P. & Baisakova N. (2020), *The global Semiconductor value chain: A technology primer for policy makers*, Think Tank at the Intersection of Technology and Society, available at https://www.stiftung-nv.de/sites/default/files/the_global_semiconductor_value_chain.pdf

Krugman P.R., Obstfeld M. & Melitz M.J. (2012), *International Economics: Theory and Policy*, 9th Edition, Pearson

Leamer E. E. (1995), *The Heckscher-Ohlin Model in theory and practice*, Princeton studies in international finance, No. 77, available at https://ies.princeton.edu/pdf/S77.pdf

Lee J., Gereffi G. & Nathan D. (2013), *Mobile Phones: Who Benefits in Shifting Global Value Chains?*, Capturing the Gains, Revised Summit Briefing No. 6.1, available at https://www.academia.edu/21800935/Mobile_Phones_Who_Benefits_in_Shifting_Global_Value_Chains

Legge S. & Lukaszuk P. (2021), *Regionalization vs globalization: what is the future direction of trade?*, World Economic Forum, available at https://www.weforum.org/agenda/2021/07/regionalization-globalization-future-direction-trade/

Leontief W.W. (1953), *Domestic Production and Foreign Trade: The American Capital Position Reexamined*, Proceedings of the American Philosophical Society, No. 97, pp. 332-349

Linder S.B. (1961), *An Essay on Trade and Transformation*, Almqvist & Wiksells, available at https://ex.hhs.se/dissertations/221624-FULLTEXT01.pdf

Martins Guilhoto J., Webb C. & Yamano N. (2022), *Guide to OECD TiVA Indicators, 2021 edition*, OECD Science, Technology and Industry Working Papers, No. 2022/02, https://doi.org/10.1787/58aa22b1-en.

Menont J. (2022), *Covid-19 has not disrupted supply chains as much as assumed*, available at https://www.channelnewsasia.com/commentary/covid-19-supply-chain-reshoring-us-china-trade-war-tariff-vietnam-2788266

Milanovic B. (2012), *Global Income Inequality by the Numbers: in History and Now, An Overview*, The World Bank Development Research Group Poverty and Inequality Team, Working Paper 6259, available at https://openknowledge.worldbank.org/handle/10986/12117

Mittelman J.H. (1995), *Rethinking the International Division of Labour in the Context of Globalisation*, Third World Quarterly, Vol. 16, No. 2, pp. 273-295, Taylor & Francis Ltd, https://doi.org/10.1080/01436599550036130

Mullor-Sebastian A. (1983), *The Product Life Cycle Theory: Empirical Evidence*, Journal of International Business Studies, Vol. 14, No. 3 pp. 95-105, https://doi.org/10.1057/palgrave.jibs.8490530

OECD (2002), *OECD Economic Outlook No. 71*, (Edition 2002/1), OECD Economic Outlook: Statistics and Projections (database), https://doi.org/10.1787/data-00095-en

OECD (2020), *COVID-19 and international trade: Issues and actions*, OECD Policy Responses to Coronavirus (COVID-19), available at https://www.oecd.org/coronavirus/policy-responses/covid-19-and-international-trade-issues-and-actions-494da2fa/

OECD (2020), *Trade Policy Brief: Trade Policy Implications of Global Value Chains*, available at https://www.oecd.org/trade/topics/global-value-chains-and-trade/

OECD (2021), *Global Value Chains: Efficiency and Risks in the Context of COVID-19*, available at https://www.oecd.org/coronavirus/policy-responses/global-value-chains-efficiency-and-risks-in-the-context-of-covid-19-67c75fdc/

Ohmae K. (1993), *The Rise of the Region State*, Foreign Affairs, Vol. 72, No. 2, pp. 78–87, https://doi.org/10.2307/20045526

O'Rourke K.H. & Williamson J.G. (1999), *The Heckscher-Ohlin Model Between 1400 And 2000: When It Explained Factor Price Convergence, When It Did Not, And Why*, National Bureau of Economic Research, Working Paper 741, available at http://www.nber.org/papers/w7411

O'Rourke K. H. & Williamson, J. G. (2000), *When did globalisation begin?*, National Bureau Of Economic Research, Working Paper 7632, available at http://www.nber.org/papers/w7632

Petras J. (1981), *A New International Division of Labor?*, MERIP Reports, No. 94, Origins of the Working Class, Class in the Middle East, pp.28-30, https://doi.org/10.2307/3012258

Piatanesi B & Arauzo-Carod J. M. (2019), *Backshoring and nearshoring: An overview*, Growth and Change, Vol. 50, No. 3, pp. 806– 823, https://doi.org/10.1111/grow.12316

Porter M. (1985), *Competitive Advantage. Creating and Sustaining Superior Performance,* The Free Press

Reinert K. (2012), *An introduction to international economics. New perspectives on the World Economy*, Cambridge University Press

