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Chair of Sustainable strategies for Business Leaders

Reshoring in the Covid-19 era: a quantitative analysis of Italian companies' strategic decisions

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1. Introduction

In recent years, there have been many recorded cases of companies that, after moving production offshore seeking competitive advantages, have decided to return to their home country, prompting the reshoring phenomenon. Among the most debated topics in the field of Supply Chain Management, repatriation of production is an extremely heterogeneous phenomenon (Fratocchi et al., 2014) both in terms of business involved and modalities of implementing reshoring itself. To get a first impression of this phenomenon, it is sufficient to consider that this strategic choice was adopted by Steelco Spa and Volvo in 2018, which relocated to Italy and Sweden respectively, by Intel, which returned to produce its semiconductors in the United States in 2022, and even earlier by Burberry in 2015, just to mention a few of them. Revolutions and major changes in supply chain management are nothing new to scholars of the subject, as a matter of fact, natural and socio-economic events have increasingly impacted value chains all over the world, and increasing globalisation has amplified the effects. Reliance on the extraction of materials and processing from third countries necessarily entails the risk of suffering crises and production interruptions due to a negative shock from them (Freund et al., 2021). To hedge against this risk, the balance that had emerged over time between efficiency and resilience must be reassessed in favour of the latter, through major structural changes in global value chains such as reshoring, backshoring and nearshoring (Freund et al., 2021).

As an instrument for the reorganisation of global value chains, the issue of reshoring has been much discussed, both by governments and scholars, since the outbreak of Covid-19, for several reasons. Covid-19 severely hit the whole world of economics for its unpredictability and for the fact that it involved everyone indistinctly. National crises caused by confinements, production halts and export bans were further worsened by the fact that economies were all interconnected through international trade and production networks (Di Stefano et al., 2022). As pointed out by Di Stefano (2022), the possibility of sourcing more inputs domestically through reshoring, without suffering from shortages of other countries, seems to be a valuable way to diversify supply and thus the risk associated with it. As previously reported, changes to global value chains are a response to external shocks that require structural interventions, however the shock caused by Covid-19 appears to be of a greater scale. To support this, Strange (2020) points out that this is a pandemic of global scope, with multidimensional effects, involving both public health and economic and production activities, and that above all it is not only contagious in terms of health but also in economics sense, due to the nature of global economy and GVCs.

More generally, the boundaries of reshoring have not yet been understood, being a relatively recent and complex circumstance. As a matter of fact, several definitions and interpretations of the phenomenon can be found in the relevant literature, depending on the modalities, timing and motivations involved. By examining the existing literature regarding reshoring, backshoring and nearshoring, it is clear that scholars have focused their attention on the comprehension of the motivations that drive companies to relocate their

facilities. Some literature evaluates the effects of Covid-19 on the reshoring phenomenon itself, but there is no in-depth study that can assess how the pandemic has affected the drivers behind this choice of relocation.

Therefore, This paper aims to assess which are the most influential motivations for Italian companies undertaking reshoring, and to evaluate whether Covid-19 has had any impact on these motivations. The decision to limit the analysis to the Covid-19 period is justified by the entity of the impact this virus had, not only on life and public health, but also on the health of economic systems. Furthermore, only cases of reshoring of Italian companies will be taken into consideration, as an analysis exclusively referring to the Italian context in the Covid period that assesses possible changes to the motivations recognised by other authors is missing in the existing literature. To undertake this study, three research questions have been developed to identify the main motivations for reshoring for Italian companies in the post-Covid period, what are the possible correlations between these motivations and how these motivations have changed between the pre-Covid and post-Covid periods. To formalise, the research questions are:

RQ1: What are the main motivations pushing Italian firms to reshore during Covid-19 pandemic?

RQ2: What is the correlation among the motivations that pushed Italian firms to reshore during Covid-19 pandemic?

RQ3: What are the most important variations, in terms of motivation, between pre and post Covid-19 pandemic?

Through the collection of information from secondary sources ranging from 2017 to 2022, a dataset was constructed listing 95 cases of Italian companies that undertook reshoring and subsequently three different analyses were carried out to answer the previous research questions. To address the first question, a Pareto analysis was carried out to identify the most cited and thus most influential drivers. From the results it has emerged that the most influential drivers in the post-Covid era are "Made in Italy" effect and To higher the quality, whereas Delivery time, Increased raw materials costs and To have higher control do not seem to be important factors in assessing the suitability of a possible reshoring strategy.

