POLITECNICO DI TORINO

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OFFSHORING VS RESHORING: THE IMPACT OF THE GLOBAL PANDEMIC ON ITALIAN INTERNATIONAL COMMERCE.

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Premise and Aim of the Work

The COVID-19 pandemic marked a dramatic turning point in history, rapidly turning from a health emergency into a deep socio-economic recession. Restrictions placed by governments all over the world to prevent the spreading of the virus caused the shutdown of many commercial activities and institutions, with devastating consequences on employment and people's wellbeing, affecting all, albeit diverse, economic sectors.

The epidemic is also one of the various factors that pushed nations to confront the hidden fragilities brought on by globalization, among which interdependencies. Indeed, since the last half of the 20th century the increasing trend of firms relocating steps of their supply chain abroad has ensured the birth of what literature refers to as Global Value Chains, which contributed to the amplification of the pandemics' shocks.

Before the virus hit, the need for a simplification for this intricated network was already being discussed, along with the rising concerns about the possibility of a deglobalization process being pushed by the increasing reshoring activity and the lowering delocalization enthusiasm. Reshoring, the return to the country of origin of the activities and processes previously located abroad, is, in fact, the exact countertrend to offshoring, one of the many internationalizations approaches a company could choose to follow.

The aim of this work is to analyze characteristics and drivers of the two different strategies, and, while studying the effects the epidemic had on the Italian economy, particularly on its imports and exports activities, determining whether it was a crucial factor that pushed the trends of either approach for Italian firms.

To do so, chapter 1 proposes a brief introduction to global trade to then describe the offshoring phenomenon, its drivers and effects and its global market size. Chapter 2 analyses the different types of reshoring strategies and the reasons behind them, while also giving clarity on the deglobalization debate. Lastly, chapter 3 studies the Italian production system its peculiarities and its evolution throughout history, Italy's placement in the European Union and at last, core to this thesis work, the effects the pandemic had on the country's international commerce and the analysis of the influence it had on Italian firms' offshoring and reshoring decisions.

Chapter 1

Offshoring

Literature refers to the offshoring activity as the practice of relocating tasks of a firm's value chain cross-borders, to increase its efficiency and flexibility, with the advantage of serving a global, rather than local, demand.

The increase in this practice has been favored by the great improvement in information technology and the overall effects brought by the third industrial revolution. With the improving easiness with which activities can be digitalized and information transferred fast and economically, an increasingly wide range of functions, from just production processes to supporting ones, has undergone through this transformation in the last few years and in a just as wide range of industries all over the world.

Internationalization occurs through trade and direct investment, measuring the extent of these two factors allows to classify industries in: sheltered, trade industries, multidomestic and global. Offshoring is just one of the many ways in which a company can internationalize, indeed, there are a variety of instruments that firms can use to enter the global market, such as:

- Foreign direct investments: acquiring ownership over assets situated cross-borders.

- Joint ventures: a business arrangement in which two or more parties agree to pool their resources for the purpose of accomplishing a specific task, a new project, or any other business activity. Each of the participants is responsible for profits, losses, and costs associated with it. However, the venture is its own entity, separate from the participants' other business interests.[1]

- Franchising: a contractual relationship, typically between established firms and local producers, where the first gives the second the possibility to produce and commercialize goods or services under its trademarks and logos.

1.1 Understanding Global Trade

In order to gain complete understanding of both the offshoring and reshoring activities, it is important to acknowledge overall world trade practices and how they developed in the last

[1] Investopedia.com definition

century. What was once commonly referred to as an exchange of goods among different countries has in fact evolved into a trade in tasks and abilities as well.

1.1.1 The (Hyper)Globalization Phenomenon

Globalization is defined as the intertwinement of ideas, knowledge, goods, and services originating from different cultural, economic, and political systems.

Although this phenomenon has always existed to some degree throughout history, what is referred to as its *modern era* starts from the period of the industrial revolution, where the advancements of the time helped creating integration and interdependence among countries.

The improvement of communication technology, along with the reduction of costs and free trade creation, but also political developments that saw the increase of countries operating in the capitalist system helped sprout international trade flows and the growth of this phenomenon.

We can distinguish between three different types of globalization: economic, political and cultural.

From a purely economic point of view globalization marks the destruction of barriers to international trade and the easy access to foreign resources, while political globalization refers to policies and organizations born to ensure international cooperation. Cultural globalization focuses on the connection and cultural convergence among people worldwide, for example through social media usage and creation of better transportation systems.

These three categories are strictly correlated and affect each other.

Overall, globalization has had different effects in different parts of the world: while developed countries could enjoy the reduction in production costs and the consumption of foreign products, the developing ones were able to exploit the circumstances to kick start their income growth and become less dependent on global demand over the years.

The impact of globalization can be measured through a variety of indicators, such as the trend in the world's import and export activities, stock of international migrants and capital inflows.

Figure 1.1.1 depicts the global export trends from the 1990s until 2019, as it can be seen China and India are a great example of what was just said above: the more the time passes the more they seem to become independent.

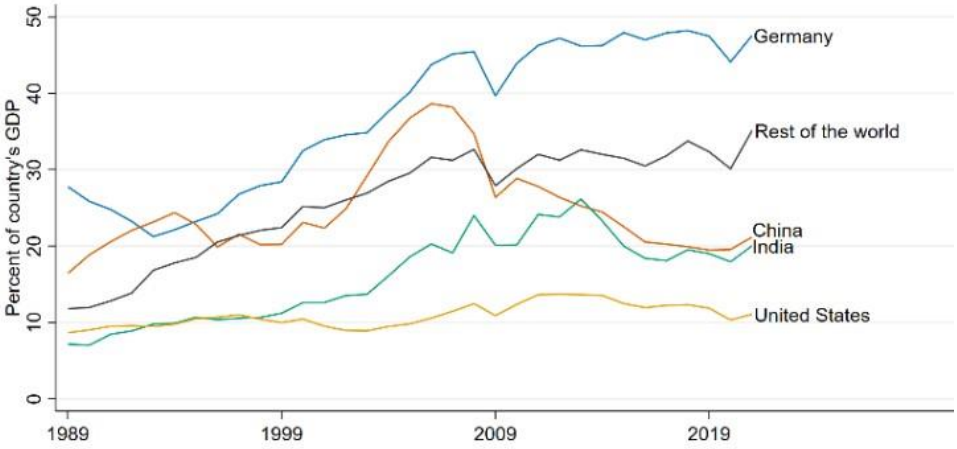

Figure 1.1.1: Exports of goods and services.

Source: "IS THE GLOBAL ECONOMY DEGLOBALIZING? AND IF SO, WHY? AND WHAT IS NEXT?". April 2023. Pinelopi K. Goldberg, Tristan Reed.

In **figure 1.1.2 panel A and B** are instead reported the global trend on migrant stock as percentage of the world population and the foreign direct investments and portfolio investments as share of gross domestic product.

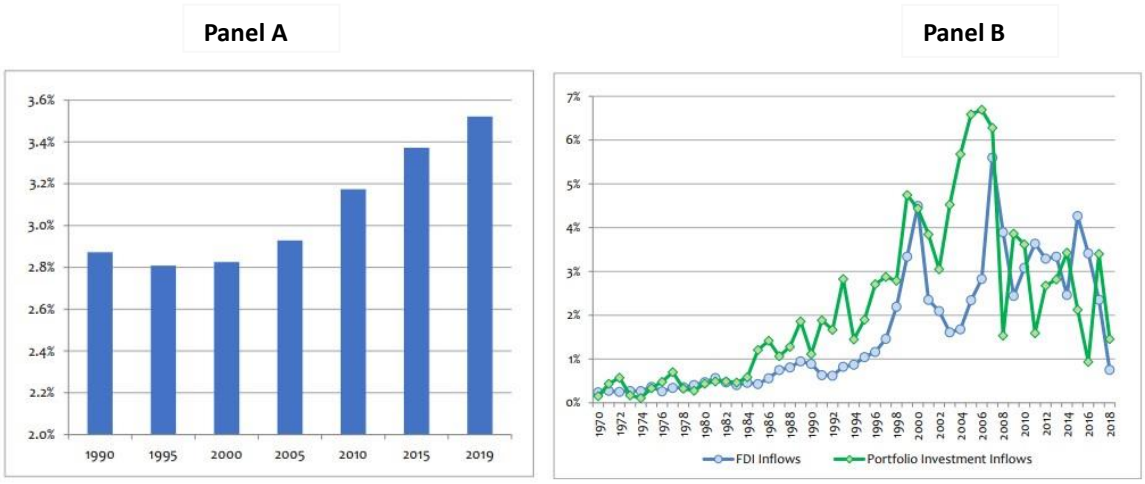

Figure 1.1.2: International migrant stock and capital inflows.

Source: "DE-GLOBALISATION? GLOBAL VALUE CHAINS IN THE POST-COVID-19 AGE". November 2020. Pol Antràs.

The literature defines hyper-globalization as an extreme enlargement in both size and velocity of the globalization effects (**Figure 1.1.3**).

Figure 1.1.3: The hyper-globalization effect.

Source: "The Unequal Effects of Globalization". Pinelopi Koujianou Goldberg, Greg Larson. The MIT Press, London, England 2023.

As can be observed from the graph above, global exports, that had stayed more or less constant before 1990, start to increase in the period that goes from the late 90s to 2007. The peak is reached just before the financial crisis of 2008.

1.1.2 Global Value Chains

Not coincidentally the hyper-globalization time period also corresponds to the emergence of global value chains (GVCs).

The concept of a global value chain doesn't differ from the definition of an industry value chain except for its extension. While typically supply chains focus on the composition of products and moving components among locations, the value chain's objective is to enhance the intrinsic value of the product while it moves across the supply chain.

The GVC also doesn't entail just flows of goods and raw materials, but of services, people and especially know-how of both leading companies and suppliers. Operating activities aren't the only activities being shipped cross board but supporting processes such as marketing and accounting as well.

A firm's benefit from engaging in such global value chains is the integration of comparative and competitive advantages, while a country gets benefits depending on how much its economy is involved in GVCs.

A good measure of this is the GVC participation index (**Figure 1.1.4**). Countries can participate in these types of chains both from the sourcing point of view and the supply one.

We refer to the first type of participation as "Backward GVC participation" or "Vertical Specialization" while the latter is called "Forward GVC participation". In terms of value-added computations these are two out of three main elements to consider: foreign value added through imports and domestic value added through exports.

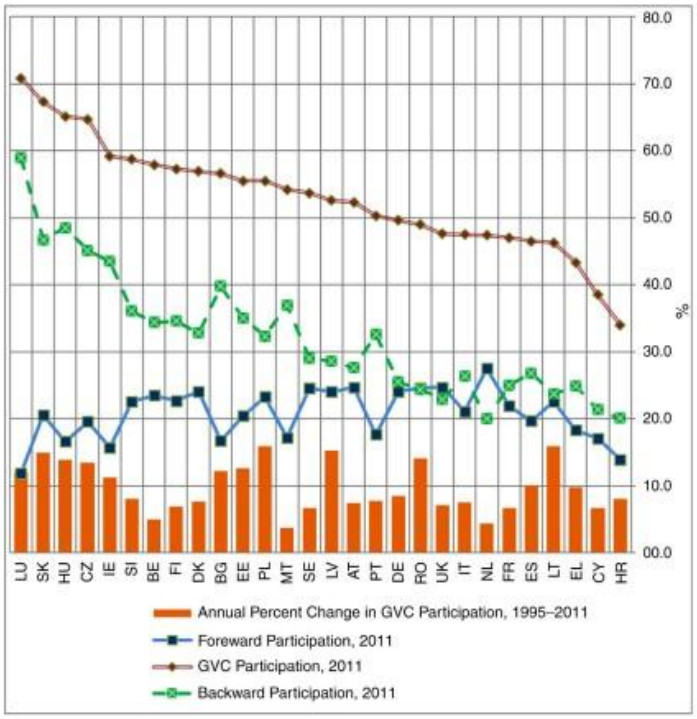

Figure 1.1.4: GVC participation in the EU.

Source: "Advances in the Theory and Practice of Smart Specialization", Louis Brennan, Ruslan Rakhmatullin. 2017 Elsevier Inc. Ch. 11.

The third element in added value analysis is domestic value added re-imported in the economy, **figure 1.1.5** gives a better illustration of the terminology discussed above.

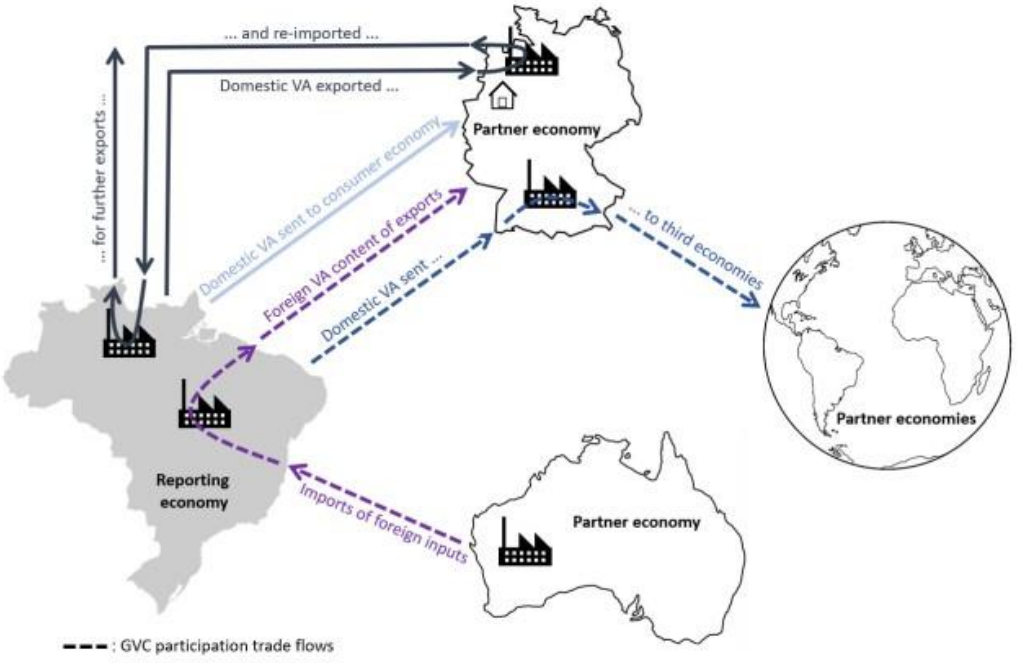

Figure 1.1.5: The value-added components of gross exports and related GVC trade flows.

Source: "Trade in Value Added and Global Value Chains" Country profiles explanatory notes, WTO.

While discussing GVC participation it must be revealed that, other than its quantitative aspect, how much nations partake in such activities, the way in which they take part in them is also an interesting and important facet to investigate.

From manufacturing to innovation **figure 1.1.6** depicts under which aspect the countries contribute to global value chains evolution.

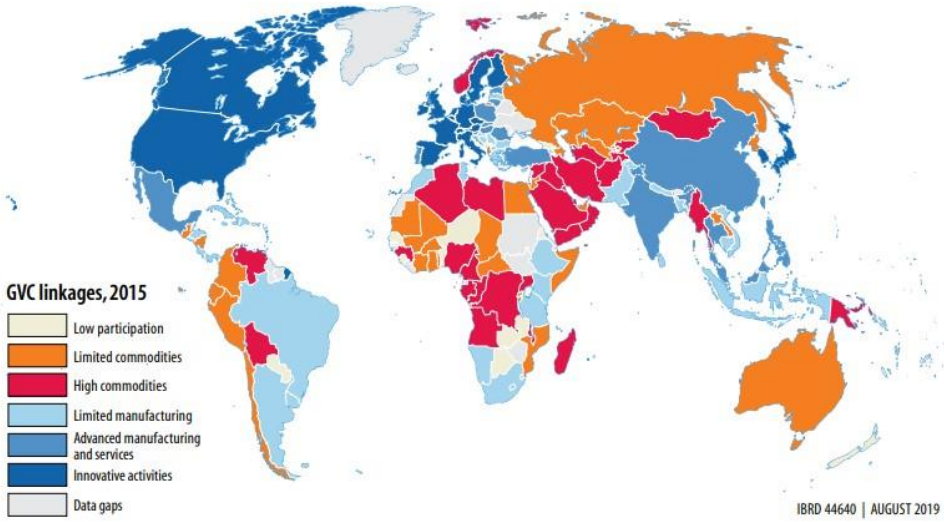

Figure 1.1.6: Different country's participation in global value chains.

Source: "TRADING FOR DEVELOPMENT IN THE AGE OF GLOBAL VALUE CHAINS" The World Bank, 1818 H Street NW, Washington, DC. 2020.

As can be seen, developed regions participate in higher added value activities such as innovation and advanced manufacturing and services, while in developing ones (South America, Asia, Africa) there is a concentration of lower added value ones. This is also the concept at the basis of Stan Shih's "smile curve" logic (**figure 1.1.7**).

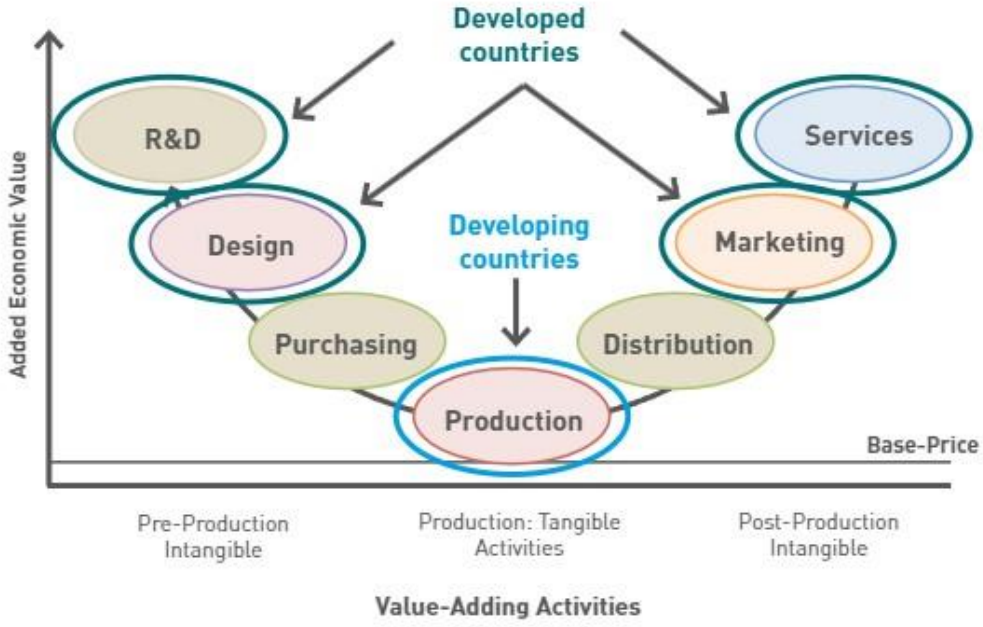

Figure 1.1.7: Smile curve of high value activities in GVCs.

Source: "Global Value Chain Analysis: A Primer, 2nd Edition" G. Gereffi, K. Fernandez-Stark, Center on Globalization, Governance & Competitiveness, Duke University, July 2016

Furthermore, the smile curve can be a good instrument to measure the benefits gained by the countries' participation in global trade.

1.1.3 The Role of Trade Agreements

After the initial signing of the General Agreement on Tariffs and Trade (GATT) in 1947, the time frame that was defined as the hyper-globalization period also sprouted governments efforts to bring down man-made trade barriers through the signing of several regional agreements to facilitate integration: some examples being the North American Free Trade Area (NAFTA) among USA, Mexico and Canada, and the ASEAN pact in Asia.

At the same time as these deals were being made, the World Trade Organization (WTO), founded in 1994, began the liberalization process by welcoming new members among its ranks and by lowering trade tariffs.

Although the primary opinion in research on the role these agreements had in fueling the growth of international trade is that they are only a secondary factor, literature also shows

important evidence of the contrary, especially if instead of focusing on aggregated results the main focus are portions of the economy.

While the ever-going debate is on whether policies affect companies' performance by the effect they cause on productivity rather than markups, there is also convincing evidence that policies influence wages as well, albeit the impact depends on the context of analysis.

Furthermore, it cannot be neglected the effect that trade policies (both on tariff barriers and non) and the stability the WTO managed to convey to the markets, have had on GVCs emergence. Not to mention that the fragmentation of the production chain decreased tariff elasticity so that a small decrease in tariffs can bring a big effect on cumulative trade.