Root F.R. (1994), *Entry Strategies for International Markets*, Jossey-Bass

Santavecchi G., (2020), *Coronavirus, il nuovo dominio cinese: la produzione delle mascherine antivirus*, Corriere della Sera, 12th March 2020, available at https://www.corriere.it/esteri/20_marzo_12/coronavirus-nuovo-dominio-cinese-produzione-mascherine-antivirus-f79427ce-6441-11ea-90f7-c3419f46e6a5.shtml

Schumacher R. (2012), *Adam Smith's theory of absolute advantage and the use of doxography in the history of economics*, Erasmus Journal for Philosophy and Economics, Vol. 5 No. 2, pp. 54-80, available at https://ejpe.org/journal/article/download/105/102/201

Scott R.E. (2020), *We can reshore manufacturing jobs, but Trump hasn't done it*, Economic Policy Institute, available at https://www.epi.org/publication/reshoring-manufacturing-jobs/

Senate of the United States (2022), *CHIPS and Science Act*, available at https://science.house.gov/chipsandscienceact

Skare M. & Soriano D. R. (2021), *How globalization is changing digital technology adoption: An international perspective*, Journal of Innovation and Knowledge, Vol. 6, No. 4, pp. 222-233, DOI: 10.1016/j.jik.2021.04.001

Stolper W.F. & Samuelson P.A. (1941), *Protection and Real Wages*, Review of Economic Studies, Vol. 9 No.1, pp. 58–73, https://doi.org/10.2307/2967638

Strange R. (2020), *The 2020 Covid-19 pandemic and global value chains*, Journal of Industrial and Business Economics, Vol. 47, pp. 455-465, https://doi.org/10.1007/s40812-020-00162-x

Stringfellow A., Teagarden M.B. & Nie W. (2008), *Invisible costs in offshoring services work*, Journal of Operations Management, Vol. 26, No. 2, pp. 164-179, https://doi.org/10.1016/j.jom.2007.02.009

Subramanian A. & Kessler M. (2013), *The Hyperglobalization of Trade and Its Future*, Peterson Institute for International Economics, Working Paper 13-6, available at https://www.piie.com/publications/working-papers/hyperglobalization-trade-and-its-future

The Economist (2013), *Here, There and Anywhere. Special Report: Outsourcing and Offshoring*, available at https://www.economist.com/sites/default/files/20130119_offshoring_davos.pdf

The White House (2012), *Blueprint for an America Built to Last*, available at https://obamawhitehouse.archives.gov/sites/default/files/blueprint_for_an_america_built_to_last.pdf

Van den Bossche P., Gupta P., Gutierrez H., & Gupta A. (2014), *Solving the reshoring dilemma*, Supply chain management review, Vol. 18, No. 1, 26-33, available at https://www.supplychain247.com/images/pdfs/SCMR_Solving_the_Reshoring_Dilemma.pdf

Vanham P. (2019), *A brief history of globalization*, World Economic Forum, available at https://www.weforum.org/agenda/2019/01/how-globalization-4-0-fits-into-the-history-of-globalization/

Vernon R. (1966), *International Investment and International Trade in the Product Cycle*, Quarterly Journal of Economics, Vol. 80, No. 2 pp. 190-207, https://doi.org/10.2307/1880689

Ucal M., Özcan K., Bilgin M. & Mungo J. (2010), *Relationship Between Financial Crisis And Foreign Direct Investment In Developing Countries, Using Semiparametric Regression Approach*, Journal of Business Economics and Management, Vol. 11, No. 1, pp. 20-33, DOI: 10.3846/jbem.2010.02

UNCTAD (2009), *Assessing The Impact Of The Current Financial And Economic Crisis On Global FDI Flows*, available at https://unctad.org/system/files/official-document/diaeia20093_en.pdf

UNCTAD, 2020, *World Investment Report, International Production Beyond the Pandemic*, available at https://unctad.org/system/files/official-document/wir2020_en.pdf

UNCTAD, 2022, *World Investment Report, International Tax Reforms And Sustainable Investment*, available at https://unctad.org/system/files/official-document/wir2022_en.pdf

Wang Z., S. Wei, X. Yu, & K. Zhu. (2017), *Measures of Participation in Global Value Chains and Global Business Cycles*, National Bureau of Economic Research NBER Working Paper. No. 23222, available at https://www.nber.org/papers/w23222

Wessner C. & Howell T.R. (2022), *Reshoring Semiconductors with the Chips Act: Key Lessons from Albany, New York, Center for Strategic and International Studies*, available at https://www.csis.org/analysis/reshoring-semiconductors-chips-act-key-lessons-albany-new-york

WTO (2019), *Global Value Chain Development Report 2019: Technological Innovation, Supply Chain Trade, And Workers In A Globalized World*, available at https://www.wto.org/english/res_e/publications_e/gvcd_report_19_e.htm

WTO (2020), *World Trade Report 2020: Governments policies to promote innovation in the digital age*, available at https://www.wto.org/english/res_e/booksp_e/wtr20_e/wtr20-0_e.pdf

WTO, 2021, *Global Value Chain Development Report: Beyond Production*, available at https://www.wto.org/english/res_e/booksp_e/00_gvc_dev_report_2021_e.pdf