To address the second question, correlation test was performed and by following the Pearson's index we were able to identify both positive and negative correlations between the drivers that have been mentioned. A positive correlation was recognised between the drivers "Made in Italy" effect, Italian know-how and To higher the quality, that are all value-driven motivations impacting customer's value perception. Moreover, a similar result has been obtained by efficiency-driven motivation, which are Increased costs in host country, Increased logistics costs, Increased raw materials costs and Interruptions in the supply chain. Furthermore, the results show that when companies are interested in Product/Process innovation, they are also concerned To bring the know-how back to Italy and To increase sustainability and finally, the last and almost obvious positive correlation was found in the need To reduce distances between production and assembling/R&D and Delivery time.obal value chains are a response to external shocks that require structural interventions,

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The third point has been addressed by carrying out a proportion test with the aim of assessing the existence of statistically significant differences in motivation frequencies using Covid-19 as a discriminating element. The results proved that for the motivations To bring the know-how back to Italy, Italian know-how, To increase sustainability and Increased raw materials costs Covid-19 seems to have significantly impacted their frequencies and seems to have changed their relevance to some extent in the evaluation of a reshoring strategy.

This paper aims to increase knowledge and awareness of the reshoring phenomenon, with reference to how reshoring strategies are modified by major shocks such as the one presented by Covid-19. The structure of this work is as follows: In section 2 the relevant literature associated with reshoring is presented and the research questions are formulated; in section 3 the research methodology is presented, namely how the data were collected and processed; in section 4 the results are presented, while in section 5 these results are discussed. Finally, in section 6 managerial implications and guidelines are provided, as well as limitations and outlines for possible future researches.

2. Literature review

2.1 Definition of reshoring

The last few decades of the Supply Chain Management field have been particularly prolific due to the strong presence of journals and papers related to the location decisions of manufacturing companies, hence making it one of the most recurring topics within the existing literature. Frequently, companies decide to transfer production abroad, especially to developing countries, to achieve cost efficiency and the literature on this matter is extensive being a very frequent phenomenon involving suppliers, stakeholders, international associations and legislations, and governments (Morganti et De Giovanni, 2022). Although, the process is not irreversible and, in this regard, there is a lack of in-depth researches on relocation as the opposite of delocation (Fratocchi et al., 2016). This particular phenomenon has been called reshoring and it concerns industries of all kinds, size and nationalities (Barbieri et al., 2017). Because of the fact that this is still a vague and blurry phenomenon, various definitions have been provided to us by various authors. Kinkel and Maloca in 2009 define reshoring as re-concentration of parts of production from own foreign locations as well as from foreign suppliers to the domestic production site of the company, whereas Holz the same year defines it as the geographic relocation of a functional, value creating operation from a location abroad back to the domestic country of the company. These two first punctual definitions of the phenomenon contain a narrow yet fundamental distinction. As observed by Fratocchi et al. in 2016, while on the one hand Holz narrows the scope, considering only the return of parts of foreign production, on the other hand Kinkel and Maloca Kinkel and Maloca also consider reshoring the repatriation of foreign suppliers, or their substitution with local ones.

According to Gray et al. (2013), reshoring is defined as moving manufacturing back to the country of its parent company. This broad definition allows four types of reshoring to be specified, according to the different governance structures involved: 1. in-house reshoring; 2. reshoring for outsourcing; 3. reshoring for insourcing; 4. outsourced reshoring (Gray et al., 2013). Moreover, Gray aims to structure the debate about reshoring around five assertions, the first three of which are fundamental:

- Reshoring is fundamentally a location decision
- A firm cannot pursue reshoring unless it had previously pursued offshoring
- There is reason to believe that both the original offshoring decision and the subsequent offshoring decision are often flawed.

Debates have been conducted concerning the size and the dimension of companies that have reshored. Some authors agree that small and medium enterprises are less inclined to reshoring (Kinkel et al., 2009), whereas some others observe that small manufacturing companies are more agile, in this respect, than large multinational corporations (Canham et al., 2013). Moreover, it has been noted that small enterprises repatriate their manufacturing facilities earlier than large MNEs (Ancarani et al., 2015). On the basis of all the information gathered from the various definitions, Fratocchi et al. in 2014 propose to define Reshoring

as a voluntary corporate strategy regarding the home-country's partial or total re-location of (in-sourced or out-sourced) production to serve the local, regional or global demands, giving emphasis the voluntary element of top management/decision-makers. For the purpose of this research work, this last definition provided by Fratocchi will be chosen to define and frame the reshoring phenomenon.

2.2 Motivations for reshoring

Likewise for the discussion concerning offshoring (Morganti et De Giovanni, 2022), research on this field has focused on identifying the motivations and drivers which lie behind this strategic choice. According to a first interpretation, reshoring might be considered as a mere correction mechanism of a previous wrong offshoring decision. Gradually, the competitive advantage, that caused the offshoring, might vain merely because the environment has suffered some changes (Kinkel et al., 2013). Some scholars propose that the explanation of this mechanism has to be find in modifications of transaction costs and risks, or in institutional/structural factors such as trade policies (Ellram et al., 2013).

In accordance with the former interpretation, McIvor and Bals in 2021 identified three macro-categories of drivers:

1. Managerial mistake recognition, within which reshoring is considered as a result of a failure in the offshoring operation.
2. Change in the external environment, which also includes the reduction of competitive advantage between home and host country.
3. Strategic shifts, including all possible scenarios deriving from strategic planning.