Overall, the effect of these activities was not just to bring down costs of internationalization but also to drastically reduce uncertainty on whether the institutions and their policies would be effective in avoiding a return to protectionism.

Offshoring has the potential to complicate the role of trade agreements. As Pol Antràs and Robert W. Staiger observed:

> "First, in the presence of offshoring the mechanism by which countries can shift the costs of intervention on to their trading partners is more complicated and extends to a wider set of policies than is the case when offshoring of customized inputs is not present. And second, the underlying problem that a trade agreement must address in the presence of offshoring varies with the political preferences of member governments, a complication that does not arise in the absence of offshoring." (**Antràs, Staiger, 2008, p. 2**).

This suggests that rules that have been existing for the longest time might become ineffective and thus the need to review and adapt them to new circumstances may arise as the offshoring practice increases.

1.2 Offshoring vs Outsourcing

As previously stated, offshoring is not the only way of internationalization firms may undertake. Yet, among every other mechanism, the main source of confusion seems to be understanding the difference between offshoring and outsourcing, so much so that the two terms have been wrongly used interchangeably in quite a few occasions.

The reason behind this misunderstanding is the very thin line that separates these activities.

While both have been increasing along with the globalization trend, the offshoring activity relates more to the geographical aspect of global value chains, instead when speaking of outsourcing literature is referencing a company's make or buy decision.

So, while the delegation of activities, that are typically not part of the core business, to a third party may be done either cross borders or in the same country where the headquarters are situated, offshoring, by definition, requires the tasks being performed outside the company's nation of origin.

Decisions between the two usually depends on the level of vertical integration of an organization, yet they're not mutually exclusive processes. In fact, even if offshoring is the selected option there is still a decision to be made on its modality: Captive Offshoring or Outsourcing Offshoring (**Piatanesi, Arauzo-Carod, 2019**).

To make this concept even more clear, **table 1.2.1** summarizes the differences discussed above.

Table 1.2.1: Distinction between Outsourcing and Offshoring.

	Where is the Function Located?	
	Domestic	Foreign
Function Performed Internally	In-house	In-house Offshored
Function Performed Externally by another firm	Outsourced	Offshored and Outsourced Third Party Offshoring

Source: "GLOBAL TRENDS IN OFFSHORING AND OUTSOURCING" International Journal of Business and Social Science Vol. 2 No. 16; September 2011. Pages 13 to 19.

Both outsourcing and offshoring outsourcing entail long-term contractual relationships with third parties and thus are based on building collaboration and cooperation along the value chain.

The condition for choosing outsourcing as a strategy, according to the *theory of transactional costs*, is that transportation costs must be lower than the costs of producing externally. Its aim mainly being to gather greater specialization in locations that earn the most profit.

Although cost reduction plays a key role in the decision making of these practices, managers have to consider the potential agency problems that could arise and the loss of the firm's own capabilities by outsourcing knowledge to an external supplier. Capabilities, as is well known, take a long time to develop and once lost they may require an even bigger amount of time to recuperate.

In order to have the highest cost savings the best course of action would be to offshore outsource, but increasing the benefits also means increasing the down sides.

1.3 Drivers & Effects

The main flow of the offshoring activity tends to be from developed countries towards developing economies. There are many reasons, other than lower costs, which can help explain this trend, among these: more flexibility in the regulatory systems, inputs that cannot be found in the home country or that are just better for the value chain.

In general, offshoring seems to be driven by knowledge seeking and learning opportunities that companies may encounter abroad, with the intention to create processes that favor the creation of innovation and specialization.

The creation of international relations with both suppliers and customers to explore and exploit resources and capabilities, but also skills that may not be present in the country where a firm is based require a strong organizational restructuring that most company may not be fully equipped to undertake, this, along with the potential cultural and linguistical barriers that could arise from the process are extremely important factors to take into consideration, alongside the positive drivers, when making such decisions.

Offshoring affects firms in both positive and negative ways. It can be said that its main advantages are related to reduced costs, revenue growth, the possibility of in-house workers to migrate towards higher value-added jobs as the low value ones are relocated abroad, and repatriated earnings.

It gives the possibility to improve the innovation process, if the know-how of the other nations is efficiently exploited, and it can give the chance to learn and improve the manufacturing process.

The problems that arise from the offshoring activity are related to geographical dispersion bringing down performance variability, along with the possibility that it may lead to underappreciation of inland competencies and extreme dependence on cross-border resources. As previously stated, global value chains implicate agency costs on all levels, and this may render the coordination and management of offshore facilities extremely complicated.

Furthermore, offshoring leads to an increase in competition among the workers. Low wage workers tend to have more incentives to outperform their counterparts in developed

economies. This last point combined with the fear of unemployment and loss of personal income that comes with the idea of moving jobs outside a country's borders, even for those activities that were once upon a time immune to delocalization, may render the promise of economic value creation not enough.

There are two main points of view through which offshoring effects can be analyzed even further: consumers side and workers side.

1.3.1 Offshoring Effects on Prices

In general, on consumer side what is expected is that reductions in producer's costs or the opening to international competition and thus the increased capability of customers to find more substitutes would significantly bring a decrease in prices at which the firms' final goods are sold.

Reality though makes it clear that that is not always the case. There are two forms of inequality that affect consumers that derive from offshoring development.

The first one is in the transparency between producer and consumer. In many cases the cost reductions a firm experiences thanks to the offshoring of its activities is not reflected enough in the prices at which they sell their goods or services. This happens when; in order to gain a higher increase in its margins, the company doesn't lower its prices in proportion to the cost benefit gained from offshoring.

The second form of inequality is among consumers themselves, in particular between different income groups with different spending habits. The trade liberalization is known to have made a large variety of products more accessible, yet the advantages seem to be enjoyed more by low-income consumers, who spend a bigger proportion of their salary to buy goods that are typically traded more, than the high-income level consumers who instead tend to spend less on essential goods and more on technology.

1.3.2 Offshoring Effects on Wages

For the most part, offshoring has proven to be positive for the companies, while deeply affecting the wages of the workers, depending on their skills level.

While, overtime, offshoring increases demand for skilled jobs and helps countries in specializing within industries, in developed countries, where the main offshoring destinations are developing nations with low costs of production and low skilled workers,

this process impacts significantly on the gap between low skilled and high skilled payrolls, and, most definitely in a negative way, on low skilled workers.

These consequences do not impact workers only accordingly to the amount of their wage but also depending on the type of job they're required to perform: routine workers are affected more than people working in communications or other interactive occupations.

It is safe to say that offshoring will not lead to mass unemployment in developed countries, but still, its role over income distribution and inequality needs to be taken into account, and nations need to adapt and apply the necessary adjustments as the phenomenon increases in its growth.

1.4 The Global Situation

There are quite a few factors to consider when evaluating the quality of a potential offshoring destination.

Firstly, the level of education of a nation's system. It is always better to have workers that are able to speak few foreign languages especially English in order to lower communication barriers. For the same reason, a company must pay attention to the difference in time zones and shifted hours.

Other determinants, to ensure the easiness of the integration process, are cultural similarities, government and economic stability of a country and the alignment of work ethics between country of origin and that of destination.

Generally, another consideration is about the medium age of the workforce as youthful workers tend to be more eager to learn and success driven.

Lastly, the choice also depends on the processes that the firm wants to offshore. The main differentiation being among back-office activities, like accounting and finance, and development activities, mainly IT and software development. In the second case some of the best destinations seem to be China, India, Brazil, Egypt, and South Africa.

On a global scale, revenues generated by the offshoring of processes reached their peak in 2011 slightly decreasing afterwards (**figure 1.4.1**). It can be expected that the countries relaying on offshoring the most are the United States of America and Europe, with particular attention to the UK. But, in the last years, there has been an increase in activity also from China, Japan and some South American countries like Mexico and Argentina.

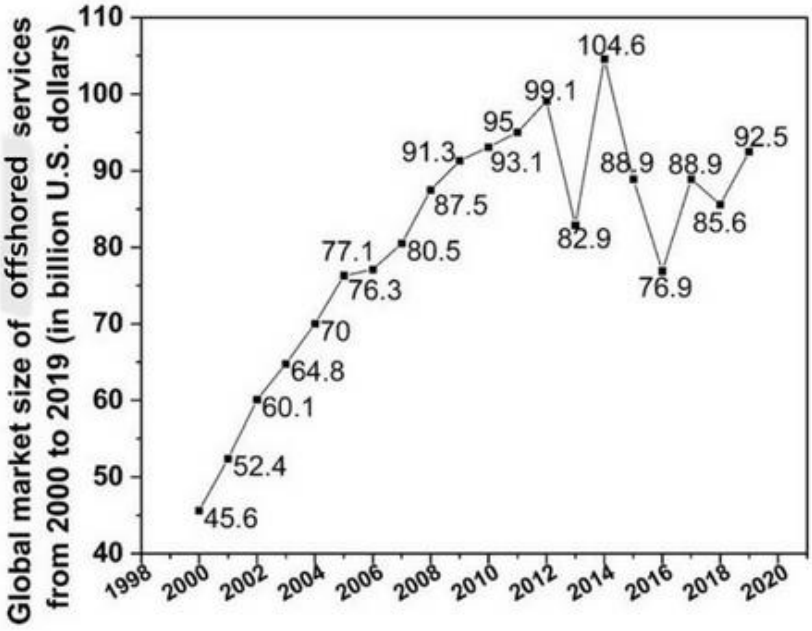

Figure 1.4.1: Global market size of offshored services from 2000 to 2019.

Source: "Offshoring-Outsourcing and Onshoring Tradeoffs: The Impact of Coronavirus on Global Supply Chain" George William Kajjumba, Oluka Pross

Looking at the location sites, albeit depending on the type of activity offshored, the trend hasn't changed much over the years with China, India and the Philippines being the most quoted and the addition of Turkey, mainly exploited by German companies also thanks to the language skills advantage, and Guatemala thanks to it being on the same time zone of the USA and the increasing Spanish-English bilingual talent sprouting from there.

Furthermore, **figure 1.4.2** shows the global trends in offshoring activities by various sectors.

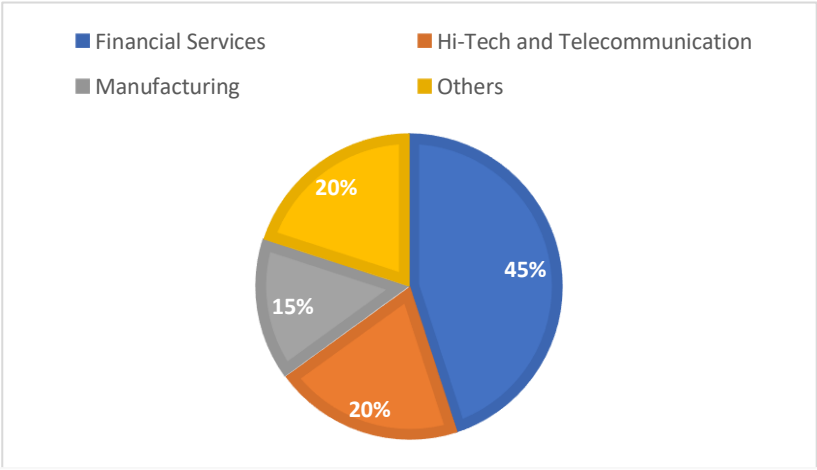

Figure 1.4.2: Main offshoring industries.

Source: "GLOBAL TRENDS IN OFFSHORING AND OUTSOURCING" International Journal of Business and Social Science Vol. 2 No. 16; September 2011. Pages 13 to 19.

As it can be seen the major industry adopting offshoring is the financial one: insurance companies, banks… Followed by a tie between high-tech and “others”, a label that comprises industries like healthcare, retail, and entertainment.

Reshoring

The voluntary decision, made by a firm, to move parts of its production activities back to its local sites' production chain, or the choice to source raw materials and components from national suppliers rather than foreign ones, is called reshoring.

The moving back strategy has impactful implications to both employment and a nation's economic activity, this is the reason as to why local citizens may prefer it to firms going cross borders.

In order to speak about reshoring, though, a company needs to have made a previous offshoring decision that it wants to reverse. This is the requirement to differentiate this particular strategy from any other location decision the firm may undertake.

One of the main reasons that boosted offshoring was that internationalization costs impacts were not fully evaluated and consequently its benefits were overestimated, thus the subsequent need to reverse this decision. As Micheal Porter notes: "A lot of CEOs offshored too quickly, too fast" (**The Economist, 2013**).

While offshoring did create many opportunities to increase competitiveness, a firm's abilities should also be developed enough to ensure flexibility among internationalization decisions and reshoring strategy adoptions.

2.1 Typologies

Depending on the relocation destination, reshoring can happen in two different modalities:

- Back-shoring
- Nearshoring

Back-shoring is defined as the choice to relocate in the firm's country of origin, while nearshoring means reversing the offshoring decision by locating in a country that is nearer to the company's one.

Both decisions may lead to lower labor and transportation costs, but the major determinant among the two is certainly the latter: transport cost reductions are significant while labor costs get only marginally reduced.

The advantages that derive from these reshoring activities, expectedly, are the exact solution to the offshoring's disadvantages: cultural and geographical proximity to the end customer, increased reaction to changes, potential tax advantages and overall improved coordination.

In general, nearshoring especially helps in maintaining the firm's international competitiveness while increasing its flexibility.

As for the main disadvantage of both strategies, certainly, the reduction of the geographical reach of the company implies less options available in terms of potential partners.

Moreover, reshoring may apply to any type of activity, but the main candidates seem to be high-tech services, this is due to the stronger controls on quality and flexibility. Relocation also does not necessarily need to be about the whole production activities of a firm, selective reshoring is a viable alternative that concerns just some specific activities or product lines.

Figure 2.1.1 below depicts a schematic sum up of what was explained above.

Figure 2.1.1: Offshoring, Back-shoring, Nearshoring.

2.1.1 What is Friendshoring?

A new term has been coined in the past few years due to political disruptions such as the US-China trade battle, the start of the global pandemic and Russia's invasion of Ukraine: friendshoring.

Friendshoring or ally-shoring refers to another version of the reshoring strategy that involves moving parts of the value chain to countries that share similar norms and values in terms of global economy, and that can be considered allies.

Both terms were firstly used by US officials, the final objective being the limitation of China and Russia's leverage through their respective market advantages. The paradox being, following friendshoring's definition, that the Biden's administration seems to be more willing to trade with India, which doesn't align at all with the USA trade norms, than China which actually shares more values on this topic with them.

If from a certain point of view, friendshoring boosts relationships with partner countries and thus lowers the risks concerning national security while also making value chains less subjective to blackmail, a world that following this concept will inevitably end up divided into two trading blocs will also be poorer and less productive, according to the World Trade Organization the global GDP would drop by 5 percent.

Friendshoring would not pose a problem if it were to be applied only to products and industries related to a country's security. If this is not the intention, though, the global value chains could incur the risk of a reversal of global trade integration.

2.2 Reasons & Trends

There are several reasons that push more and more firms to undertake the reshoring decision.

The main one is surely the management's valuations relative to total costs analysis changing after a few years of observing the effects of the offshoring strategy on the company. It has been the case, quite some times, that at the time the appeal of offshoring pushed directors to ignore some of its most common hidden costs, both direct and indirect (**figure 2.2.1**).

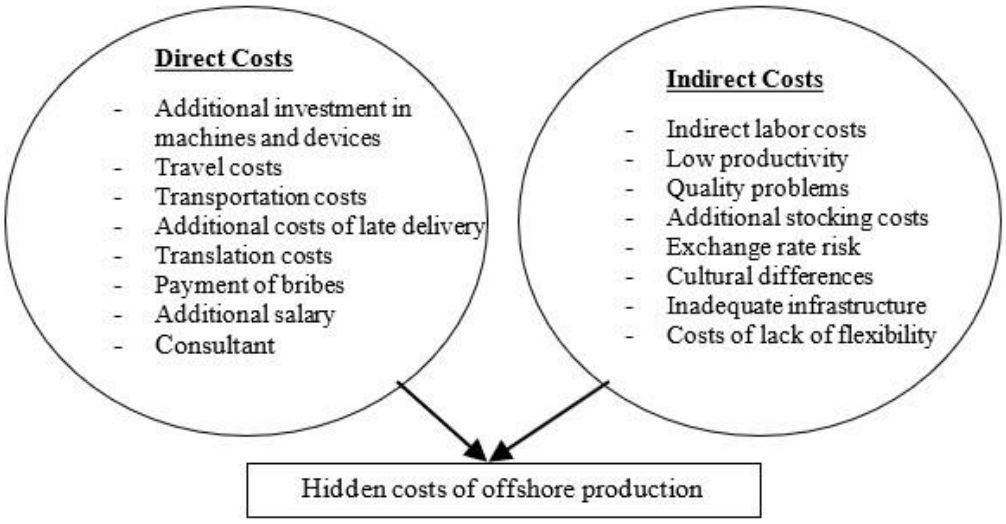

Figure 2.2.1: Hidden costs of offshore production.

Source: "Das Phänomen der Rückverlagerung. Internationale Standortentscheidungen kleiner und mittlerer Unternehmen." Schulte, A. (2002), Gabler.

Limitations regarding political and institutional differences in foreign countries, the lack of intellectual property protection, along with offshoring leading, in some cases, to a loss in qualitative performance in the production processes, are also elements that push companies towards reshoring their activities. This combined with difficulties in communicating with the foreign suppliers, increasing logistics costs and the favorability in nearshore or homebased delivery times.

Although the literature seems to have contrasting opinions about which strategy increases pollution the most, some would lead towards reshoring especially in nations that do not rely on renewable resources, the overall side effects of reshoring cannot be ignored.

For example, no country can hold all the skills necessary to sustain its economic growth, especially developing ones.

And, even if, the home country market is more inclined to companies' reshoring, firms need to consider that completely reversing their offshoring decisions leads to job losses and the rise of all kinds of poverty related problems in the nations that were used as destinations. Thus, it is crucial to find a balancing point between these activities.

In **figure 2.2.2** the propensity to reshore of some of the most common industries is depicted. As can be seen the high-tech, pharmaceuticals and transportation sectors are among the ones relying on this strategy.

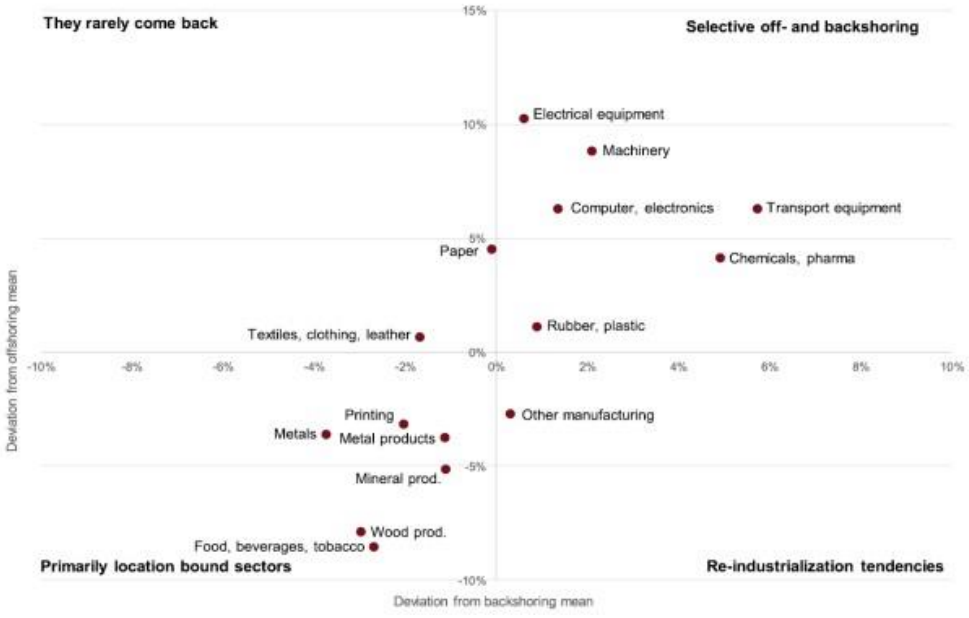

Figure 2.2.2: Propensity to reshore by sector.

Source: "Post Covid-19 value chains: options for reshoring production back to Europe in a globalised economy" Werner Raza Research, Jan Grumiller, Hannes Grohs, Jürgen Essletzbichler, Pintar. European Union, 2021

2.2.1 Consumer Beliefs

When pondering the choice to reshore, demand side drivers are just as important as firm side drivers, and a deep understanding of both Consumer Reshoring Sentiment, CRS (**Grappi et al. 2018**) and Consumer Animosity (CA) (**Klein et al. 1998**) in the home country market is needed.

Consumer beliefs make up for the opinions on reshoring of what was previously referred to as home-based market. The reason as to why the people prefer reshoring are quite a few, among those the belief that stopping production in a developing country must also mean putting a stop to worker exploitation and violation of human rights, and that this strategy increases a company's environmental sustainability choices.

Furthermore, consumers tend to believe that governments should do more in terms of policies and incentives to make reshoring an appetible option for the countries' firms since the quality of the firm's products is superior when created at home, thanks to the workers that are more skilled and experienced, and what is referred to as the "Made In" added value.

Emotions play a significant role in any type of decision making, but are prone to change unexpectedly, thus a constant monitoring of the home country market sentiment towards reshoring would be optimal for firms thinking of undertaking such decisions. Strong levels of CA towards host countries can be caused by tensions and end up favoring the CRS in relation to the reshoring decision, having knowledge of these indicators means possessing strong weapons to yield optimal responses.

For example, by constructing an efficient branding strategy that targets the positive beliefs consumers have about their home country, such as authenticity and better quality, consumers reshoring sentiment can be nudged upwards.

2.3 Deglobalization: Between Myth and Reality

In recent years persistent political and social debates having as their main topic free trade and immigration, with political leaders all over the world blaming globalization for national problems such as youth unemployment and other socioeconomic issues, have increased backlash on globalization to such an extent that economists have started to talk about a new phenomenon: deglobalization.

Deglobalization is discussed in literature in three different forms: a process aimed at reversing globalization, a wave in history explained by the cyclicality of markets, and, finally, a phenomenon that will inevitably cause the decentralization of the West.

Although it has been noted that since the 2008 financial crisis the global trade trend has been slowing down both in developed and developing countries (**figure 2.3.1**), a reverse of what happened in the hyper-globalization period, it is important to remember that some sectors have always been characterized by a certain degree of protectionism, for example the agricultural one. The EU is probably one of the most integrated market areas and yet trade in services is notably lower than goods trade.

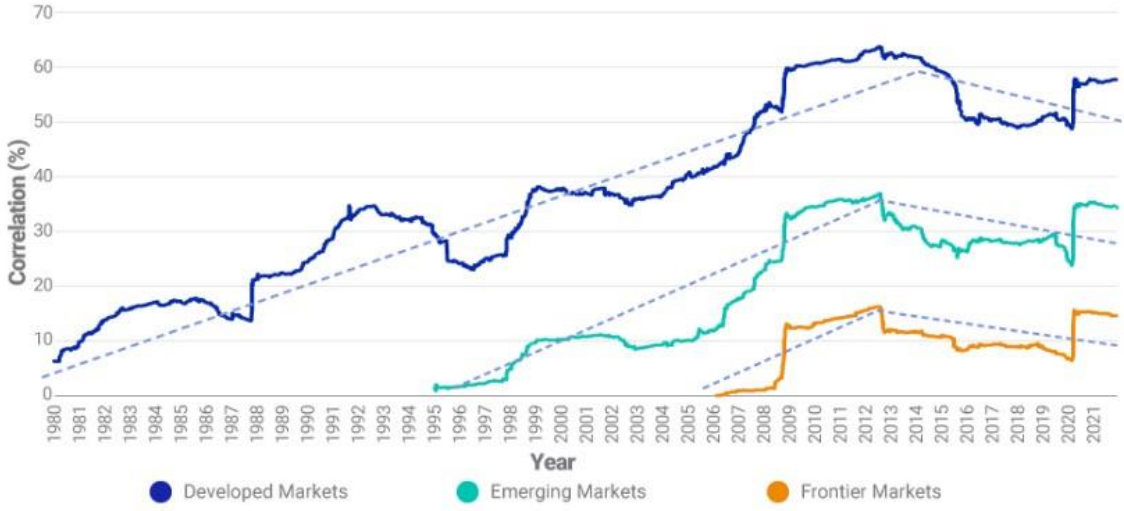

Figure 2.3.1: Global trade trend.

Source: https://www.msci.com/www/blog-posts/did-deglobalization-add-to/02910648011

In addition to this, the phenomenon is anything but new: a similar process affected the markets in the 20th century in the aftermath of the Influenza Pandemic, World War I, and the Great Depression.

It is fair to assume, then, that this new wave of uncertainty is due to public sentiment changing, especially in developed countries. This change happened throughout three separate phases during the last few years:

- 2015: Brexit and Trump's trade tariffs war against China, the restrictions applied have not been removed since then.
- 2019: the COVID19 pandemic which brought up the problem of countries' resilience and dependence on other nations and gave a new justification to the increasing reshoring activity.

- 2022: Russian invasion of Ukraine bringing national security into the discussion about needing to rethink globalization.

While the trade liberalization efforts made in the past could be easily converted, this new trend's effects seem to be limited for now. Rather than deglobalization, then, these changes in the policy environment may implicate the world heading towards a new kind of globalization, or, as the Economist likes to call it: "Slowbalization".

Nevertheless, the future of globalization is unequivocally in the hands of governments and political leaders around the globe.

Chapter 3

The Italian Case

The situation in Italy is interesting because most of the companies involved are small and medium-sized (SMEs), these businesses are clustered together in industrial districts and collaborate closely in many ways: they share resources, R&D processes, and trade parts they produce. This tight network, in theory, makes it harder for firms to offshore.

Moreover, Italy's position in the world's commerce network represents another compelling case study, especially in relation to the changes it had to undertake due to the arising challenges of the last few years, and the fact that, despite still being the second-largest manufacturer in Europe after Germany, Italy's manufacturing sector has shrunk dramatically.

This decline is evident in the number of hours worked in manufacturing and the overall value it contributes to the economy, and the reasons behind it include companies moving production overseas, which has led to a decrease in overall manufacturing output, a weakened ability to create jobs in this sector, and a loss of skills and capabilities.

3.1 History of the EU Polarization

In the aftermath of World War II, the most developed European nations enjoyed strong consumer spending and rising productivity through a system economists call "wage-led growth." However, with the financial markets liberalization and globalization gaining momentum, this model started to wane and the need for alternative growth strategies emerged, leading to the polarization of the European Union as member states leaned towards different approaches.

To understand why these different models were necessary, it needs to be examined how a nation compensates for a decline in domestic demand (spending by its citizens). This can be achieved by influencing various components of a country's aggregated demand, represented by the equation:

$$Y^D = C + I + G + (X - M)$$

With C as total consumer spending, I as private investment, G as government spending and (X-M) as the difference between total exports and total imports of a nation.

Figure 3.1.1 identifies three possible strategies that derive from variations of these components.

Mechanisms compensating for decreasing demand	Expansionary fiscal policy	Substitution of domestic with foreign demand	Stabilising demand via debt-led private sector expansion
Requirements	Creditors (could be central bank)	Competitive advantage, foreign import demand, capital outflows	Sufficiently de-regulated financial markets, capital inflows
Main actor	Government	Firms	Households
Affected component of aggregate demand	Government spending (G)	Net exports ($X - M$)	Consumption (C)
Side effects	Increasing indebtedness of the national government	Net lending, currency re-valuation (not applicable in the Eurozone)	Increasing indebtedness of private households
Examples in the EU	Legal institutions in the EU restrict this strategy	Germany, the Netherlands	Spain, Portugal
Implications for current account	Negative	Positive	Negative

Figure 3.1.1: Potential reactions to a decrease in effective demand.

Source: "Is the Eurozone disintegrating? Macroeconomic divergence, structural polarisation, trade and fragility" Claudius Gräbner, Philipp Heimberger, Jakob Kapeller and Bernhard Schütz, Cambridge Journal of Economics 2020, 44, 647–669, January 2020

By adapting the above-mentioned tactics to varying degrees, European countries were led down different growth paths as two main models emerged: export-driven expansion and debt-fueled growth. This resulted in a core-periphery classification within the EU, where Southern European nations like Spain, Italy, Portugal, and Greece primarily followed the debt-driven model, becoming part of the periphery.

A detailed illustration of the polarization process is shown in **figure 3.1.2** through panel a (the deviation of GDP per capita from the EU average), and panel b which illustrates the evolution of the unemployment rate.

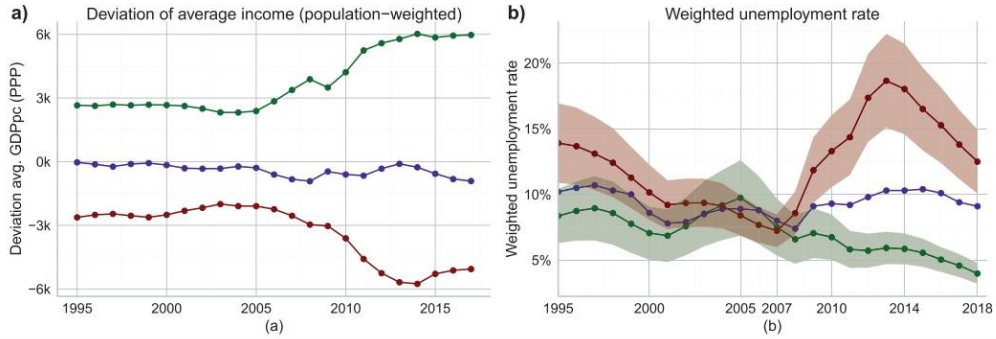

Figure 3.1.2: Development of income and unemployment in core and periphery.

Source: "Is the Eurozone disintegrating? Macroeconomic divergence, structural polarisation, trade and fragility" Claudius Gräbner, Philipp Heimberger, Jakob Kapeller and Bernhard Schütz, Cambridge Journal of Economics 2020, 44, 647–669, January 2020

However, growth models were not the only factor shaping the EU's polarization. **Figure 3.1.3** reveals a strong positive relationship between a country's index of economic complexity (ECI); a measure of knowledge intensity in its economy; and its prosperity. This suggests that economies with greater complexity tend to be wealthier and that how a country specializes in its economy, particularly the level of technology used in its production, can significantly impact its average growth rate, the stability of that growth, and most importantly, how long periods of strong growth last.

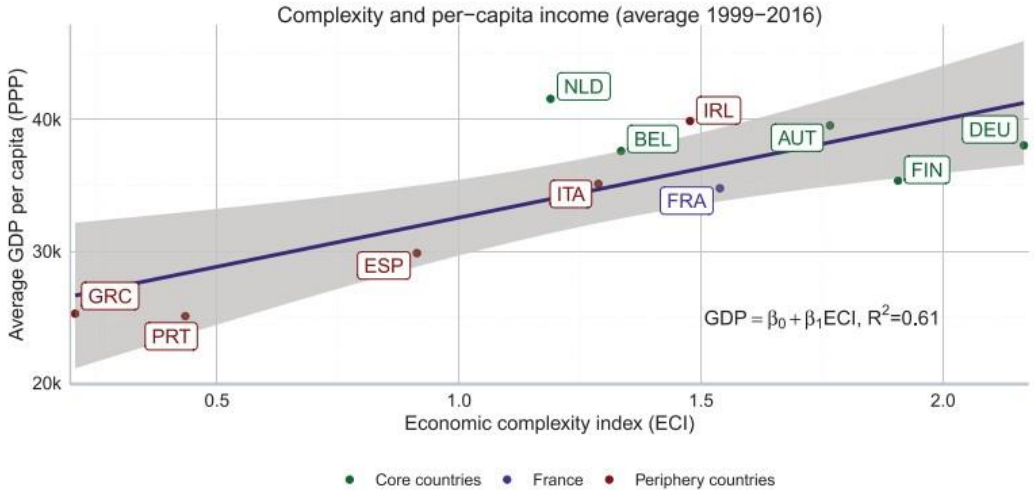

Figure 3.1.3: The relation between economic complexity and income.

Source: "Is the Eurozone disintegrating? Macroeconomic divergence, structural polarisation, trade and fragility" Claudius Gräbner, Philipp Heimberger, Jakob Kapeller and Bernhard Schütz, Cambridge Journal of Economics 2020, 44, 647–669, January 2020

As European integration progressed, the gap between the core and periphery widened. The collapse of the Soviet Union created a new periphery in Eastern Europe and the Southern Periphery was faced with a decline in manufacturing due to increased competition from both other EU members and cheaper goods from emerging economies in the international markets. Meanwhile, the core, centered on Germany, strengthened its manufacturing and technological capabilities.

Both the Southern and Eastern peripheries have weaknesses due to their reliance on the core countries. However, that is also a two-way street: Germany needs Southern markets to absorb its excess manufactured goods, while Eastern countries provide cheap materials for German industries.

Before the 2008 fiscal crisis, the gap between core and periphery wasn't as obvious because money flowed from the core to the periphery, but soon the crisis exposed these differences as Germany sharply reduced trade with Southern Periphery countries and sought new trading partners outside the EU, mainly China and the United States.

Additionally, during this period, both core and periphery countries within the European Union became increasingly focused on international competition, boosting exports and driving down costs, this behavior came at the expense of non-tradable sectors, such as housing, healthcare, and social services in general (**figure 3.1.4**). This trend created another source of division within the EU, one that only became truly apparent during the COVID-19 pandemic: member states had vastly different capacities to cope with crisis.

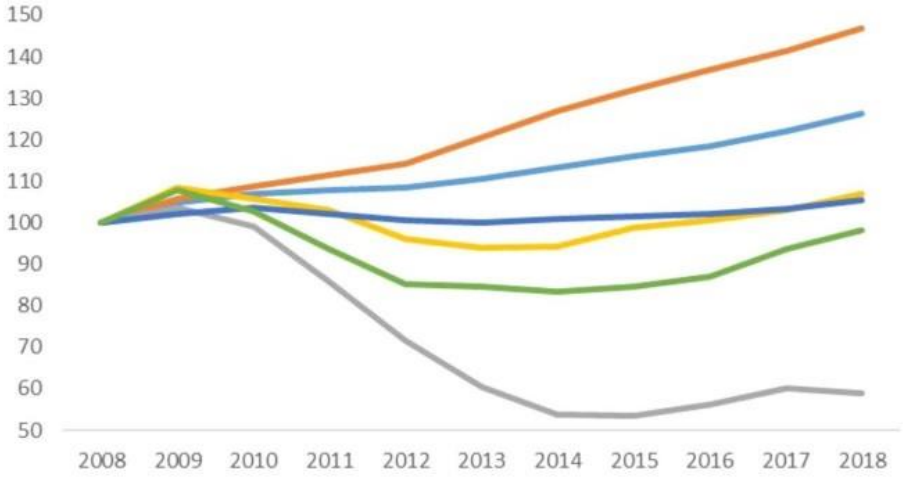

Figure 3.1.4: Public spending on health 2008-2018 period.

Source: "A fragile and divided European Union meets Covid-19: further disintegration or 'Hamiltonian moment'?" Giuseppe Celi, Dario Guarascio, Annamaria Simonazzi, Journal of Industrial and Business Economics (2020) 47:411–424, June 2020

Figure 3.1.5 shows the change rate between 2010 and 2017 in the number of firms in different industries among core, southern periphery, and eastern periphery, to highlight even more the deindustrialization process.

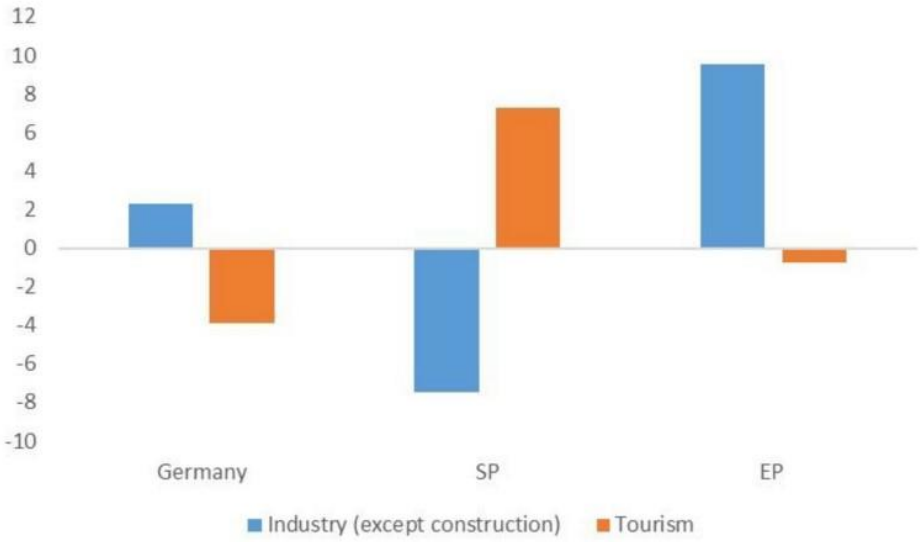

Figure 3.1.5: Changes in number of operating enterprises between 2010 and 2017 depending on the geographical zone (core, periphery).

Source: "A fragile and divided European Union meets Covid-19: further disintegration or 'Hamiltonian moment'?" Giuseppe Celi, Dario Guarascio, Annamaria Simonazzi, Journal of Industrial and Business Economics (2020) 47:411–424, June 2020

3.1.1 Italy's Position in the European Production Network

The way countries like Italy, France, and the UK fit into Europe's production network has shifted due to their varying approaches to manufacturing and economic integration. Germany and other central European nations, for example, have opted for strategic relocation: moving some lower-value production stages abroad while keeping high-value tasks, like accounting, development, and marketing at home. This allows them to better control their supply chains and to keep creating jobs domestically.

Conversely, southern European nations on the periphery, especially Italy, took a different path to integration: they welcomed major corporations from central Europe into their key production sectors, even high-tech ones. This came at the cost of moving most of their own production processes overseas and losing control over the GVC, it made them more vulnerable to external disruptions and fierce competition on costs, especially with Eastern Europe's growing presence. Ultimately, countries like Italy, who focused on lower wages and outsourcing instead of technological advancement, lost both their production abilities and a strong position within the global value chain.

To aggravate the bad positioning problem there is also the fact that most Italian companies function as suppliers standing in the middle stages of global chains with little to no participation in the beginning or ending stages, which, according to the smile curve theory,

are the most profitable ones. Italian companies' absence from these stages limits their overall profit potential.

Figure 3.1.6 illustrates, in panel a, the flow of employees in the manufacturing sector that each Italian industry group receives from different countries (backward linkages) and the one it provides to other countries (forward linkages), while panel b shows the same but for the service industry.

This analysis provides a simplified overview of how important different trade relationships are for Italy. It does this in two ways:

1. Quantitatively: it shows the overall size of each bilateral exchange.
2. Qualitatively: it classifies these exchanges based on Pavitt's categories (**Pavitt, 1984**) to understand the types of technology and innovation involved.

Pavitt's Taxonomy divides industry sectors into four groups distinguished by the types of technology they use, how they learn and innovate internally, and their position within value chains:

- **Science-Based Industries**: firms in sectors where innovation is heavily reliant on scientific research.
- **Specialized Suppliers**: these companies provide crucial tools and components to many different industries further down the production chain.
- **Scale-Intensive Industries**: innovation in these industries is fueled by their ability to adopt innovative technologies and develop complex products internally. Learning is cumulative, meaning it builds upon itself over time, and is further boosted by economies of scale.
- **Supplier-Dominated Industries**: innovation and learning largely depend on the equipment and materials purchased from other sectors.