From the literature we can observe that both Transaction Cost Theory (TCT) and Resource Based View (RBV) can both be held to interpret the reshoring phenomenon. Indeed, for the purposes of this work, both theories will be applied in solving the research questions. As far as TCT is concerned, it provides the company with the conditions for which it is more convenient to manage economic exchanges within its boundaries or whether it is more profitable to turn to the external market (McIvor et al., 2021). When it comes to location decision, some scholars point out that there are considerable coordination and incentive costs to face for a company in the offshore location with respect to the home country (Fratocchi et al., 2016). As the costs increase, reshoring appears to be the most cost-effective choice. According to the RBV, the company is a combination of assets and resources that, if exploited in the right way, might produce a competitive distinctive advantage (McIvor et al., 2021). RBV thus links the incentive to obtain valuable resources with the company's ability to make the best use of them. Therefore, the strategic choice to relocate manufacturing facilities back home may result from the firm's inability to develop critical assets abroad, to transfer from the home to the host country or to exploit host country's resources so to create a competitive advantage (Canham et al., 2013).

According to what has so far emerged, it is possible to assess that the research has focused on understanding what drives business leaders to adopt this type of choice, and what the advantages and disadvantages behind it may be. A first attempt to categorise all possible drivers has been carried out by Fratocchi et al. in 2016 by proposing a conceptual interpretative framework in which all possible motivations for business leaders to do reshoring are presented and described. The aforementioned framework is built upon two main dimensions: the goal and the level of analysis. More precisely, "customer perceived value" and "cost efficiency" are considered the two definitive objectives to be pursued when it comes to reshoring, meaning that a manufacturing firm decides to pursue modifications in the supply chain either for increasing the value for its clients or to reduce costs whilst boosting revenues.

Recalling the RBV principles, reshoring can foster the firm's ability to create value both by raising quality and by innovating products as well as processes (Fratocchi et al., 2016). Concurrently, cost efficiency is the backbone of TCT, according to which reshoring is the most effective solution with regard to reduce gaps in input, coordination and monitoring costs between home and host countries. As far as the level of analysis is concerned, the author consider both internal and external environments as factors to be considered. Motivations lie in the internal environment if they can be defined as firm – specific, whereas external environment motivations concern modifications on a systemic level, depending on differentiations between home and host countries (Fratocchi et al., 2016).

Firstly, the three countries with the highest number of reshoring cases are US, Italy and Germany, which traditionally are countries with a strong manufacturing component (Fratocchi et al., 2016). As far as dimension is concerned, European reshoring is characterised by large enterprises, just as Kinkel suggested, whereas the American firms that did reshoring are predominantly SMEs (Fratocchi et al., 2016). Furthermore, considering the frequency with which drivers were reported from reshoring cases, a certain degree of heterogeneity is clear, just as it is evident from the literature that perhaps a combination of motivations rather than a single one is more accurate. Some sort of similar analysis has been conducted by Wiesmann et al. as well in 2017.

The authors developed a systematic literature review in order to assess reshoring worldwide, identifying 5 factors, namely "Global competitive dynamics", "Host country", "Home country", "Supply chain" and "Firm-specific". For each of these factors, drivers and barriers have been determined, differently from Fratocchi's framework in which there was no mention of barriers. It is interesting to note that no barriers have been identified for the factor "Supply chain" and, concurrently, the largest number of drivers have been individuated for the same factor as well, suggesting that the supply chain dimension was given limited consideration during offshoring decision and, consequently, researches in this regard focuses more on opportunities rather than barriers (Wiesmann et al., 2017).

What has been analysed so far concerns the reshoring phenomenon in its entirety, but few contributions narrow the scope to the Italian context. The first contribution in this regard is provided by Barbieri and Fratocchi in 2017, that decided to investigate Italian reshoring cases comparing them with American and European ones, so as to highlight the characteristics of Italian reshoring. As a matter of fact, The geographic element proves to be of extraordinary importance to understand the features and characteristics that qualify the economic activity of one country compared to others (Barbieri et al., 2017). Several examples of analysis of the phenomenon at a national level can be found, the most relevant of which include the analysis of German reshoring by the Fraunhofer Institution and extensively discussed by Kinkel, which showed a slowdown as well as offshoring (Kinkel, 2014), the American one, which saw a major boost in 2012 with Obama's presidency (Barbieri et al., 2017), and the Spanish one due to the 2014 research by Martinez-Mora and Merino which, additionally, focuses on a specific sector.

From Barbieri and Fratocchi's research we obtain a first characterisation of the phenomenon in Italy. From a first analysis, it is evident that the distribution of reshoring initiatives is heterogeneous in the sense that they occur as much from distant host countries, for instance from China and Asia in general, as from closer countries, such as from Europe itself (Barbieri et al., 2017). More specifically, those companies reshoring from Asia are typically of the fashion industries, whereas those reshoring from Europe concerns machinery manufacturing (Barbieri et al., 2017). Another useful element to consider is the distribution of the motivations considered. Out of the 35 drivers considered by Barbieri and Fratocchi, only 15 are statistically relevant and, among these, the most frequent are certainly the "made – in effect", the improvement of customer service and the improvement of the quality of productions (Barbieri et al., 2017).As for the geographical element, investigations were also carried out for the temporal element. According to Barbieri et al. in 2017, very few contributions have dealt with this issue in particular. However, the determinants of the time span are found to be influenced by multiple elements such as size, industry and governance mode (Ancarani et al., 2015).

It is important to specify that this type of analysis does not focus on the moment when reshoring occurs, but rather on the duration of the entire reshoring process. As a matter of fact, it is emerged a sort of relationship between motivations and duration of the process exists, more specifically when the driver "made-in effect" occurs the duration of the reshoring process is typically shorter, since the offshore duration was shorter as well (Barbieri et al., 2017). Kinkel (2012) observed that, as a consequence of the global financial crisis, offshoring decision implemented by German companies slowed down and that over the course of the financial crisis, those companies that reshored were generally more stable than the others. Similarly, Fratocchi et al. in 2015 noted a relevant increase in reshoring cases over the past few years, driven by the return of North American companies following government intervention.

2.3 Reshoring and Covid-19

From the information gathered so far, it is possible to state that the reshoring phenomenon is still blurred and vague and that a more in – depth characterisation would allow for a better understanding of its facets. On the basis of the evidence, it is possible to assess that, as the uncertainty increases, the risk of disrupting supply chains is increasingly realistic. The outbreak of the Covid-19 pandemic is an unprecedented event in this respect, as it had a remarkable impact on all sectors of the economic system globally, forcing a reconfiguration of the entire global value chains structure. In evidence of this, companies that moved manufacturing facilities offshore to take advantages of tariffs or low production costs are more prone to consider reshoring as profitable when facing growing uncertainty as the one created by Covid-19 (Chen et al., 2022). This is the reason why researches have been focused on understanding the impacts not only on multinational companies, but also on small and medium size enterprises (Saravanan et al., 2022).

Several companies, indeed, have experienced a significant exposure to supply chain disruptions during the pandemic due to the lockdowns since it was common for companies to rely on both offshore production and suppliers (Barbieri et al., 2020). It is obvious that henceforth managers, and generally decision takers, cannot merely focus on efficiency and cost reduction, but they must inevitably be aware of risk management.

Therefore, Covid-19 appears to be a primary driver for reshoring decision (Barbieri et al., 2020). More specifically, it is a twofold driver since it has both short-term and long-term implications. In the short term, reshoring is applied as a tool to cope with the current situation, with potentially no side-effects on future strategies (Barbieri et al., 2020). Conversely, if reshoring is conceived at the level of the entire supply chain, and not for single companies, it could concretely increase resilience and responsiveness even in emergency situations such as Covid-19 (Barbieri et al., 2020). The issue of resilience was widely debated during the Covid-19 emergency, as the pandemic demonstrated the ineffectiveness of current supply chains to react to shocks of this type. During Covid-19 it was observed that building a leaner and more sustainable supply chain significantly increases a company's resilience (Trabucco et De Giovanni, 2021) and this can be achieved through a strategy based on the repatriation of production.

Chen et al. in 2022 identified three key supply chain factors affecting reshoring decision. While the first assesses the presence or absence of tariffs, the second and third are closely linked to the emergency represented by the Covid-19. More precisely, the second one relates to the completeness of the supply chain, in the sense that for those companies that had been able to structure their supply chain more comprehensively it was easier to respond in an agile and flexible way to government decision to close borders and transport routes (Chen et al., 2022). The third key factor is the scope of the firm's global logistics management (Chen et al., 2022). Some companies, in fact, when they decided to produce offshore, did not abandon logistics management in the domestic market, thus those with an enhanced scope of logistics management were more prompt to reshoring (Fjellström et al., 2019).

Fernández-Miguel et al. In 2022 recognize that Covid-19 outbreak intensified the phenomenon of reshoring. They noticed that not only manufacturing reshoring is displacing offshoring as the relevant trend, but also that the pandemic showed the fragility of GVCs and raised the possibility of a new paradigm (Fernandez-Miguel et al., 2022). GVCs were indeed harmed by the spread of lockdown worldwide. The impossibility of moving and trading severely affected multinational corporations at a global level, due to the fact that MNEs are involved, either as exporter or importer, in 80% of all world trade (Strange, 2020). Additionally, the same MNE was implied both as exporter and importer in the 40% of the world trade, showing as the interconnection between supply lines revealed to be counterproductive when it comes to tackling the pandemic effects (Strange, 2020). Furthermore, Covid-19 also demonstrated the inadequacy of offshore-related supply chains with respect to delivery time. As Saravanan et al. (2022) pointed out, the just-in-times policies revealed to be ineffective when demand and supply have issues meeting.