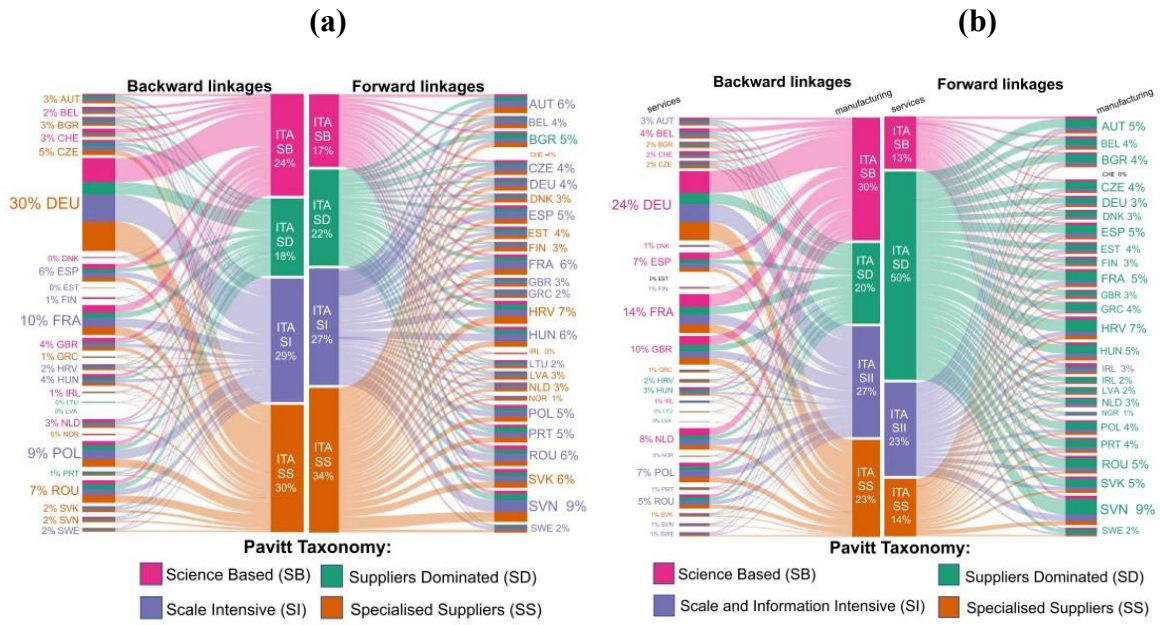

Figure 3.1.6: flows of employee to/from Italy in the manufacturing (a) and service (b) industries.

Source: "Italy and the Trap of GVC Downgrading: Labour Dependence in the European Geography of Production" Lorenzo Cresti, Giovanni Dosi, Federico Riccio, Maria Enrica Virgillito

What can be noted from the above picture is certainly Italy's dependence on Germany in both industries, indicating a weak specialization strategy, and the absence of a preferred trading partner in terms of forward streams, thus, confirming everything that was said above about Italian companies relying heavily on foreign services that involve a lot of knowledge and expertise and Italy's main contribution to European production being in more basic service activities, meaning it's capturing less value compared to those offering more advanced services.

3.2 The Italian Industrial System

Italian industry has lived through a deep evolution characterized by a growing centrality of SMEs in the last years. The latter, despite their limited resources and an often volatile economic context, have demonstrated a great capacity to adapt, slowly becoming the driving engine of national economy. Their flexibility has permitted them to readily face variable market needs and overcome difficulties that big enterprises face due to their less agile productive structures and high switching costs.

Small and medium firms did not gain their central role in Italian economy abruptly but rather throughout a linear evolution. The years after the birth of the European common market were characterized by a double phenomenon: on one side the removal of barriers that prompted the opening of international markets and the growth of foreign demand that began

stimulating Italian exports, especially thanks to the competitiveness of Made in Italy products and low-cost labor availability. On the other side, the increase in disposable income of Italian people resulted in a growth of internal demand, favoring SMEs development by putting them in a strategical position as suppliers for the big export-oriented enterprises.

The 70s marked a turning point for Italian industry: the economic crisis and the new global challenges forced all types of firms to change their production model, delocalization and tertiarization became popular practices signing the birth of a new industrial system based on the collaboration between big firms and small specialized firms, organized in districts.

Consequently, SMEs grew above their supplier role, becoming key players in global markets.

3.2.1 Italian Industrial Districts

Italy's manufacturing industry operates differently from other developed nations, which is crucial to remember when analyzing how Italian businesses have responded to global challenges. The Italian manufacturing landscape is defined by three key characteristics: a high proportion of micro, small and medium-sized enterprises, specialized production, and a network of industrial districts (**Rabellotti, 2009**).

As is well known, SMEs employ about 76% of Italy's manufacturing workforce, significantly exceeding the European average of 57.6%[2], Italy has also specialized in industries that heavily rely on labor rather than technology with its main areas of strength being associated with the "Made in Italy" sectors, causing it to stay behind other nations in the transition to more technologically advanced sectors. Lastly, the country is characterized by the widespread presence of industrial districts throughout its territory (**figure 3.2.1**), a feature that is strongly connected to the other two.

[2] Eurostat. Manufacturing Statistics, NACE Rev. 2

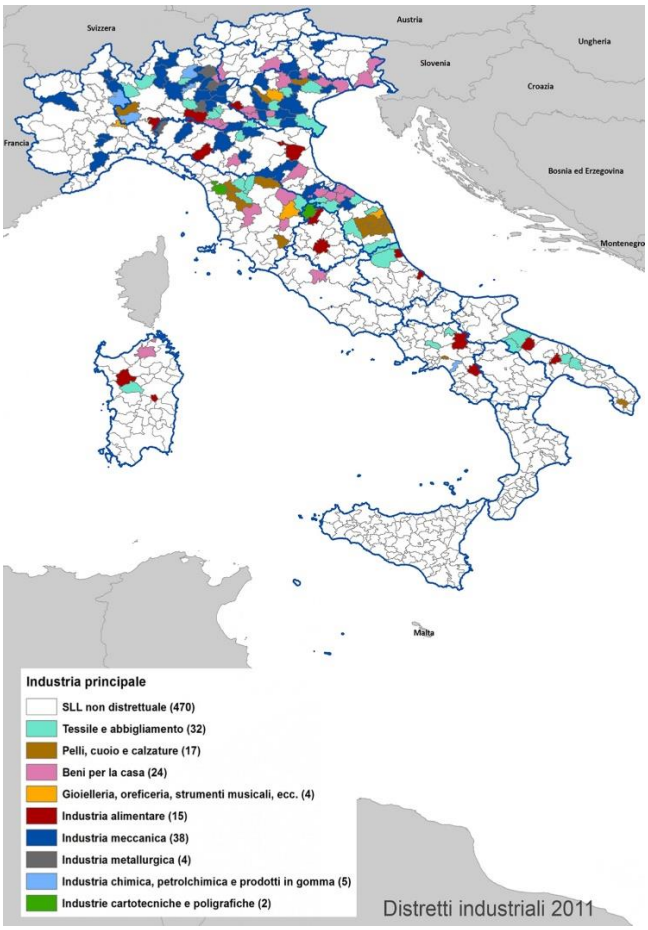

Figure 3.2.1: Italian industrial districts (2011).

Source: ISTAT.

Industrial districts are geographically concentrated manufacturing hubs deeply rooted in their local communities which share common values, beliefs, and knowledge, leading to an overall reduction of firms' costs. Their competitive advantage derives from a localized network of small and medium-sized businesses, each specializing in specific production tasks.

Until the early 1990s, Italian industrial districts experienced exceptional growth in sales, exports, employment, and profitability, and they were undeniably key drivers of the expansion of the domestic manufacturing sector. However, the productivity advantages progressively reduced due to globalization which significantly challenged this model, transforming many of its former strengths into vulnerabilities.

The IDs expansion stopped and inside these areas specialization reduction and growth of the bigger firms was observed. Furthermore, firms' network expanded beyond national borders, and to counter the increasing competition from countries with low labor costs and improve their global market standing, companies either left industrial districts, shifting production

processes to foreign countries through offshoring, in pursuit of cheaper production, or began attracting foreign workers, especially eastern ones, for low qualification jobs in order to meet growth needs.

The collateral effects these strategies created on the district value chain manifested in the form of a downward pressure on salaries and the underutilization of investments in production capacity made by many local sub-suppliers with specialized competences. Moreover, while district firms relocated high-volume, low-tech intensity activities with long waiting times, the sub-suppliers focused on high quality standard and just in time, or quick response ones creating a spatial division of the production lots that ended up weighting heavy on the suppliers' shoulders.

Despite districts suffering from the diminishing of agglomeration advantages, it cannot be said that they have disappeared completely: urban areas, with their concentration of activities, people, and innovative services, remain highly competitive sites to this day.

It is clear that the traditional industrial district model, as well as the economic conditions of the 1970s and 1980s, no longer exist, and though new technologies facilitate process fragmentation by making it easier for firms to externalize low added value activities towards emerging countries, Italian IDs can no longer compete solely on costs. This strategy is unsustainable and would lead to a downward spiral, as demonstrated by many developing countries.

Rather than competing on low costs and low value, a more promising strategy for industrial districts would be to move up the value chain. Firms that are integrated into global value chains are taking advantage of these connections to foster long-term growth, they have responded to the dynamic global marketplace by focusing on activities like research and development, and design, which require sustained investment and often do not yield immediate returns. As a result, these firms have overcome the limitations of traditional small-scale district businesses and achieved significant growth.

Districts internationalization processes are not limited to a single strategy. **Figure 3.2.2** offers a graphical representation of the different possible tactics based on two key dimensions: source of the competitive advantage and the geographical extension of the tasks.

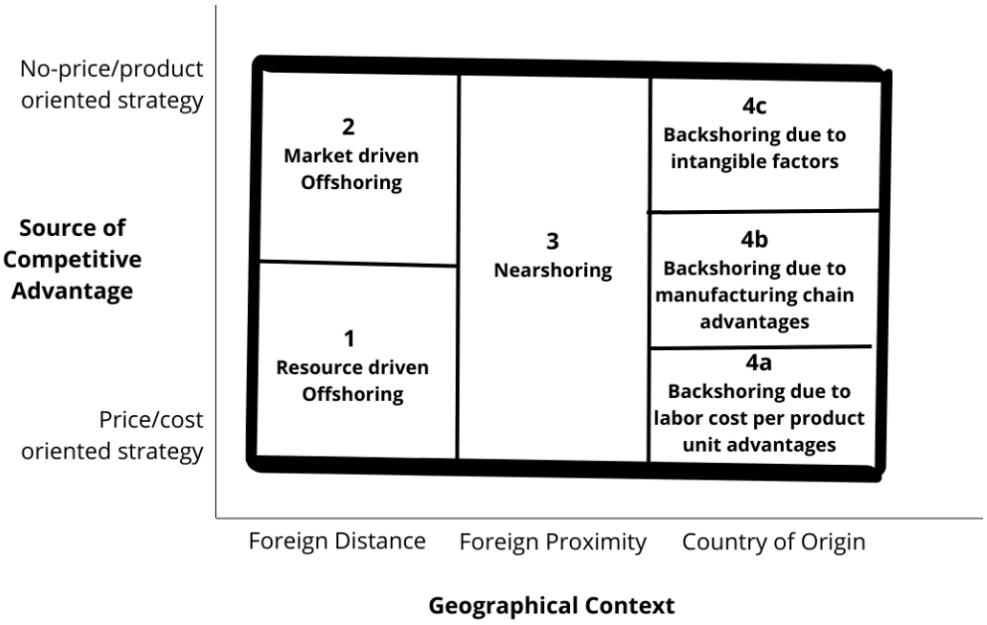

Figure 3.2.2: Internationalization strategies of district firms.

Source: I distretti industriali italiani tra offshoring e strategie di back-reshoring, Luca Ferrucci, Antonio Picciott

As can be seen motivations and economic impacts of different internationalization strategies on single firms and industrial districts present a notable heterogeneity, particularly, offshoring ones can be pushed either by the resources present in foreign countries or by market opportunities, while relocation strategies can be reconducted to three main purposes: production costs reduction, the creation of an integrated manufacturing chain at the local level, and exploitation of intangible resources of the home country.

3.2.1.1 Made in Italy

Introduced in the 1980s, the “Made in Italy” is a fundamental asset for Italian economy and a certificate of originality for a product. From traditional sectors like furniture and fashion to more innovative ones such as automotive, the brand stands as a synonym of quality and design, such reputation has made it one of the most powerful brands in the world, significantly contributing to Italian exports and the country’s prestige.

A survey made by Unioncamere in collaboration with Assocamerestero and the Camere di Commercio Italiane foreign network, presented recently at the conference "Italia: un valore nel mondo" shows that the firms operating in the Made in Italy sectors occupy 2,1 million of workers, while generating 454 million in profit, 105.5 billion of added value and 193.4 billion of export on a total of 420 billion for all sectors Made in Italy related. To further demonstrate the importance of this brand for Italian international commerce, **figure 3.2.3** shows the trend of exports associated to its main sectors.

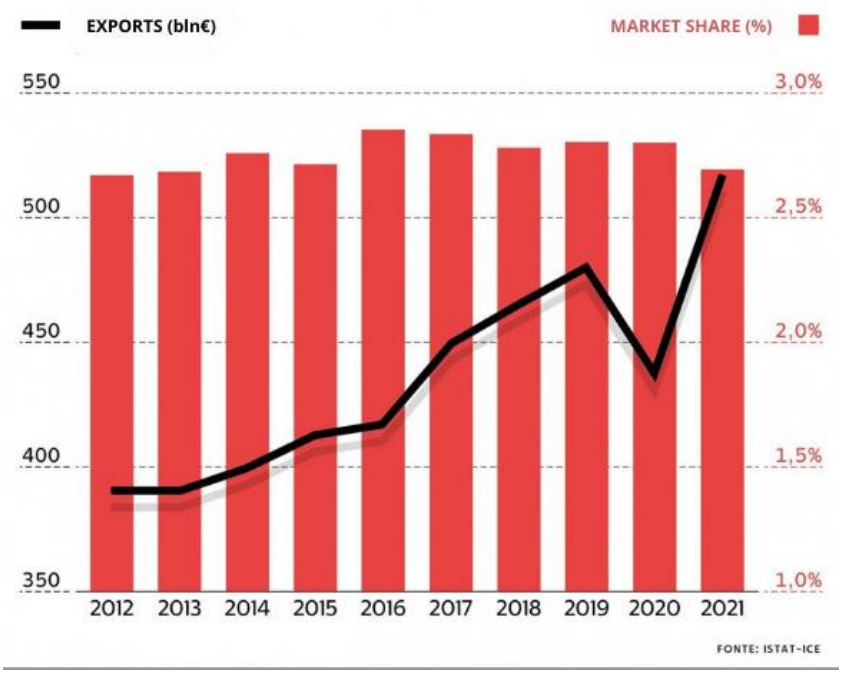

Figure 3.2.3: trend of Made in Italy exports.

Source:
https://www.repubblica.it/dossier/economia/topstory/2022/09/27/news/made_in_italy_un_anno_da_record_la_manifattura_spinge_lexport-367554116/

As can be seen, despite exports starting low and increasing rapidly from 2012 to 2019, with a drop during 2020 showing the impact of the pandemic, but a phenomenal reprise in 2021, the international market share from 2012 to 2021 remains around 2.5% and 3% for the whole period analyzed. The graph above also proves that the Made in Italy brand was one of the main reasons Italy survived the 2008 financial collapse and is nowadays the main motive behind Italian firms' decision to reshore.

The Made in Italy products share an ensemble of characteristics that determine its international success: high creativity, superior quality and prestige, productive specialization, and strong roots in the territory. Italian firms, typically the medium-large ones, operate in leadership position in global markets thanks to a business model based on a mix of innovation and valorization of the cultural, productive patrimony of the country. Marco Fortis, manager of Edison's Supervision of Economic Studies Department, identified the top Made in Italy companies (with a net profit between 2 and 9.9 billion euros), these firms, like Benetton, Luxottica, Barilla and Ferrero, but also Armani, Gucci and Prada in the luxury sector, are characterized by a strong international presence and competitive selling strategies in foreign markets.

Certainly, one of the main distinctive traits of the brand is its productive model, characterized by strong specialization and geographical cluster of firms in industrial districts, this system has enriched and strengthened the intangible value of Italy's brand, basing it off know-how and good reputation.

To evaluate the perception foreign countries have about the Made in Italy, the Nation Brands Index, originally ideated by Simon Anholt in 2007, can be used. The NBI is based on an analysis of variables such as culture, politics, economy, and tourism (**figure 3.2.4**), giving a complete understanding of the reputation of a nation, and helping governments and organizations in taking strategic decisions.

Figure 3.2.4: Nation Brand Index.

Source: Anholt-Ipsos Nation Brands Index, 2021

This index, beyond evaluating the international perception of a country, comprehends a financial component linked to the value of the national brands, giving a measure of its power and its capacity to attract talent and investments. As shown in **figure 3.2.5**, Italy has registered a significant improvement in its performance in the last few years, climbing positions in the general ranking, and obtaining positive results in the cultural, tourism and population dimension.

Figure 3.2.5: Variations in rank according to the NBI between 2020-2021.

Source: Anholt-Ipsos Nation Brands Index, 2021

Nevertheless, the brand also faces some criticalities: international competition, especially from China and East European countries, and the Italian Sounding phenomenon (using Italy's image to commercialize products that have nothing to do with the country). Italian firms must find alternative strategies to manage the complex situation and to compete while still trying to focus on the origin factor as a distinctive element.

3.2.2 Italy's Competitiveness

Italy's economic stagnation is not primarily due to its global competitiveness, instead, the country's prolonged time of austerity, aimed at reducing its public debt, has been a major obstacle to its growth. While this period successfully decreased the public debt, it also severely impacted the private sector by increasing taxes, reducing household income, and stifling consumption and investment, these negative effects, combined with long-standing issues like bureaucracy, high energy costs, and inadequate infrastructure, have collectively slowed Italy's economic progress.

Recent data strongly supports Italy's elevated level of international competitiveness, the country is a major global player, especially in manufacturing, with a substantial share of world exports and a significant trade surplus, Italy has outperformed other developed nations in maintaining its export share and has achieved a trade balance that places it among the top economies in Europe.

Italy's strong position in global markets is further confirmed by the Trade Performance Index (TPI) developed by UNCTAD/WTO's International Trade Centre. This index ranks Italy

second only to Germany in terms of international competitiveness. Notably, Italy maintained this top-tier status even during the severe collapse of domestic demand and economic downturn caused by the recession of 2011.

The TPI, introduced in 2006, compares the export performance of nearly 190 countries across 14 major production sectors that range from food and textiles to machinery and electronics. To evaluate each country's performance within each sector, the TPI calculates a composite index based on five key factors: export volume, per capita exports, market share, product variety, and customer diversity.

The Trade Performance Index does not just consider the total value of a country's trade but also factors like country size, economic specialization, and the risk of over-reliance on specific products or markets. **Table 3.2.1** provides a ranking of the top ten positions held by each G20 country in the 14 different product sectors assessed by the index for the year 2013, in which Italy is highlighted in bold.

Table 3.2.1: UNCTAD/WTO Trade Performance Index 2013 (Current index. Ranking of international competitiveness (189 nations); Number of top 10 placings in the world rankings for foreign trade competitiveness in 14 sectors).

Rank	Country	Number of best positions	Number of second positions	Number of third positions	Number of fourth positions	Number of fifth positions	Number of sixth positions	Number of seventh positions	Number of eighth positions	Number of ninth positions	Number of tenth positions
1	Germany	8	1								
2	**ITALY**	**3**	**5**					**1**			
3	Russia	1									
4	China		2	1		1	1		2		
5	South Korea			1	1			1	1	1	
6	France			1	1		1				1
7	Turkey			1	1						1
8	Australia				1	1					
9	Japan					1		1	1	1	
10	USA						1		1		
11	India						1				1
12	South Africa						1				
13	Brazil							1			
14	Indonesia								1		
15	Argentina									1	
15	Saudi Arabia									1	
16	UK										
16	Canada										
16	Mexico										

Source: "Italy's Top Products in World Trade The Fortis-Corradini Index", Marco Fortis, Stefano Corradini, Monica Carminati, Springer 2015

As can be observed Italy demonstrated strong competitiveness in the global market, securing top ranks in three key sectors: textiles, clothing, and leather products. Italy also obtained the second position in five additional sectors: non-electronic machinery (competing closely with Germany), transport equipment, electronic components, miscellaneous manufacturing (notably sunglasses and jewelry), and basic manufactures including metals, marble, and ceramics, where Italy is a leading global producer (**table 3.2.2**).

Table 3.2.2: Italy's competitiveness according to the Trade Performance Index UNCTAD/WTO, year 2013 (billion dollars).