As a matter of fact, the just-in-time policy, which helps to cut costs, aims at having low stocks of good, both finished ones and raw materials. However, when the requests for primary goods grew out of all proportions in a short time period, production companies found themselves unprepared due to raw materials inventory shortages (Saravanan et al., 2022). Consequently, the distance between demand and supply widened and the fear of delivery delays became tangible. As the duration of the pandemic emergency increases, GVCs worked as transmission channel for economic contagion (Coveri et al., 2020) and made clear to everyone the strong reliance of Europe and the United States on Eastern, predominantly Chinese, manufacturing.

The shock caused by the Covid-19 outbreak had effects in some ways more severe than the financial crisis of 2007/2008 (Castañeda-Navarrete et al., 2021). As a matter of fact, according to the WTO 2020 update it is expected a collapse in the world merchandise trade of 9.2% due to the Covid-19 (Castañeda-Navarrete et al., 2021).To assess the relevance of reshoring considerations in the context of the Covid-19 pandemic, Van Hoek et al. (2021) applied Fratocchi's framework to develop a scenario analysis in which considering trigger events caused by the pandemic. What has emerged is that a consistent number of drivers are relevant in reshoring decision at this stage of the pandemic as well. To obtain a faster delivery is definitively a decision factor in this regard, as well as tariffs and proximity to customers (Van Hoek et al., 2021). More generally, considering the pandemic scenario, Van Hoek identified those drivers of the aforementioned framework that are more relevant and influencing than the others.

As regards the Italian business environment, a first analysis in this direction is provided by Di Stefano et al. in 2022. Indeed, the authors aim to provide new evidences on internalization strategies of Italian multinational corporations, especially after the outbreak of the Covid-19 pandemic. In general, Di Stefano et al. found out that there has not been a significant wave of repatriations since the emergency represented by Covid-19. Additionally, it is noted that Italian MNEs proved to be more resilient and more agile in responding to the pandemic with respect to their domestic counterparts (Di Stefano et al., 2022). Moreover, the more the level of diversification among foreign plants the better the performance comparing to other

MNEs (Di Stefano et al., 2022). As a proof of this, the authors observed that in 2020, so the first year of the pandemic emergency, MNEs recorded twice the revenues of non MNEs and employed 80% more workers than domestic counterparts, not to mention the fact that they were more productive and were involved in more exporting activities (Di Stefano et al., 2022).

According to the dataset developed by the aforementioned authors, about the 85% of Italian companies did not close any foreign plant between 2018 and 2020 and are not considering the idea of doing it in the next few years, although the pandemic has revealed that it can cause significant damages to the industrial sector. In addition, data suggest that the number of closures of manufacturing facilities has been roughly similar to the overall level, demonstrating that the Covid-19 pandemic has not significantly changed MNEs' plans when it comes to internationalisation. Provided Di Stefano et al. analysis, we can deduce that Covid-19 is only one of multiple factors influencing reshoring decisions. As a matter of fact, there are several other major economic and social shocks that had a great impact on the equilibrium of GVCs, such as Brexit in 2020, the US-China trade war and the more recent Russia-Ukraine war.

The discriminating element recognised by the authors is the duration. As an example, if a shock of any sort is perceived by most as temporary, and therefore it is expected to produce effects only in the short-term period, it will not influence reshoring decisions more than it does in normal times (Di Stefano et al., 2020). This is exactly where the perception of the Covid-19 lies, or at least in the early stage of the pandemic.

This is especially because the nature of the shock was unclear, since the Covid-19 was unclear as well. Actually, most companies perceived Covid-19 as temporary and local, underestimating the catastrophic potential of the phenomenon. Only with the evolution of the pandemic British and American firms realises the risks, together with Italian ones (Fiori et al., 2021).

The conclusion reached by Di Stefano et al. reflect what has been discussed so far, namely that trade policies and uncertainty has a significant impact on reshoring decisions, while Covid-19 does not seem to negatively affect this particular decision process. With the passage of time and the increase in available information, expectations of the duration of the pandemic have increased, and with it the influence of these on relocation decisions, unlike trade policies that are likely to have long-lasting effects and therefore more impacting on reshoring decision (Di Stefano et al., 2020).

Currently, after three years from the outbreak of the pandemic, firms are starting to revise their internationalisation strategies. The real trigger is the addition of the effects of the pandemic to the already unstable socio-economic situation. While according to Di Stefano et al. it is unlikely that Covid-19 alone can cause a massive wave of reshoring, combining the effects of it with policy uncertainty and with the generalised closure of frontiers, it is more plausible that companies will start to consider reshoring as a viable and profitable strategic decision (Di Stefano et al., 2020).

This work is intended to continue the characterization of the Italian reshoring movement, taking the Covid-19 as reference and taking the motivations for reshoring as an object of research. There are several

contributions that take into consideration Reshoring and Covid-19, as evident from the above literature, however few focus on the Italian environment. This research intends to investigate what were the main drivers for Italian companies for reshoring during the pandemic and, on the basis of what Di Stefano et al. noticed, what are the possible combination of effects given the copresence of multiple drivers. Finally, the aim of this paper is to investigate what are the main variations between the motivations in force before the pandemic outbreak and during the pandemic emergence, respectively, in order to understand whether Covid-19 is also a discriminatory element in this respect.

Three research questions, indeed, were produced from the literature reviewed:

RQ1: What are the main motivations pushing Italian firms to reshore during Covid-19 pandemic?

RQ2: What is the correlation among the motivations that pushed Italian firms to reshore during Covid-19 pandemic?

RQ3: What are the most important variations, in terms of motivation, between pre and post Covid-19 pandemic?

3. Methodology

3.1 Data collection and motivations' description

For the sake of the analysis, a dataset has been developed, representing all the Italian firms that opted for manufacturing reshoring, highlighting the cases that occurred before and those that occurred after the outbreak of the Covid-19 pandemic. Motivations and drivers that influenced the decision to reshore were reported.

Data collection was held between February and March 2023. Newspaper articles between 2017 and 2022 were considered, both in national and local press, where the terms 'reshoring', 'backshoring' and 'nearshoring' were present. Subsequently, these articles were reviewed and only those mentioning actual reshoring cases have been chosen and analysed. As proof that the topic of reshoring is gaining always more relevance, most of the articles initially selected did not report cases of companies returning to Italy, but rather press reviews of companies that had intended to, or articles of economic-political nature dealing with the reshoring phenomenon. Through this process, therefore, it was possible to extract from the selected articles a total of 82 cases of Italian companies that actually returned to Italy.

Furthermore, additional Italian cases identified in the European Reshoring Monitor dataset, produced by Eurofound, were also included in this preliminary dataset. Specifically, the European Reshoring Monitor dataset presents all reshoring cases at European level in a time span from 2015 to 2018, and thus proved to be useful for populating the class of cases before Covid-19. From this second source a total of 13 cases of Italian companies was integrated into the sample.

The result of this work is the identification of 95 cases of reshoring. For each of these cases, the following information was reported and systemised into a table:

- The name of the company.
- The year, meaning if reshoring occurred before or after Covid-19.
- The origin, indicating whether it was identified in the articles or in the European Reshoring Monitor dataset.
- The industry, in a general sense.
- The ATECO classification
- The source, namely in which newspaper the article was published
- The motivations

Regarding motivations, from the empirical evidence of the articles it was possible to identify 14 different drivers, which will be considered the variables of the research. Whenever the presence of a motivation was recognised, the variable assumed a value of 1, otherwise it assumed a value of 0. Consequently, it is possible to consider and evaluate which combination of motivations drive companies to relocate their manufacturing facilities.

The drivers taken into account in the dataset are the following: 1) *"Made in Italy" effect*, 2) *Increased costs in host country*, 3) *Product/Process innovation*, 4) *Interruptions in the supply chain*, 5) *To bring the "know-how" back to Italy*, 6) *Italian "know-how"*, 7) *To increase sustainability*, 8) *To higher the quality*, 9) *Increased logistics costs*, 10) *To have higher control*, 11) *Increased raw material costs*, 12) *Independence from other countries*, 13) *To reduce distances between production and assembling/R&D*, 14) *Delivery time*.

"Made in Italy" effect represents the intention of companies to return to Italy to exploit the additional value that the "made in Italy" gives. As can been expected, this driver is incredibly strong when applied to Italian business environment due to the extreme quality and craftmanship that characterises our production system. As a matter of fact, this driver proved to be the most frequent among the cases identified, with 56 companies declaring that they relocated to Italy because of the "made in Italy" effect.

Increased costs in host country is a rather generic motivation, which includes all those cases where a company has decided to reshore because the total production costs in the host country have increased, which has made offshore production less profitable. In order to have a more specific and precise characterisation of the phenomenon, the drivers *Increased logistics costs* and *Increased raw material costs* were added to the dataset. Consequently, when one of these two variables assumes value 1, then the driver Increased costs in host country takes the same value, whereas if the specification was not identifiable in the article, only the first justification took on a positive value while the last two were set equal to zero.

Product/Process innovation includes those companies that have decided to do reshoring because both process and product innovation is fostered more strongly in Italy with respect to the host country. Also this driver turned out to be quite frequent, with 42 companies stating that, when it comes to reshoring, innovation was one of the priorities.

Interruptions in the supply chain is also a generic motivation. This driver is populated with all the cases where reshoring has been considered to overcome delays or disruptions in global value chains. Indeed, the distance between the sourcing of raw materials, their processing and subsequent marketing can represent a loss of efficiency, which can be solved by reshoring manufacturing facilities. For a better analysis at supply chain level, we also thought interesting to include the motivations *To reduce distances between production and assembling/R&D* and *Delivery time*. If for the former we consider only those specific cases for which the distance between research and production centres represented a competitive disadvantage, and therefore a reason for concern for Italian companies, for the latter we consider all those cases in which the entire production chain is located abroad, for which the possible presence of delays in the delivery of finished goods represents a valid reason for reshoring.