Sectors	Position of Italy in the world ranking of Trade Performance Index 2013	Value of Italy's export	Italy's trade balance 2013
Clothing	1	23.7	8
Leather products	1	24.2	12.3
Textiles	1	13.5	4.9
Non-electronic machinery	2	104.2	70.2
Transport equipment	2	44.5	8.2
Basic manufactures	2	62	18.6
Miscellaneous manufacturing	2	49.1	21.3
Electronic components	2	23.2	2.7
Processed food	7	32	5.5
Total 9 best sectors		**376.4**	**151.7**

Source: "Italy's Top Products in World Trade The Fortis-Corradini Index", Marco Fortis, Stefano Corradini, Monica Carminati, Springer 2015

To further prove competitiveness is far from being a problem for the country, **table 3.2.3** shows how Italy and Germany share the highest number of top global rankings among the G6 countries (Italy, Germany, Japan, France, the United Kingdom, and the United States) plus China and South Korea.

Table 3.2.3: Position of G-6 Countries, China and South Korea in the ranking of competitiveness of the Trade Performance Index UNCTAD-WTO, year 2013 (ranking in each sector worldwide; in bold the placements among the top 10 most competitive countries).

Countries	Germany	Italy	China	South Korea	Japan	France	United Kingdom	United States
Sectors								
Fresh food	27	37	50	79	89	**6**	42	**8**
Processed food	**1**	**7**	24	71	88	**3**	42	38
Wood and paper	**1**	25	36	50	53	28	35	31
Textiles	**2**	**1**	**3**	**8**	35	19	22	35
Leather products	15	**1**	**2**	38	74	16	21	40
Clothing	15	**1**	**2**	47	79	12	19	41
Chemicals	**1**	28	24	**9**	**8**	**4**	21	**6**
Basic manufactures	**1**	**2**	**6**	**4**	**7**	27	32	47
Non-electronic machinery	**1**	**2**	**5**	11	12	**10**	14	25
Electronic components	**1**	**2**	40	17	**5**	20	26	30
IT and Consumer electronics	12	22	**8**	**7**	40	18	15	23
Transport equipment	**1**	**2**	18	**3**	12	14	34	35
Miscellaneous manufacturing	**1**	**2**	**8**	41	**9**	23	27	25
Minerals	31	46	75	66	85	28	23	21

Source: "Italy's Top Products in World Trade The Fortis-Corradini Index", Marco Fortis, Stefano Corradini, Monica Carminati, Springer 2015

3.3 The Epidemic Impact

The economic crisis, triggered by the COVID-19 pandemic, caused a contraction in the world economy much larger than the previous severe recessions of 2008 and 2011. According to the International Monetary Fund's estimations and as illustrated in **figure 3.3.1**, global GDP dropped by 3.3% in 2020, the most concerning data since World War II.

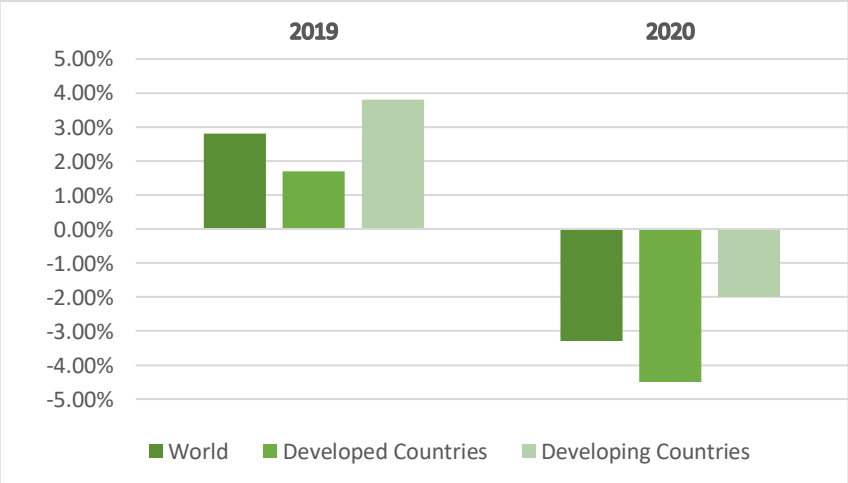

Figure 3.3.1: Percentage of GDP variations between 2019 and 2020.

Source: World Economic Outlook, IMF

The different temporal diffusion of the virus and the various epidemic waves amplified the world economy's instability, making it such that none of the major economies was able to avoid negative consequences. As can be seen from the figure above, developed economies, among which the USA and the Eurozone, have registered the more pronounced contractions. This result can be linked back to these countries' higher dependency on the service industry and their tighter integration within global markets.

Unlike the crisis of 2008 and the sovereign debt crisis of 2011, whose origins were strictly related to the financial sector, the 2020 recession was caused by an exogenous sanitary shock that also led to a contraction in both demand and supply.

The demand shock, a direct consequence of mobility restrictions imposed through lockdowns, determined a drop in goods and services consumption, income contractions pushed families to spend drastically less, while firms put investment decisions on hold. The deterioration of economic conditions also tightened credit access conditions, further limiting aggregate demand.

The supply shock, induced by the closure of non-essential businesses and the consequential job losses that came with it, worsened the contraction of aggregated demand, this disruption's intensity resulted to be proportional to the level of vertical integration and internationalization of firms: the more fragmented and globally dispersed organizations bore most of the consequences of the pandemic.

As previously stated, the uncoordinated closure of national borders aggravated the international exchanges' slowdown, China in particular, registered an impactful deceleration of its own economic activity in the first trimester of 2020, due to both the epidemic and the containment measures adopted.

World commerce, which was already slowing down at the end of 2019 because of geopolitical reasons, drastically dropped due to the pandemic with developed economies being hit particularly hard despite the exogenous nature of the crisis granting a rapid recovery (V shaped trend in **figure 3.3.2**).

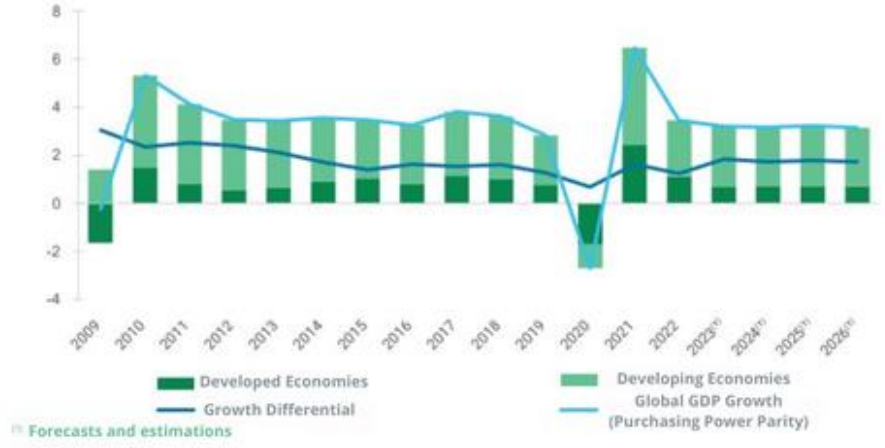

Figure 3.3.2: Contribution to global GDP growth.

Source: Rapporto ICE 2023-2024, L'italia nell'economia internazionale

3.3.1 Analysis of the 2008-2019 period

Through the study of trade transactions data reported by the Italian customs the trend of both total imports and exports of the country was calculated from 2008 to 2019. As reported in **figure 3.3.3**, the value of exports remains higher than that of imports during the whole period, both curves drop in 2009, exports slightly more than imports, but both have a strong reprise afterwards.

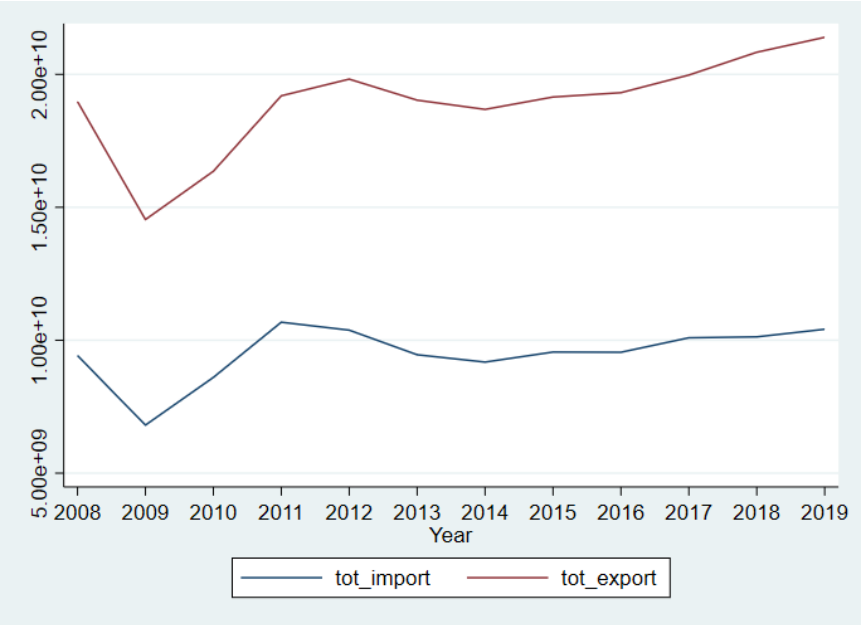

Figure 3.3.3: Variation of imports and exports trends (2008-2019).

Source: Personal elaboration.

While, after decreasing from 2012 to 2014, exports grow to reach their maximum amount in 2019 surpassing the previous peak of 2011, imports lower from 2011 to 2014 and despite growing after, they don't ever reach more than their 2011 value in the whole period analyzed.

Moreover, the data was manipulated to better understand Italian's main partners both at a macrolevel and by industrial sector. Results illustrated in **figure 3.3.4** show that Germany has been Italy's main partner from both imports and exports point of view in all years except for 2011, when the country traded more with France than any other nation.

(a)

Year	Country	tot_import
2008	Germany	1.66E+09
2009	Germany	1.15E+09
2010	Germany	1.50E+09
2011	France	1.60E+09
2012	Germany	1.51E+09
2013	Germany	1.49E+09
2014	Germany	1.46E+09
2015	Germany	1.42E+09
2016	Germany	1.41E+09
2017	Germany	1.55E+09
2018	Germany	1.50E+09
2019	Germany	1.53E+09

(b)

Year	Country	tot_export
2008	Germany	2.91E+09
2009	Germany	2.32E+09
2010	Germany	2.63E+09
2011	France	3.05E+09
2012	Germany	3.00E+09
2013	Germany	2.96E+09
2014	Germany	2.91E+09
2015	Germany	2.91E+09
2016	Germany	2.97E+09
2017	Germany	3.15E+09
2018	Germany	3.38E+09
2019	Germany	3.30E+09

Figure 3.3.4: Main country partners per year for imports (a) and exports (b).

Source: Personal elaboration.

From the offshoring perspective instead, the main partners are not as starkly determined. Firstly, there was the need to identify throughout the dataset the firms that could be considered as offshoring companies, this was done by creating a dummy variable that took the value 1 in case the ATECO code of the product object of the transaction resulted equal to the firm's ATECO code and if the firm was deemed as an importer in the database. The offshoring value, obtained as the dummy multiplied by the import value of the transaction, divided by the total amount of import value, both calculated per year and by each country, gives as result the offshoring share. By finding the maximum offshoring share per year the main partners were discovered, but, as shown in **table 3.3.1,** through the years many different nations have been used as offshoring destinations, over the whole 12 years though the main recurring ones can be identified as the US Virgin Islands, Equatorial Guinea and Andorra (**figure 3.3.5**).

Table 3.3.1: Main offshoring destinations per year (2008-2019).

Year	Country
2008	Niger
2008	Equatorial Guinea
2008	Yemen
2008	Cambodia
2009	Benin
2009	Equatorial Guinea
2009	US Virgin Islands
2009	Sint Maarten
2009	North Korea
2009	New Caledonia
2010	Liechtenstein
2010	Andorra
2010	Eritrea
2010	Zambia
2010	US Virgin Islands
2010	New Caledonia
2010	Guam
2011	Iceland
2011	Liechtenstein
2011	Uzbekistan
2011	Sierra Leone
2011	Eritrea
2011	Lesotho
2011	US Virgin Islands
2011	Iraq
2012	Turkmenistan
2012	Libia
2012	Niger
2012	Equatorial Guinea
2012	Zambia
2012	Panama
2012	US Virgin Islands
2013	Azerbaigian
2013	St Lucia
2013	Trinidad and Tobago
2014	Liberia
2014	Equatorial Guinea
2014	Bermuda
2014	Bahamas
2014	Oman
2014	Bhutan
2014	Macao
2015	Liechtenstein
2015	Sudan
2015	Mauritania

2015	Mali
2015	Equatorial Guinea
2015	US Virgin Islands
2015	Bolivia
2015	Siria
2015	Yemen
2016	Andorra
2016	Uzbekistan
2016	Equatorial Guinea
2016	Gabon
2016	Turks Islands
2016	Barbados
2016	Bolivia
2016	Maldive
2016	Nepal
2016	New Caledonia
2017	Andorra
2017	Gibraltar
2017	Equatorial Guinea
2017	Panama
2017	Bahamas
2017	Dominican Republic
2017	US Virgin Islands
2017	Bolivia
2017	Nepal
2018	Andorra
2018	Uzbekistan
2018	Sudan
2018	Mauritania
2018	Gabon
2018	US Virgin Islands
2018	Syria
2018	Yemen
2018	Macao
2019	Andorra
2019	Gibraltar
2019	Azerbaigian
2019	Kirghizistan
2019	Libia
2019	Equatorial Guinea
2019	Bermuda
2019	Kuwait

Source: Personal elaboration.

To further deepen this study, the main partners per industrial sector for each year in the dataset were identified. **Table 3.3.2**, for clarity reasons, reports the results for the most recent years of 2018 and 2019 from the imports perspective, while **table 3.3.3** illustrates those of

exports. As it was already stated above, there is a prevalent relationship with Germany and France that is even more highlighted below.

Figure 3.3.5: Main Italian offshoring destinations.

Source: Personal elaboration.

Table 3.3.2: Main import partners by year and industrial sector (2018-2019).

Year	Country	Industry	tot_import
2018	Germany	Food	2.37E+08
2018	France	Beverage	2.70E+07
2018	Turkey	Tobacco	310717
2018	China	Textile	1.52E+08
2018	China	Packaging of clothing items	1.24E+08
2018	France	Manufacture of leather and similar	3.01E+07
2018	Austria	Wood and Cork	1.03E+08
2018	Brazil	Manufacture of paper	6.29E+07
2018	Germany	Print and printing services	4833363
2018	Germany	Manufacture of oil refining products	8893582
2018	Germany	Chemicals manufacture	5.72E+07
2018	China	Manufacture of pharmaceautical products	5.90E+07
2018	Germany	Manufacture of rubber and plastic items	6.77E+07
2018	Germany	Glass manufacture	6.47E+07
2018	USA	Steel	4.70E+08
2018	Germany	Manufacture of knives, tools and hardware	1.54E+08
2018	China	Optical instruments and photographic equipment	1.50E+07
2018	Germany	Electrical equipment & non-electrical household use equipment	1.14E+08
2018	Germany	Manufacture of machinery and equipment n.e.c.	2.87E+08
2018	Germany	Manufacture of bodywork for vehicles, trailers and semi-trailers	8.79E+07
2018	Vietnam	Construction of locomotives	4.12E+07
2018	France	Furniture	8921615
2018	China	Other	3.57E+07

2019	Germany	Food	2.57E+08
2019	France	Beverage	2.63E+07
2019	Turkey	Tobacco	200990
2019	China	Textile	1.69E+08
2019	China	Packaging of clothing items	1.28E+08
2019	France	Manufacture of leather and similar	1.61E+07
2019	Austria	Wood and Cork	1.00E+08
2019	Brazil	Manufacture of paper	6.28E+07
2019	Germany	Print and printing services	4169437
2019	Germany	Manufacture of oil refining products	9391998
2019	Germany	Chemicals manufacture	5.83E+07
2019	China	Manufacture of pharmaceautical products	6.05E+07
2019	Germany	Manufacture of rubber and plastic items	7.69E+07
2019	Germany	Glass manufacture	6.39E+07
2019	USA	Steel	6.27E+08
2019	Germany	Manufacture of knives, tools and hardware	1.55E+08
2019	China	Optical instruments and photographic equipment	1.52E+07
2019	Germany	Electrical equipment & non-electrical household use equipment	1.23E+08
2019	Germany	Manufacture of machinery and equipment n.e.c.	2.61E+08
2019	Germany	Manufacture of bodywork for vehicles, trailers and semi-trailers	1.12E+08
2019	Vietnam	Construction of locomotives	4.00E+07
2019	France	Furniture	9084547
2019	China	Other	3.88E+07

Source: Personal elaboration.

Table 3.3.3: Main export destinations by sector and year (2018-2019).

Year	Country	Industry	tot_export
2018	Germany	Food	3.06E+08
2018	UK	Beverage	1.92E+08
2018	Germany	Tobacco	5.00E+07
2018	Germany	Textile	1.37E+08
2018	Switzerland	Packaging of clothing items	1.59E+08
2018	Germany	Manufacture of leather and similar	6.56E+07
2018	Germany	Wood and Cork	1.25E+08
2018	France	Manufacture of paper	1.08E+08
2018	France	Print and printing services	6348793
2018	Austria	Manufacture of oil refining products	2344396
2018	Germany	Chemicals manufacture	9.54E+07
2018	Switzerland	Manufacture of pharmaceautical products	2.26E+07
2018	Germany	Manufacture of rubber and plastic items	2.43E+08
2018	Germany	Glass manufacture	1.27E+08
2018	Germany	Steel	7.11E+08
2018	Germany	Manufacture of knives, tools and hardware	4.31E+08
2018	Germany	Optical instruments and photographic equipment	2.04E+07
2018	France	Electrical equipment & non-electrical household use equipment	2.95E+08

2018	Germany	Manufacture of machinery and equipment n.e.c.	3.99E+08
2018	Germany	Manufacture of bodywork for vehicles, trailers and semi-trailers	9.53E+07
2018	Germany	Construction of locomotives	2.66E+07
2018	France	Furniture	6.36E+07
2018	USA	Other	4.66E+07
2019	Germany	Food	3.02E+08
2019	UK	Beverage	1.69E+08
2019	Germany	Tobacco	4.14E+07
2019	Germany	Textile	1.42E+08
2019	Switzerland	Packaging of clothing items	1.35E+08
2019	Germany	Manufacture of leather and similar	6.18E+07
2019	Germany	Wood and Cork	1.26E+08
2019	France	Manufacture of paper	1.16E+08
2019	France	Print and printing services	5225091
2019	Austria	Manufacture of oil refining products	2499716
2019	France	Chemicals manufacture	9.67E+07
2019	USA	Manufacture of pharmaceautical products	3.58E+07
2019	Germany	Manufacture of rubber and plastic items	2.45E+08
2019	France	Glass manufacture	1.23E+08
2019	Germany	Steel	6.69E+08
2019	Germany	Manufacture of knives, tools and hardware	4.02E+08
2019	France	Optical instruments and photographic equipment	2.18E+07
2019	France	Electrical equipment & non-electrical household use equipment	3.07E+08
2019	Germany	Manufacture of machinery and equipment n.e.c.	4.02E+08
2019	Germany	Manufacture of bodywork for vehicles, trailers and semi-trailers	9.85E+07
2019	Malta	Construction of locomotives	3.95E+07
2019	France	Furniture	7.31E+07
2019	USA	Other	5.46E+07

Source: Personal elaboration.

From the offshoring standpoint the three industries with highest offshoring share were identified by each year (**table 3.3.4**), through a similar process as the one described above, resulting in a prevalence to offshore of the manufacturing of oil refining products, leather and similar and locomotives sectors (ATECO codes 15, 19 and 30).

Table 3.3.4: Three biggest offshoring industries per year (2008-2019).

Year	ATECO2D	offshoring_share
2008	28	0.4602044
2008	15	0.6224492
2008	30	0.6583089
2009	30	0.6241312
2009	19	0.6447294

2009	15	0.6594356
2010	21	0.5198678
2010	15	0.5698751
2010	19	0.6263374
2011	28	0.4898403
2011	15	0.5263421
2011	19	0.6306425
2012	15	0.5181943
2012	30	0.5242865
2012	19	0.6568301
2013	15	0.4951424
2013	30	0.5419509
2013	19	0.6657592
2014	15	0.5565389
2014	30	0.5592171
2014	19	0.6514938
2015	30	0.4478632
2015	15	0.6067965
2015	19	0.6288501
2016	21	0.4979795
2016	15	0.5611343
2016	19	0.6275098
2017	21	0.5336325
2017	15	0.5431731
2017	19	0.6215011
2018	15	0.609798
2018	21	0.6347412
2018	19	0.6515635
2019	21	0.6202934
2019	15	0.6595627
2019	19	0.66984

Source: Personal elaboration.