The motivations *To bring "know-how" back to Italy* and *Italian know-how* are similar but distinct. Starting with the second one, this includes all those companies that have returned to Italy to exploit Italian know-how, and therefore traditions and best practices spread throughout our territory, for their own competitive advantage. The first motivation, on the other hand, brings with it a more 'patriotic' component, in the sense

that some empirical evidence has given us to understand that some companies have returned to Italy also, and above all, for the fact that they do not want historical and typical Italian productions and practices to entirely disappear from the country. With reshoring, the ultimate goal is to bring traditions that would otherwise have been lost, back to our national borders. As one would expect, both of these motivations are highly relevant for the Italian business environment. In support of this, the two motivations combined have an important weight in our dataset, with 50 registered cases of companies that returned to Italy for one or both motivations.

To increase sustainability is perhaps one of the least frequent motivations within our dataset, with only 10 cases of companies that returned to Italy openly for the above-mentioned reason. However, in this driver we included all those companies that decided to reshoring to improve their performance in terms of corporate and environmental sustainability.

Within the driver *To higher the quality* we have included all those cases for which reshoring represented a means to improve the quality of production and, consequently, of finished goods. We expect this motivation to be linked both to the *"Made in Italy" effect* and to *Italian know-how*, due to the intrinsic nature of these motivations. In fact, if we believe that the "made in Italy" brand and the know-how deriving from it are synonyms of higher quality, with respect to foreign competitors, then it is natural to think that a repatriation of manufacturing facilities in Italy improves the overall quality of production.

The last two drivers, *To have higher control* and *Independence from other countries*, are among the least frequent and therefore influential of all the cases analysed, with respectively 12 and 13 Italian companies that declared to have opted for reshoring also for these motivations. As well as the previous drivers regarding the Italian know-how, also in this case both motivations refer to a desire of the companies to emancipate and separate from the countries where they had previously placed their manufacturing.

Once the dataset was constructed, three different types of analysis were carried out to answer the three research points. To address the first research question, and thus identify the main causes of the phenomenon, the first analysis performed was a Pareto analysis, defined as a method of evaluating and ranking the causes contributing to a given observed phenomenon. Pareto analysis is particularly effective for the purpose of this paper as it is based on the principle that a small cluster of causes is responsible for most of the effects, therefore, for the purposes of analysis, it is possible to focus on the few, but main, causes that influence the phenomenon. More specifically, through this type of analysis we will be able to identify which of the variables identified in the dataset are the most recurrent, and therefore the most influential, among the cases of identified Italian companies.

Subsequently, a correlation analysis was carried out to identify possible correlations between motivations in the pre and post Covid-19 period. For our purpose, the Pearson's correlation was used, whose index measures the strength and direction of the linear relationship between two continuous variables. This index is ranging from -1 to +1, in which:

- -1 indicates a perfect negative correlation, such that when one variable increases, the other decreases linearly
- 0 indicates no correlation between the considered variables
- +1 indicates a perfect positive correlation, such that when one variable increases, the other also increases linearly

Through the index, a correlation matrix was then constructed, representing all combinations of means and standard deviations for the respective motivations. Obviously, if the variables have non-linear relationships, these are not identified and therefore not studied through this analysis. Moreover, the closer the value approaches the extremes, therefore -1 and +1, the stronger is the correlation, whereas a value close to zero indicates weak or no correlation. Through this procedure we could highlight possible links between the motivations, and see whether they contribute together to the manifestation of the phenomenon or whether in the presence of some, others do not manifest, being incompatible.

The third and last analysis performed was a proportion test, defined as a statistical procedure used to assess whether there is a significant difference in the proportions between two groups or categories, to evaluate whether there were significant differences in terms of motivations between pre and post Covid-19. As a matter of fact, as the economic and socio-cultural context changes, some drivers that previously drove the phenomenon could become obsolete or irrelevant, while others could gain importance or new ones emerge. Therefore, the frequency for each motivation in the two time periods, and their respective proportions, was calculated and analysed to assess whether the differences in the proportions are statistically significant.