As for the main destinations of these three sectors, the analysis resulted in leather manufacture companies offshoring mainly to South America, oil refining companies move mainly within the European Union, while the manufacturing of locomotives and other train components sector offshores principally towards Singapore and the Philippines (**table 3.3.5**).

Table 3.3.5: Main offshoring destinations of the biggest offshoring sectors.

Country	ATECO2D
Colombia	15
Venezuela	15
Paraguay	15
France	19
Belgium	19
Philippines	30
Singapore	30

Source: Personal elaboration.

Over the 12 years period another interesting aspect to study has been the average duration of the industrial sectors' offshoring activity. Each transaction in the dataset was related to a certain firm operating in a specific industry, so, through the calculation of the offshoring share for each company by year and the computations of the frequency with which an offshoring company appeared in the whole time period, the average amount of years of activity has been illustrated in **table 3.3.6**.

Table 3.3.6: Average duration (years) of offshoring activity for each industry.

Industry	Average duration
Food	6.634021
Beverage	4.144444
Tobacco	0
Textile	6.84375
Packaging of clothing items	7.075
Manufacture of leather and similar	7.178571
Wood and Cork	7.857143
Manufacture of paper	5.216216
Print and printing services	1
Manufacture of oil refining products	5
Chemicals manufacture	7.414634
Manufacture of pharmaceutical products	7.714286
Manufacture of rubber and plastic items	6.675926
Glass manufacture	5.437037
Steel	7.358974
Manufacture of knives, tools and hardware	6.722973
Optical instruments and photographic equipment	7.033333
Electrical equipment & non-electrical household use equipment	7.476923
Manufacture of machinery and equipment n.e.c.	7.085366
Manufacture of bodywork for vehicles, trailers and semi-trailers	6.794117
Construction of locomotives	6.611111

Furniture	5.32653
Other	7.324074

Source: Personal elaboration.

Following a very similar reasoning the overall average duration of the offshoring activity in the 2008-2019 period was also calculated as the average of the offshoring duration computed for each of the firms in the dataset. This value is around 6.73 years, and as can be seen from a quick comparison with the above table, out of the three main offshoring sectors only the leather and similar industry's average offshoring duration falls above this number.

Lastly, the geographical distribution of offshoring firms was studied by calculating the offshoring share per year and Italian province. The top three cities in each year with highest share are reported below in **table 3.3.7**.

Table 3.3.7: Offshoring geographical distribution.

Year	Province	offshoring_share
2008	BR	0.869222
2008	VE	0.872545
2008	LO	0.888728
2009	AV	0.835711
2009	BR	0.899897
2009	BN	0.919579
2010	AV	0.833189
2010	NA	0.859657
2010	AG	0.967266
2011	AV	0.889055
2011	MT	0.999971
2011	CI	1
2012	MT	0.849228
2012	BR	0.863141
2012	AV	0.903761
2013	BR	0.831546
2013	RI	0.852565
2013	AV	0.901459
2014	NA	0.781165
2014	MT	0.858893
2014	AV	0.935283
2015	AV	0.865336
2015	CB	0.983382
2015	OG	1

2016	AV	0.883802
2016	CB	0.988868
2016	OG	1
2017	AV	0.886457
2017	BT	0.907813
2017	OG	1
2018	KR	0.910371
2018	AV	0.921362
2018	SU	0.96264
2019	AV	0.892797
2019	BR	0.961124
2019	SU	1

Source: Personal elaboration.

As can be extrapolated from this table the most common areas in which offshoring firms can be found are the Avellino, Brindisi, Ogliastra and Matera provinces.

3.3.2 Italian Commerce in 2019

According to the ICE report of 2019-2020, and as depicted in **figure 3.3.6** panel a and b, in 2019 Italian exports had an excellent performance, with an increase of 2.3% from the previous year, while maintaining a constant global market share and by reaching 476 billion euros making it one of the main components of the country's GDP. An overall superb result, obtained in a very tense international context.

(a)

(b)

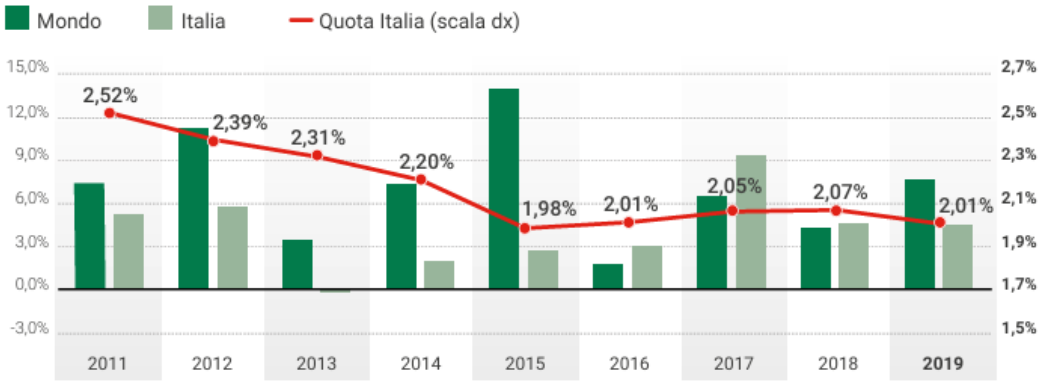

Figure 3.3.6: Variations of goods (a) and services (b) exports an Italy's market share.

Source: Rapporto ICE 2019-2020, L'italia nell'economia internazionale

The growth mainly impacted the pharmaceutical and beverage sectors (**figure 3.3.7**), while the markets that contributed the most to it were Japan (+19.7%), which beneficiated from the free exchange agreement with the EU that was approved that year, and Switzerland (+16.6%) as a very important international logistic hub. Germany and France kept their position as main outlet markets, and the United States also contributed despite their tariff's changes on some of the Italian products.

While, among Italian regions, the more significant growths in exported goods and services were registered in Tuscany and Lazio, followed by Puglia, Molise, and Campania.

	Milioni di euro	Peso %	Var. % 2019/2018
Macchinari ed apparecchi	82.829	17,2	-0,5
Prodotti tessili, abbigliamento, pelli e accessori	56.484	11,9	+6,2
Metalli di base e prodotti in metallo, esclusi macchine e impianti	50.937	10,7	+1,7
Mezzi di trasporto	49.745	10,5	-3,0
di cui Autoveicoli, rimorchi e semi-rimorchi	35.664	7,5	-5,0
Prodotti alimentari, bevande e tabacco	37.810	7,9	+6,6
Articoli farmaceutici, chimico-medicinali e botanici	32.570	6,8	+25,6
Sostanze e prodotti chimici	30.551	6,4	-2,3
Apparecchi elettrici	23.600	5,0	-2,7
Prodotti delle altre attività manifatturiere	17.460	3,7	+5,5
di cui Gioielleria	7.425	1,6	+8,0
Articoli in gomma e materie plastiche	16.674	3,5	-0,5
Computer, apparecchi elettronici e ottici	15.447	3,2	-1,0
Coke e prodotti petroliferi raffinati	13.103	2,8	-10,6
Vetro, ceramica, materiali non metalliferi per l'edilizia	10.433	2,2	-0,9
Mobili	9.817	2,1	-0,9
Carta e prodotti di carta	6.728	1,4	-3,8
Legno e prodotti in legno e sughero (escluso i mobili)	1.957	0,4	+0,9

Figure 3.3.7: Main sectors of Italian export.

Source: Rapporto ICE 2019-2020, L'italia nell'economia internazionale

As for imports in 2019 Italy was the 13th country in the world with the USA and China occupying first and second positions. The weight of the biggest importer on the market and the Italian market share in these countries are reported in **figure 3.3.8** below.

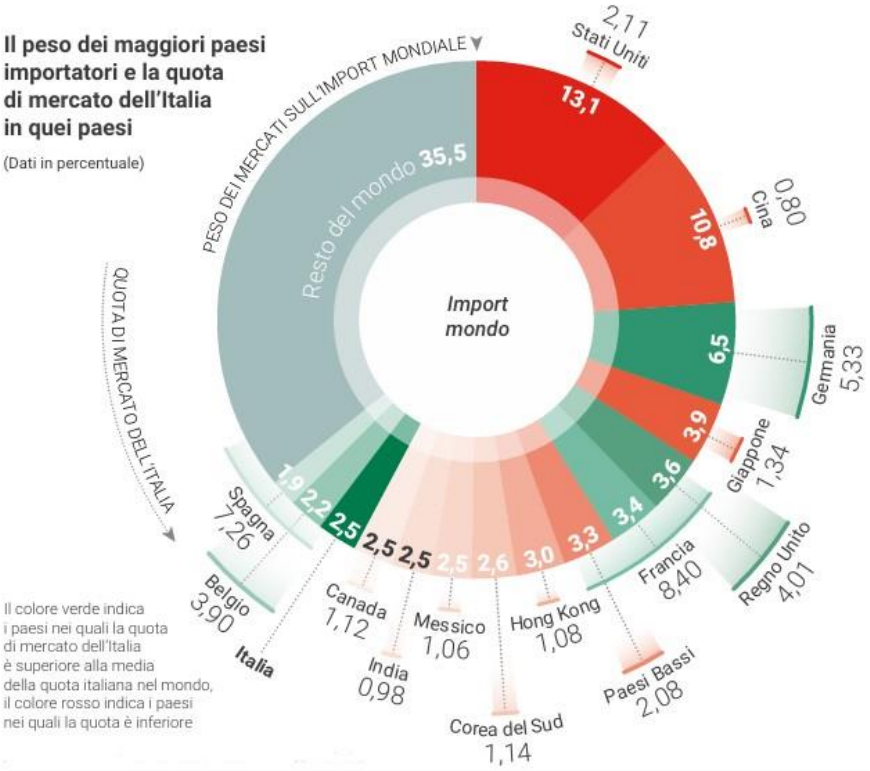

Figure 3.3.8: Main importers' weight and Italian share in those markets.

Source: Rapporto ICE 2019-2020, L'italia nell'economia internazionale

3.3.3 Activity During the Pandemic

During the first five months of 2020 both imports and exports collapsed, respectively of 17.6% and 16%, the exchanges with India, Spain and China being the most affected. Despite registering a slight reprise in the last months of the year, as can be seen in **figure 3.3.9**, in 2020 an overall reduction of 9.7%, with respect to its 2019 level, was reported.

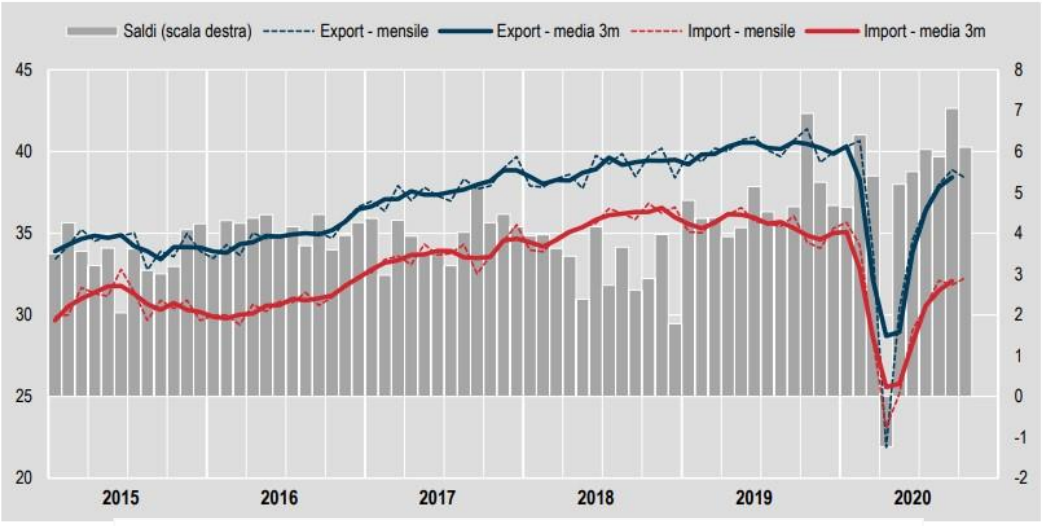

Figure 3.3.9: Foreign commercial fluxes Gen 2015-Oct 2020.

Source: ISTAT, Ottobre 2020, COMMERCIO CON L'ESTERO E PREZZI ALL'IMPORT

This data, however, is not completely bad if compared to exports reductions between 2019 and 2020 in other nations both extra and inside the European Union (**figure 3.3.10**). It is also important to note that Italy was able to maintain an almost identical market share to 2019 during the pandemic and that the trade balance increased by 49,972 million.

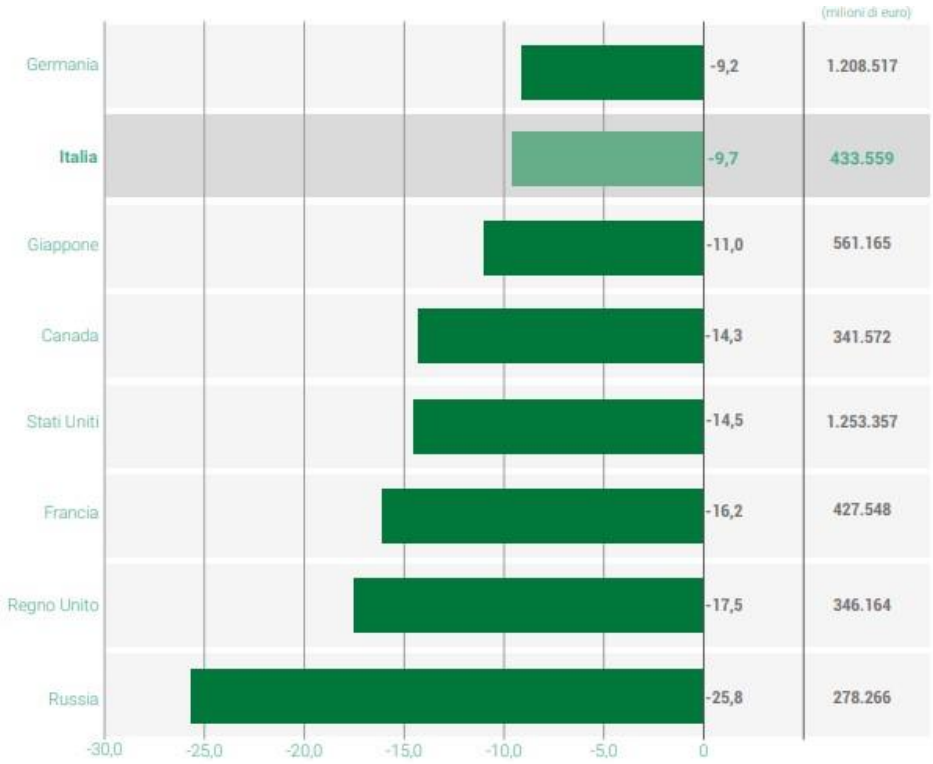

Figure 3.3.10: G8 countries' exports, % variations between 2019-2020.

Source: Rapporto ICE 2020-2021, L'italia nell'economia internazionale

Analyzing sectors' performance, an annual contraction in all the principal industrial agglomerates was observed, especially in durable consumer goods and capital ones, the energetic sector, and the intermediate goods one also registered some negative flexions and for the manufacturing sectors the closure of their productive activities impacted negatively.

Figure 3.3.11 depicts the variations in exports per sector.

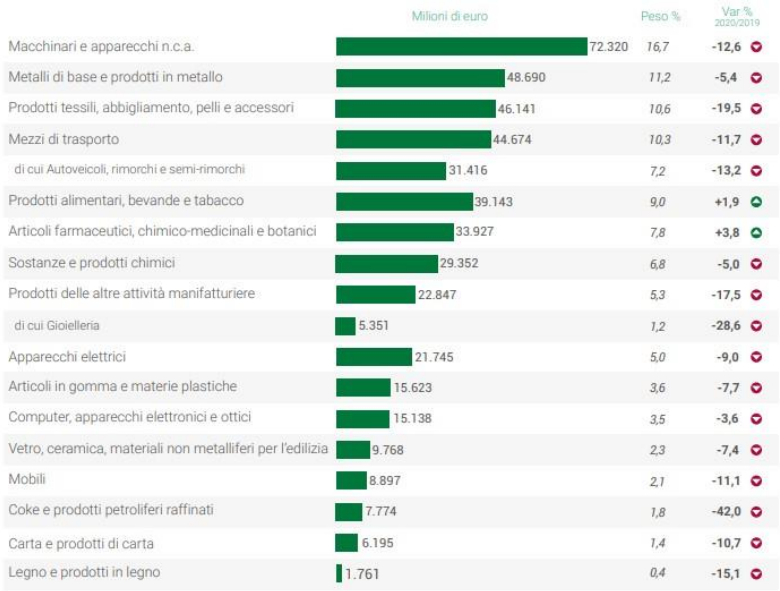

Figure 3.3.11: Exports by Italian manufacturing sector in 2020.

Source: Rapporto ICE 2020-2021, L'italia nell'economia internazionale

Despite the drastic drop in 2020 activities, a peculiar aspect of this country is its extraordinary reprise during 2021, at the end of the year the exports amount had already surpassed the pre-pandemic levels by 7.5%, which is outstanding data especially if compared to those of other big world players (**figure 3.3.12**).

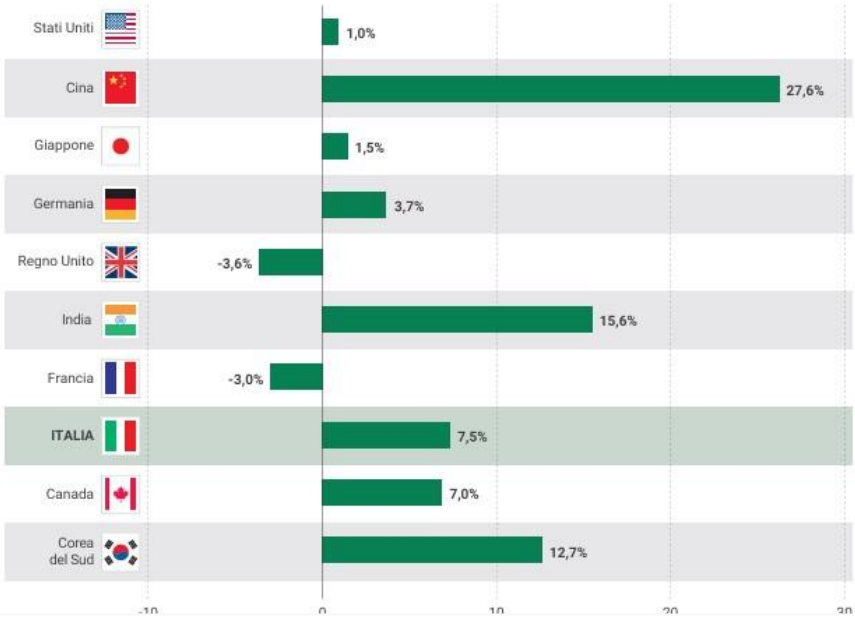

Figure 3.3.12: Goods exports of the first 10 economies in the world for 2021 (% variation of 2021 compared to 2019).

Source: Rapporto ICE 2021-2022, L'italia nell'economia internazionale

In 2021 Italy was the eighth exporter in the world and the 8th country by GDP, not to mention 11th world importer.

3.3.4 The Post-Pandemic Situation

After two years of high expansion, with growth rates of 8.3% and 4% respectively in 2021 and 2022, Italian economy slowed in 2023, registering an increase in GDP of 0.9%, but this dynamic was in line with the overall European trends.

Figure 3.3.13 shows the main factors contributing to this growth, as can be seen fixed investments were the principal reason behind it, along with public and private consumption albeit in lower measure, while what slowed down the GDP increase was the diminishing of stocks.

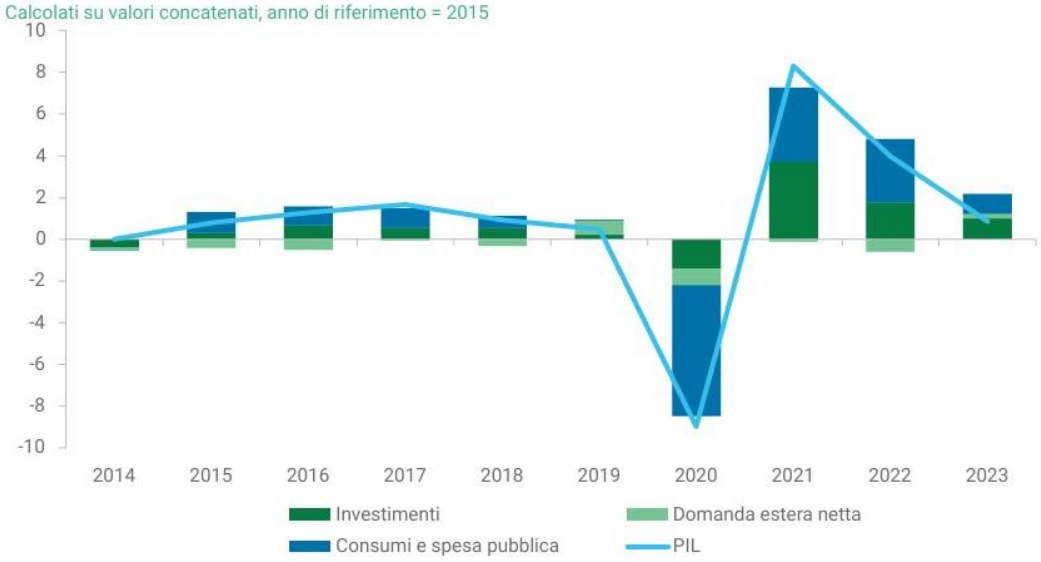

Figure 3.3.13: Contribution to Italian GDP growth 2014-2023.

Source: Rapporto ICE 2023-2024, L'italia nell'economia internazionale

Notwithstanding the slowdown, Italian economy has demonstrated great resilience, surpassing the performance of its main European partners for the third year in a row: Italy's growth, albeit being a moderated one, resulted to be better than that of the major economies in the eurozone, except for Spain. This strength is particularly evident if the comparison with previous global crises is considered (**figure 3.3.14**).

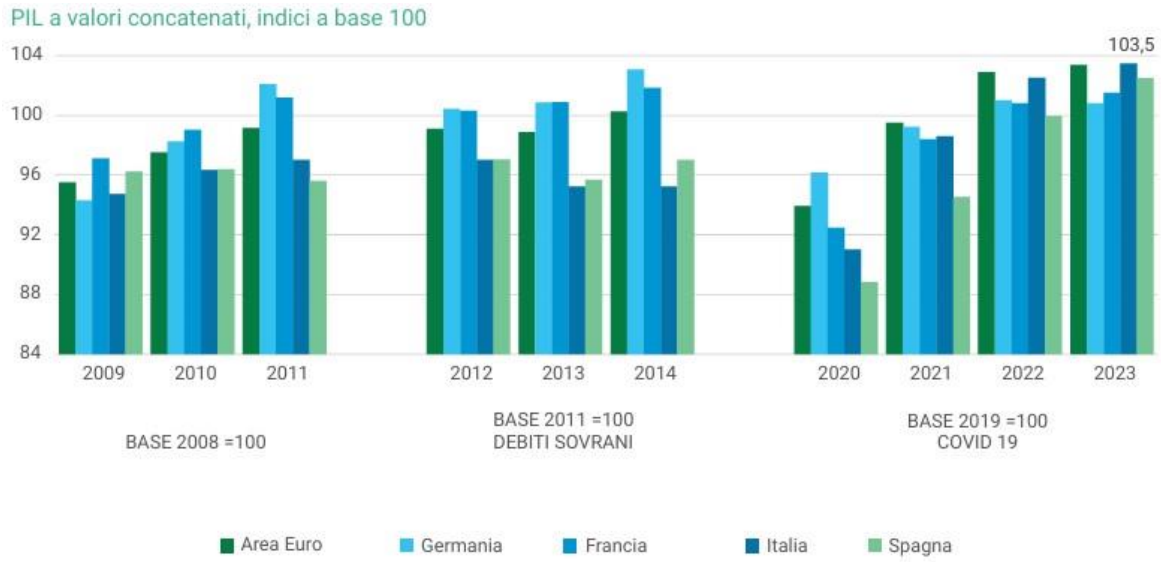

Figure 3.3.14: Eurozone GDP during the main crises of the 2000s.

Source: Rapporto ICE 2023-2024, L'italia nell'economia internazionale

The pandemic caused a brusque stop in global economy, with very severe contractions, yet, both Italy and the whole eurozone were able to recover within just three years. Italian exports, in particular goods ones, proved to be a fundamental factor in this reprise, surpassing the several difficulties posed by the deceleration of international commerce.

Exports growth was mainly shouldered by the mechanical sector along with the transportation and the good and beverage ones. On the other hand, the metallurgic and chemical sectors were the ones slowing down their growth.

As for the market share of Italian exports, **figure 3.3.15** offers a global vision on its geographical distribution. The countries with the highest share, the ones in darker color, remained concentrated within the European Union, as well as the Balkans, North Africa, and the Persic Gulf. Compared to the previous year though, in 2023 there were some changes: Congo and Angola entered among the nations with highest shares, while Russia slipped in a lower category due to a strong decline in exports from Italy.

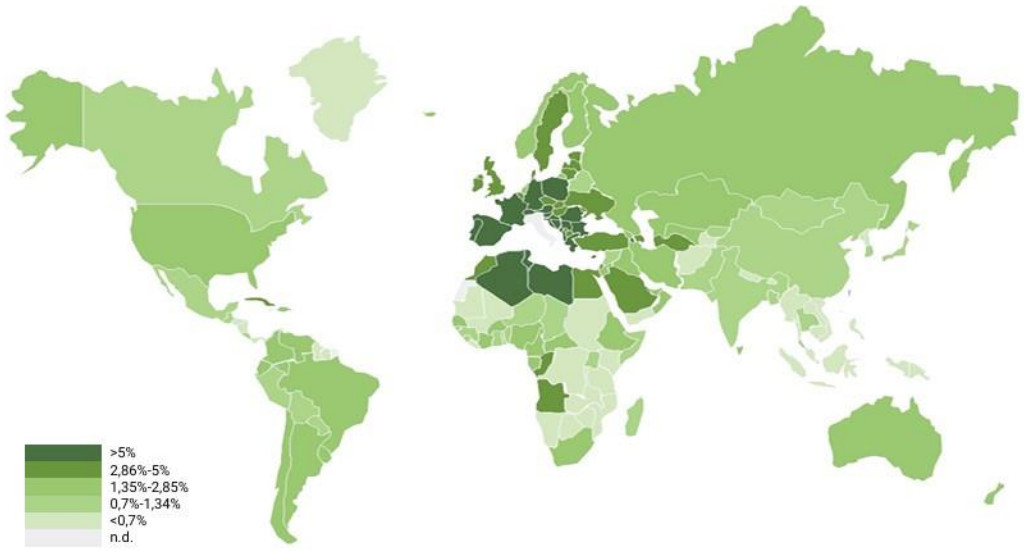

Figure 3.3.15: Italian exports' market share in 2023.

Source: Rapporto ICE 2023-2024, L'italia nell'economia internazionale

3.3.4.1 Ukraine's invasion effects

The war in Ukraine had a significative impact on Italian imports, in particular those regarding energy, raw materials and industrial components, and while, overall, exports didn't endure immediate hits, some firms' categories and some regions that were strongly linked to the Russian market and the Ukraine one have suffered for the situation.

In 2021 Italian exports to both Russia and Ukraine were not at an extremely high level, while the imports, especially those of natural gas, from Russia had been increasing since 2020 (**figure 3.3.16**).

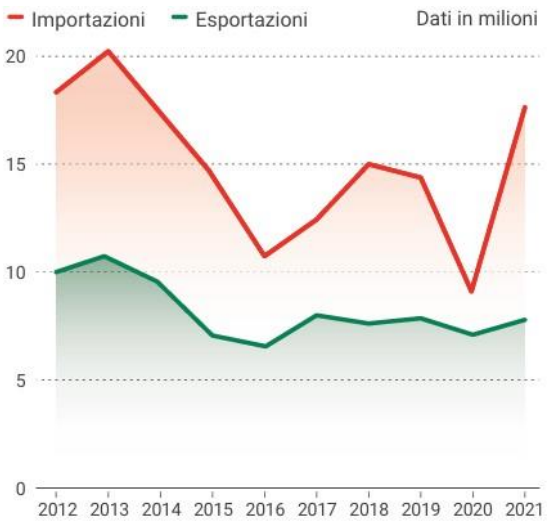

Figure 3.3.16: Italy-Russia imports and exports trends 2012-2021.

Source: Rapporto ICE 2021-2022, L'italia nell'economia internazionale

In the first six months of 2022, when the conflict started, a drastic drop in exports towards Russia was registered (-17.6%) and oppositely a remarkably high increase in imports, underlying Italy's, along with many other European countries, dependency on Russia for raw materials and energy resources.

Figure 3.3.17 depicts the percentage variation in the commerce between Italy and Russia.

	Esportazioni	Importazioni
mar 2022 / mar 2021	-50,9%	152,8%
apr 2022/ apr 2021	-48,4%	144,6%
mag 2022 / mag 2021	-9,5%	126,9%
giu 2022 / giu 2021	-19,1%	120,0%

Figure 3.3.17: % variations in Italian impots and exports from/to Russia from 2021 to 2022.

Source: Rapporto ICE 2021-2022, L'italia nell'economia internazionale

3.3.5 Impact on the Offshoring-Reshoring Decision

In order to evaluate the effects of the pandemic on offshoring decisions of Italian companies, a measure to this internationalization strategy has been constructed based on a simplification of the model used in the ICE report of 2008 (**Crinò, p. 246**), in which a similar analysis was made.

The offshoring indicator for both services and intermediate goods that has been utilized is defined as:

$$SOSt = \frac{It}{INPt}$$

Where I_t is the total amount of imported goods or services for the year t, and INP_t refers to total input purchases, which include both intermediate goods and services, bought both on the domestic market and the foreign one in each year of the analysis.

Through the data acquired from the ISTAT database an aggregated measure of the percentage of the offshoring activity in Italy from year 2016 to 2023 was calculated. **Table 3.3.8** illustrates the results of these calculations for intermediate goods, while **table 3.3.9** shows the outcome for the offshoring of services.

Table 3.3.8: Offshoring of intermediate goods indicator for Italy (%).

	2016	2017	2018	2019	2020	2021	2022	2023
I	346319.6	380302.9	405377	398242.1	346266.5	448880.9	614277	555644.6
INP	2137364.8	2220589	2284208.9	2304678.9	2090395	2367695.7	2711420	2787588.3
	16.20	17.13	17.75	17.28	16.56	18.96	22.66	19.93

Source: Elaboration of ISTAT data.

Table 3.3.9: Offshoring of services indicator for Italy (%).

	2016	2017	2018	2019	2020	2021	2022	2023
I	95258.4	103693.3	107440.6	109788.2	82888.7	96880.2	134297.2	146568
INP	2137364.8	2220589	2284208.9	2304679	2090395	2367696	2711420	2787588
	4.46	4.67	4.70	4.76	3.97	4.09	4.95	5.26

Source: Elaboration of ISTAT data.

What can be extrapolated from the data above, other than a clear prevalence in the offshoring of goods rather than that of services, is that while there is a reduction in offshoring activity during 2020 it seems to be minimal and in the case of intermediate goods the slight decline had already started in 2019. Moreover, from 2021 to 2023 data implies a linear growth for this indicator.

The previous observations seemingly suggest that the crisis had little to no impact on the offshoring of Italian firms. To further investigate this point, through the analysis of the dataset of transactions registered by the Italian customs between 2008 and 2019 the offshoring trend was studied, along with that of imports, during this previous crisis period.

After having created the dummy variable to identify the offshoring firms, defined as the importers of goods with the same ATECO code as the one of the firms themselves, by finding the total value of imports as the sum of all import values per year, and the total offshoring value, the Italian offshoring share was calculated as:

$$Offshoring_{Share} = \frac{TotalOffshoringValue}{TotalImports}$$

The results of this equation are reported in **figure 3.3.18** below.

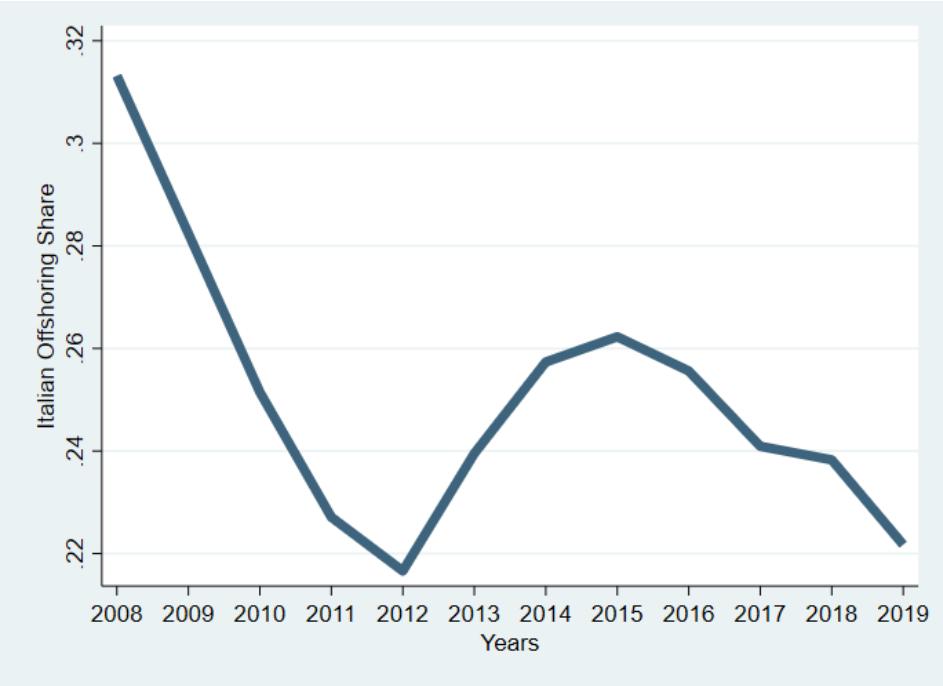

Figure 3.3.18: Variation of the Italian offshoring share (2008-2019).

Source: Personal elaboration.

This graph shows a drastic drop until 2012, apparently inducing the reader to believe that this crisis had a much bigger impact on offshoring than that of 2020. However, this does not seem to be the case if we compare the trend of total imports with that of the total offshoring values (**figure 3.3.19**).

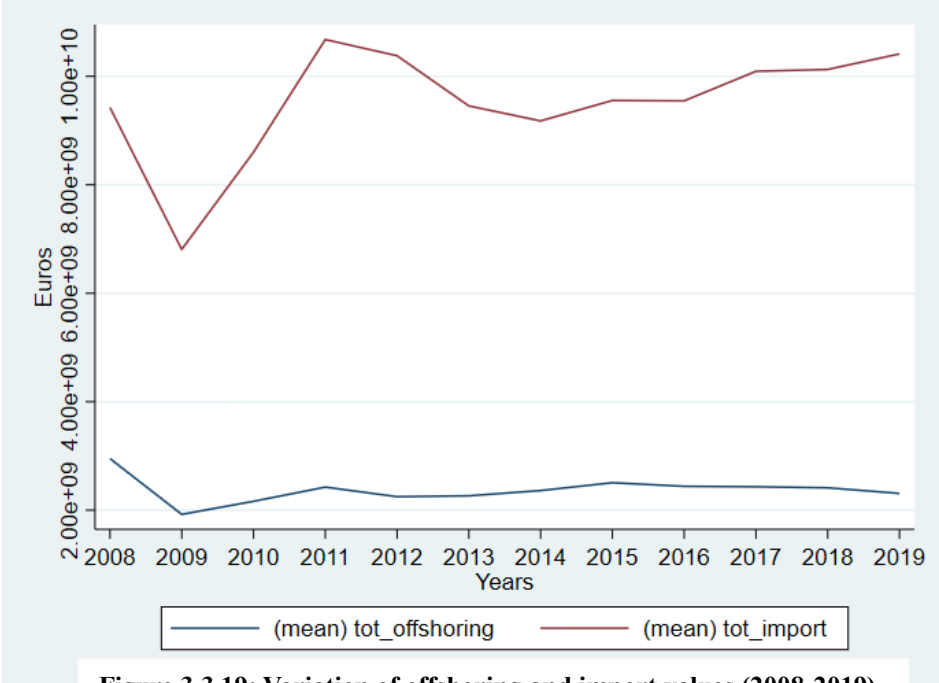

Figure 3.3.19: Variation of offshoring and import values (2008-2019).

Source: Personal elaboration.

From this new graph it can be clearly seen that the offshoring value diminished in a lesser way than the total imports in 2009, inducing to believe that the previously observed trend of the offshoring share is mainly influenced by the great difference in both values and steepness of the two curves, and the effect the crisis had on imports rather than offshoring itself.

Furthermore, the percentage of firms that had to stop their offshoring activity due to the crisis was deducted from the dataset by counting the number of companies that had to stop at least once in the 2008-2012 period and dividing it by the total number of offshoring firms in each of the four years taken into consideration. The outcome of this study is reported in **table 3.3.10** below.

Table 3.3.10: Summary of offshoring stops/continuing during the crisis.

Year	tot_firms	impr_stop	impr_survived	survivor_percentage	stop_percentage
2008	1180	399	781	0.661864	0.338136
2009	1138	357	781	0.686292	0.313708
2010	1225	444	781	0.637551	0.362449
2011	1187	406	781	0.657961	0.342039
2012	1179	398	781	0.662426	0.337574

Source: Personal elaboration.

Moreover, as can also be seen from **figure 3.3.20** the firms stopping always remain around 30%. In 2009 this percentage reaches its minimum, only slightly increasing in 2010 to then reduce once more in the following two years.

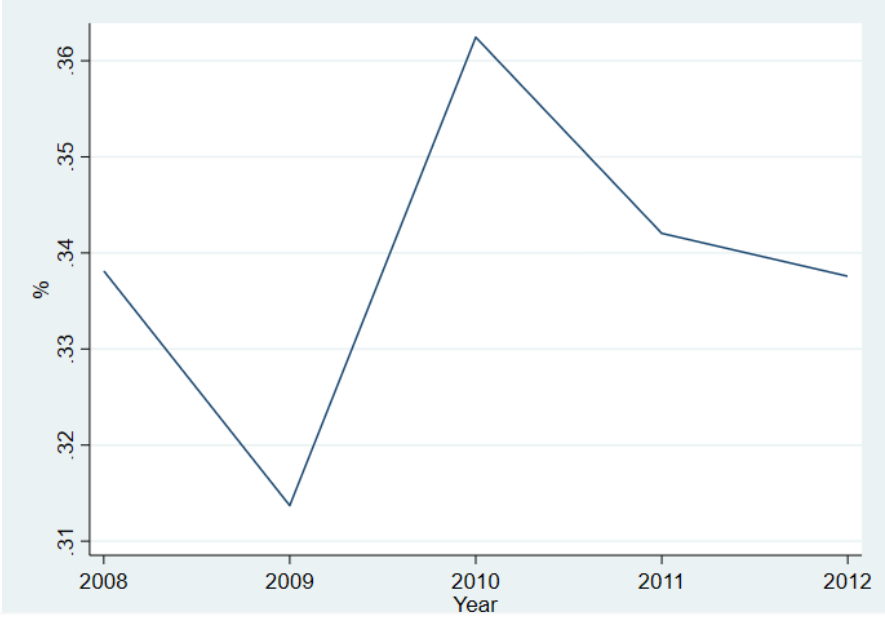

Figure 3.3.20: Percentage of firms stopping their offshoring activity during the crisis.

Source: Personal elaboration.

On the basis of this analysis, it is safe to assume that both crises, while certainly gravely impacting many economic spheres, didn't cause that much damage to firms' offshoring strategies.

As for reshoring, despite having previously stated that internationalized companies faced the highest disruptions due to the epidemic, **ISTAT (2022)** reports that the vast majority of Italian MNEs (84%) did not relocate their foreign production facilities in 2020 or 2021.

This poses the question as to whether, despite everything, companies that offshored performed better than others during this period or not. To answer this query **Di Stefano et al (2022)** built the following linear regression model:

$$Yi = \alpha + \beta MNE + \gamma ImpExp + Z'i\Gamma + \varepsilon i$$

Where Y stands for the firm's performance and is compared to a company's internationalization level, which takes the form of a dummy of value 1 if the company is a multinational enterprise (MNEs) with foreign plants or a two-way trader without foreign plants (ImpExp).

The analysis also included additional factors, such as company age and employment productivity in 2019, as covariates (in the matrix Z), and a dummy taking value 1 if the firm stopped the production in 2020 due to shutdowns mandated by national or local mandates (GovStop). These factors were considered to account for potential influences on company performance that were not related to internationalization.

The coefficients β and ϒ represent the impact of a firm's level of internationalization on its performance, while considering other relevant factors about the firm. These coefficients are calculated for 2020 and are compared to the performance of simple exporters and domestic firms, which serve as the baseline in the regression analysis.

To represent the firm's performance the following proxies were used:

- dRev2020, growth in revenues between 2020 and 2019;
- DropRev2020, a dummy taking value 1 if the firm has reported a drop in revenues higher than 30% over the entire 2020;
- DropRevQ1Q3, same as above but in the first three quarters of the year;
- drev2020F, growth in revenues coming from selling in the foreign markets;
- dSmartWork, percentage change in the share of employees in remote working in 2020 with respect to 2019;

- dRev2020-E[dRev(2020)], the difference between the realized growth in revenues in 2020 and the expected growth formulated right after the Covid-19 outbreak;
- SupplyProbl, a dummy taking value 1 if the firm has faced supply shortages;
- SupplyProdStop, a dummy taking value 1 if the firm has faced sever supply shortages that led to plant shutdowns;

Figure 3.3.21 illustrates the results of this first analysis.

	(1) dRev2020	(2) DropRev2020	(3) DropRevQ1Q3	(4) $dRev2020_F$
MNEs	2.050*	−0.063**	−0.105***	7.515***
	(1.80)	(−2.49)	(−2.64)	(3.24)
Two-way traders	−0.863	0.002	−0.009	1.672
	(−0.99)	(0.09)	(−0.29)	(0.98)
GovStop	−0.856	−0.002	0.045	−2.893
	(−0.82)	(−0.06)	(1.21)	(−1.45)
Age	−1.269**	0.016	0.009	−0.798
	(−2.00)	(1.02)	(0.41)	(−0.59)
$log(labprod)_{2019}$	0.566	−0.001	−0.047**	−2.817
	(0.75)	(−0.04)	(−2.00)	(−1.60)
$log(emp)_{2019}$	0.128	−0.005	0.008	−0.543
	(0.29)	(−0.56)	(0.51)	(−0.75)
Observations	2045	2045	2076	1666
NUTS3 FE	Y	Y	Y	Y
3-digit Sector FE	Y	Y	Y	Y
	(5) dSmartWork	(6) dRev2020-E(dRev2020)	(7) SupplyProbl	(8) SupplyProdStop
MNEs	3.937***	4.961**	0.106***	0.067**
	(3.15)	(2.14)	(2.90)	(2.01)
Two-way traders	2.489***	0.609	0.062*	0.047*
	(3.50)	(0.32)	(1.98)	(1.76)
GovStop	−1.343	0.882	−0.015	0.001
	(−1.27)	(0.36)	(−0.51)	(0.03)
Age	−0.324	−0.030	−0.032	−0.029
	(−0.41)	(−0.02)	(−1.14)	(−1.50)
$log(labprod)_{2019}$	4.167***	−0.608	0.046**	0.007
	(4.59)	(−0.40)	(2.03)	(0.37)
$log(emp)_{2019}$	3.518***	−0.628	−0.023	−0.024**
	(8.09)	(−0.74)	(−1.62)	(−2.19)
Observations	1973	941	1889	1889
NUTS3 FE	Y	Y	Y	Y
3-digit Sector FE	Y	Y	Y	Y

Note: Standard errors clustered at the 3-digit sector level. Sample weights are used in the regressions. *t*-statistics in parentheses. *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$.

Figure 3.3.21: Firms performance in 2020.

Source: "Reshoring and plant closures in Covid-19 times: Evidence from Italian MNEs", Enrica Di Stefano, Giorgia Giovannetti, Michele Mancinia, Enrico Marvasi, Giulio Vannelli

As the picture reports MNEs demonstrated greater flexibility, adaptability, and resilience in response to the pandemic's challenges, positioning them for stronger recovery and future growth. In particular, MNEs experienced stronger revenue growth and fewer significant revenue declines (columns 1,2 and 3), they dominated foreign markets compared to

exporters (column 4) and exceeded expectations in adopting remote work and two-way trading more efficiently (column 5).

Furthermore, despite being more likely to face supply chain disruptions, the positive productivity coefficient of MNEs and two-way traders suggests they were able to adapt and overcome these challenges. This may be due to their global operations, their diverse network of suppliers and customers across multiple countries helped them mitigate risks by avoiding over-reliance on any single region. This flexibility allowed MNEs to find alternative sourcing and sales channels when specific markets were impacted, making them more resilient to localized shocks.

After this thorough study, demonstrating the pandemic didn't really affect the offshored firms' performance, **Di Stefano et al (2022)** investigate how much plant closures and reshoring are associated with different types of shocks by estimating the probability that MNEs closed one or more plants abroad between 2018 and 2020 with the following Probit model:

$$Pr(Closei, 18-20=1) = \Phi(\beta 0 + \beta 1 TradePolicyi + \beta 2 CovidShocki + Zi\Gamma + ui)$$

To analyze the impact of trade policy and COVID-19 shocks on multinational enterprises, several variables were included in the regression model:

- Trade Policy:
  - US Tariffs: A dummy variable indicating whether the MNE reported negative effects from US tariffs.
  - Brexit: A dummy variable indicating pre-deal concerns about tariffs after Brexit.

- COVID Shock:
  - Government Shutdowns: A variable measuring whether production was halted due to government decrees.
  - Supply Disruptions: A variable indicating COVID-19-related supply chain issues.

- Control Variables (Zi):
  - Revenue Changes: Variables for changes in revenues in 2020.

- Firm Performance and Size: Lagged measures of labor productivity, employment, revenue changes, and firm age.
- Fixed Effects: Regional and sectoral fixed effects to control for omitted variables.

Figure 3.3.22 reports the findings of this study.

	(1)	(2)	(3)	(4)	(5)	(6)
			$Prob(Close_{i,18-20} = 1)$			
UStariffs	0.098**	0.122***	0.116***	0.102***	0.076**	0.076**
	(2.35)	(3.06)	(2.90)	(2.74)	(2.12)	(2.12)
Brexit				0.086***	0.085**	0.084**
				(2.61)	(2.57)	(2.50)
GovStop	0.030	0.048	0.040	0.026	0.027	0.029
	(0.76)	(1.24)	(1.11)	(0.69)	(0.72)	(0.77)
SupplyProbl		−0.038	−0.047	−0.050	−0.043	
		(−1.11)	(−1.32)	(−1.48)	(−1.21)	
SupplyProdStop						−0.001
						(−0.22)
$dRev_{2020}$	−0.003**	−0.002*				
	(−2.41)	(−1.86)				
$DropRev_{2020}$			0.132***	0.145***	0.128***	0.126***
			(2.95)	(3.25)	(2.82)	(2.80)
$dRev_{15-17}$	−0.006**	−0.006**	−0.006**	−0.005***	−0.004*	−0.004*
	(−2.21)	(−2.41)	(−2.44)	(−2.62)	(−1.82)	(−1.79)
Age	−0.084***	−0.103***	−0.101***	−0.076***	−0.058**	−0.052*
	(−2.64)	(−3.23)	(−3.21)	(−2.67)	(−1.97)	(−1.69)
$\log(labprod)_{15-17}$	−0.061**	−0.062**	−0.055**	−0.054**	−0.054**	−0.051**
	(−2.14)	(−2.35)	(−2.36)	(−2.31)	(−2.34)	(−2.11)
$\log(emp)_{15-17}$	0.010	0.008	0.007	0.007	0.008	0.009
	(0.95)	(0.84)	(0.75)	(0.78)	(0.81)	(0.88)
Observations	265	244	244	244	234	234
Sector-NUTS1 Region	Y	Y	Y	Y		
Sector					Y	Y
NUTS2 Region					Y	Y

Notes: The table reports marginal effects. Robust standard errors. *t*-statistics in parentheses. *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$.

Figure 3.3.22: Determinants of plant closure.

Source: "Reshoring and plant closures in Covid-19 times: Evidence from Italian MNEs", Enrica Di Stefano, Giorgia Giovannetti, Michele Mancinia, Enrico Marvasi, Giulio Vannelli

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Column 1 shows that protectionist trade policies, as represented by US tariffs, had a significant negative impact on Italian multinational enterprises. Specifically, MNEs affected by these tariffs were more likely to close foreign plants (by 9.8 percentage points). In contrast, plant closures, directly related to the COVID-19 pandemic (government shutdowns), were not significantly associated with a higher likelihood of closing foreign operations.

As expected, more productive firms were less likely to close foreign plants. A 1% increase in labor productivity was linked to a 0.61 percentage point decrease in the probability of

plant closure and, similarly, firms that experienced stronger revenue growth between 2015 and 2017 were also less likely to close foreign plants.

Supply disruptions also didn't have significant effects on foreign plants closures (column 2), while having suffered from severe revenue losses in 2020 does (column 3).

In columns 4 to 6 the potential negative effect of Brexit is included, and it is found to be very similar to that of the US trade policy. This suggests that trade barriers can force firms to reconsider their business locations or even exit markets if these policies have detrimental effects on their performance.

Conclusions

If at the start of the millennium firms were enchanted by the idea of offshoring in order to exploit the advantages of low-cost labor, nowadays the world is witnessing a growing interest in reshoring due to a series of factors that go over mere economical ones. Reshoring, in fact, allows to improve the quality of client service, reduce delivery times and it contributes to environmental sustainability, proving that firms' priorities are ever changing and evolving.

Despite this, after having investigated the many disruptions to Italian and global economies of the COVID-19 pandemic, such as the exposure of globalization interdependency problems that had been overlooked until then by all major jurisdictions and the drastic drop in imports and exports, which caused a temporary pause in international commerce, the results of the analysis proposed hint towards a very clear solution: despite the magnitude of its shock, the offshoring trend was only slightly affected and the epidemic seemingly had no role in pushing Italian firms towards either of the two strategies, even more so, it was proven that offshored companies were able to better manage its related disruptions.

Instead, what did propel a growth in the countertrend of companies' internationalization activities where factors like Brexit, tariff wars, sharp reductions in revenues, and wanting to preserve the Made in Italy trademark. This seems to be because the pandemic, or any other crisis for the matter, were not perceived by firms as a permanent condition, while on the contrary trade policies and trade uncertainty are factors that could have long lasting effects and thus can induce companies to reshore.

Appendix

STATA Code

***** livello nazionale**

```
generate offshoring=1 if ateco2007impr_4d == ateco2007_4d & movim==8

generate offshoring_value= offshoring*import_val

bysort anno: egen tot_import=total(import_val)

bysort anno: egen tot_offshoring=total(offshoring_value)

bysort anno: egen tot_export=total(export_val)

gen offshoring_share=tot_offshoring/tot_import

collapse (mean) offshoring_share tot_offshoring tot_import tot_export, by (anno)

twoway (line tot_import anno) (line tot_export anno)

line offshoring_share anno

twoway (line tot_offshoring anno) (line tot_import anno)
```

// partner principali offshoring (per anno)

```
generate offshoring=1 if ateco2007impr_4d == ateco2007_4d & movim==8

generate offshoring_value= offshoring*import_val

bysort anno paese: egen tot_import=total(import_val)

bysort anno paese: egen tot_offshoring=total(offshoring_value)

bysort anno paese: egen tot_export=total(export_val)

gen offshoring_share=tot_offshoring/tot_import

collapse (mean) offshoring_share tot_offshoring tot_import tot_export, by(anno paese)
```

```
bysort anno: egen maincountry=max(offshoring_share)

bysort anno: drop if maincountry!=offshoring_share

duplicates tag paese, generate(rep)

collapse (mean) rep, by(paese)

sort rep
```

// partner import (per anno)

```
bysort anno paese: egen tot_import=total(import_val)

collapse (mean) tot_import, by (anno paese)

bysort anno: egen maincountry=max(tot_import)

bysort anno: drop if maincountry!=tot_import

list anno paese tot_import
```

// partner export (per anno)

```
bysort anno paese: egen tot_export=total(export_val)

collapse (mean) tot_export, by (anno paese)

bysort anno: egen maincountry=max(tot_export)

bysort anno: drop if maincountry!=tot_export

list anno paese tot_export
```

***** livello ATECO 2D**

```
generate offshoring=1 if ateco2007impr_4d == ateco2007_4d &
movim==8

generate offshoring_value= offshoring*import_val

gen ateco2007impr_2d= int(ateco2007impr_3d/10)

bysort ateco2007impr_2d anno: egen
tot_import=total(import_val)

bysort ateco2007impr_2d anno: egen
tot_offshoring=total(offshoring_value)
```

```
gen offshoring_share=tot_offshoring/tot_import

// settore con maggiore offshoring (per anno)

bysort anno: egen mainoffshorer= max(offshoring_share)

bysort anno: drop if mainoffshorer!=offshoring_share

collapse (mean) ateco2007impr_2d offshoring_share, by (anno)

//primi tre settori (per anno)

collapse (mean) offshoring_share, by (anno ateco2007impr_2d)

gsort anno offshoring_share

bysort anno: egen firstoffshorer= max(offshoring_share)

bysort anno: egen secondoffshorer= max(offshoring_share) if
offshoring_share<firstoffshorer

bysort anno: egen thirdoffshorer= max(offshoring_share) if
offshoring_share<secondoffshorer &
offshoring_share<firstoffshorer

drop if firstoffshorer!=offshoring_share &
secondoffshorer!=offshoring_share &
thirdoffshorer!=offshoring_share

duplicates tag ateco2007impr_2d, generate(rep)

collapse (mean) rep, by(ateco2007impr_2d)

sort rep

// partner principali x offshoring

generate offshoring=1 if ateco2007impr_4d == ateco2007_4d &
movim==8

generate offshoring_value= offshoring*import_val

gen ateco2007impr_2d= int(ateco2007impr_3d/10)

bysort ateco2007impr_2d anno paese: egen
tot_import=total(import_val)
```

```
bysort ateco2007impr_2d anno paese: egen
tot_offshoring=total(offshoring_value)

bysort ateco2007impr_2d anno paese: egen
tot_export=total(export_val)

gen offshoring_share=tot_offshoring/tot_import

collapse (mean) offshoring_share tot_offshoring tot_import
tot_export, by(ateco2007impr_2d anno paese)

bysort anno ateco2007impr_2d: egen
maincountry=max(offshoring_share)

bysort anno ateco2007impr_2d: drop if
maincountry!=offshoring_share

by anno: keep if ateco2007impr_2d==15 | ateco2007impr_2d==19
| ateco2007impr_2d==30

sort anno ateco2007impr_2d

duplicates tag paese if ateco2007impr_2d==15, generate(rep15)

duplicates tag paese if ateco2007impr_2d==19, generate(rep19)

duplicates tag paese if ateco2007impr_2d==30, generate(rep30)

collapse (mean) rep15 rep19 rep30, by(ateco2007impr_2d paese)

sort rep15 rep19 rep30 ateco2007impr_2d
```

// partner principali x import

```
gen ateco2007impr_2d= int(ateco2007impr_3d/10)

bysort ateco2007impr_2d anno paese: egen
tot_import=total(import_val)

collapse (mean) tot_import, by(ateco2007impr_2d anno paese)

bysort anno ateco2007impr_2d: egen
maincountry=max(tot_import)

bysort anno ateco2007impr_2d: drop if maincountry!=tot_import
```

//partner principali x export

```
gen ateco2007impr_2d= int(ateco2007impr_3d/10)

bysort ateco2007impr_2d anno paese: egen
tot_export=total(export_val)

collapse (mean) tot_export, by(ateco2007impr_2d anno paese)

bysort anno ateco2007impr_2d: egen
maincountry=max(tot_export)

bysort anno ateco2007impr_2d: drop if maincountry!=tot_export
```

***** livello impresa**

```
generate offshoring=1 if ateco2007impr_4d == ateco2007_4d &
movim==8

generate offshoring_value= offshoring*import_val

bysort firmid anno: egen tot_import=total(import_val)

bysort firmid anno: egen
tot_offshoring=total(offshoring_value)

gen offshoring_share= tot_offshoring/tot_import

collapse (mean) offshoring_share tot_offshoring tot_import
ateco2007impr_4d ateco2007impr_3d (first) provincia (sum)
export_val, by(firmid anno)

rename export_val tot_export
```

// distribuzione geografica offshorer (per anno)

```
generate offshoring=1 if ateco2007impr_4d == ateco2007_4d &
movim==8

generate offshoring_value= offshoring*import_val

bysort anno provincia: egen
tot_offshoring=total(offshoring_value)

bysort anno provincia: egen tot_import=total(import_val)
```

```
gen offshoring_share= tot_offshoring/tot_import

collapse (mean) offshoring_share, by (anno provincia)

keep if offshoring_share!=0 & offshoring_share!=.

bysort anno: egen firstoffshorer= max(offshoring_share)

bysort anno: egen secondoffshorer= max(offshoring_share) if
offshoring_share<firstoffshorer

bysort anno: egen thirdoffshorer= max(offshoring_share) if
offshoring_share<secondoffshorer &
offshoring_share<firstoffshorer

drop if firstoffshorer!=offshoring_share &
secondoffshorer!=offshoring_share &
thirdoffshorer!=offshoring_share

gsort anno offshoring_share

duplicates tag provincia, generate(rep)

collapse (mean) rep, by(provincia)

sort rep
```

// imprese che hanno smesso di fare offshoring a causa della crisi

```
generate offshoring=1 if ateco2007impr_4d == ateco2007_4d &
movim==8

generate offshoring_value= offshoring*import_val

bysort anno firmid: egen tot_import=total(import_val)

bysort anno firmid: egen
tot_offshoring=total(offshoring_value)

gen offshoring_share= tot_offshoring/tot_import

collapse (mean) offshoring_share tot_import tot_offshoring,
by (anno firmid)

keep if offshoring_share !=0 & offshoring_share!=.
```

```
duplicates tag firmid if anno>=2008 & anno<=2012,
generate(d2012)

gen crisis = (anno >= 2008 & anno <= 2012)

egen tot_firms=count(firmid), by (anno)

bys anno: egen impr_stop= count(firmid) if d2012 < 4

bys anno: egen impr_survived= count(firmid) if d2012 == 4

bysort anno: gen stop_percentage=impr_stop/tot_firms

bysort anno: gen survivor_percentage=impr_survived/tot_firms

collapse (mean) tot_firms impr_stop impr_survived
survivor_percentage stop_percentage, by(anno)

line stop_percentage anno
```

// durata media offshoring periodo 08-19 per impresa

```
generate offshoring=1 if ateco2007impr_4d == ateco2007_4d &
movim==8

generate offshoring_value= offshoring*import_val

bysort anno firmid: egen tot_import=total(import_val)

bysort anno firmid: egen
tot_offshoring=total(offshoring_value)

gen offshoring_share= tot_offshoring/tot_import

collapse (mean) offshoring_share tot_import tot_offshoring,
by (anno firmid)

keep if offshoring_share !=0 & offshoring_share!=.

duplicates tag firmid, generate(newvar)

gen frequenza=newvar+1

collapse (mean) frequenza, by (firmid)

egen durata_media = mean(frequenza)
```

```
// durata media offshoring per settore (08-19)

generate offshoring=1 if ateco2007impr_4d == ateco2007_4d &
movim==8

generate offshoring_value= offshoring*import_val

bysort anno firmid: egen tot_import=total(import_val)

bysort anno firmid: egen
tot_offshoring=total(offshoring_value)

gen offshoring_share= tot_offshoring/tot_import

gen ateco2007impr_2d= int(ateco2007impr_3d/10)

collapse (mean) offshoring_share tot_import tot_offshoring,
by (anno firmid ateco2007impr_2d)

sort anno ateco2007impr_2d

keep if offshoring_share !=0 & offshoring_share!=.

duplicates tag firmid, generate(newvar)

gen frequenza=newvar+1

collapse (mean) frequenza, by (firmid ateco2007impr_2d)

sort ateco2007impr_2d firmid

by ateco2007impr_2d: egen durata_media = mean(frequenza)

collapse (mean) durata_media, by (ateco2007impr_2d)
```

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