4. Results

4.1 Main motivations for reshoring in the post-Covid era

After performing the first analysis, the results were collected and represented in a Pareto diagram as shown in Table 1.
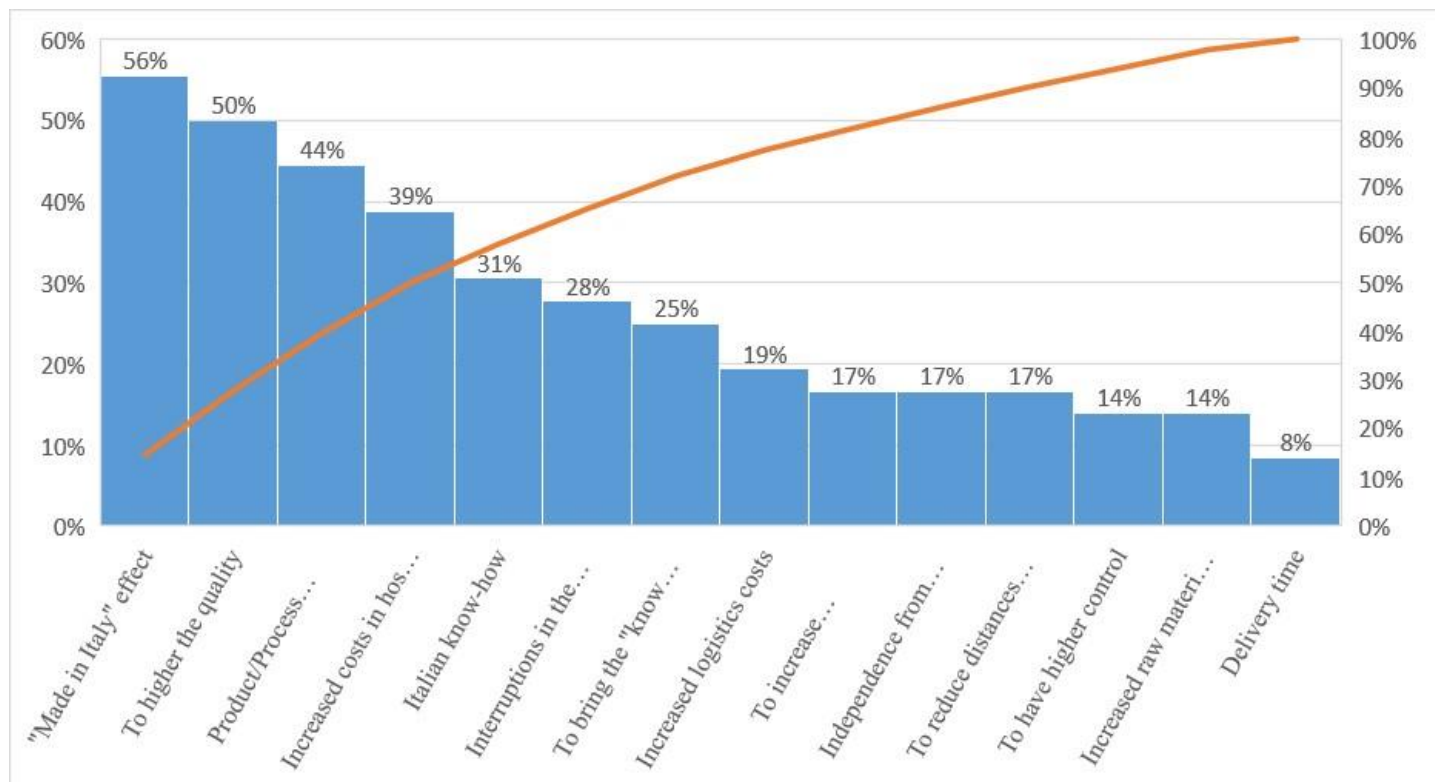
Table 1: *What are the main motivations pushing Italian firms to reshore during Covid-19 pandemic?*

The Pareto diagram illustrates what were the most influential motivations for Italian companies to reshore during the Covid-19 pandemic. For the purposes of this analysis it must be said that only companies that actually performed reshoring during Covid-19 were considered, so from the initial dataset of 95 companies, only 36 were taken as test samples. The results show that 56% of the Italian companies included in the sample opted for reshoring to exploit the *"Made in Italy" effect*, hence this motivation appears to be the main and most influential among those reported in the dataset. As expressed above, such a result was to be expected considering the Italian industrial context, which has always made craftsmanship and attention to raw materials its strength. The second most influential driver proves to be *To higher the quality*, which was taken into account by 50% of the companies included in the sample. If we look at Table 1, the 80/20 principle, which is at the core of the Pareto diagram, is not immediately obvious and does specifically refer to a single driver. However, the first two drivers, namely the *"Made in Italy" effect* and *To higher the quality*, alone are responsible for more than 80% of reshoring decisions by Italian companies during Covid-19.

Further reasons that were reported by a smaller, though significant, number of companies and are therefore quite relevant are *Product/Process innovation*, cited by the 44%, *Increased costs in host country*, cited by 39%, and *Italian know-how*, cited by 31%. Moreover, the drivers that were found to be less frequent, ranging from 30% to 15% are *Interruptions in the supply chain* (28%), *To bring the know-how back to Italy* (25%), *Increased logistics costs* (19%), *To increase sustainability* (17%), *Independence from other countries* (17%), *To reduce distances between production and assembling/R&D* (17%), *To have higher control* (14%) and *Increased raw material costs* (14%). Finally, the least frequent and consequently least influential motivation is *Delivery time*, with only 9%.

4.2 Correlations between motivations in the post-Covid era

As a result of the second test, it turned out that there were many correlations between the drivers identified. To provide a better understanding, these results were compiled in a Pearson matrix, represented by Table 2.

Variables	"Made in Italy" effect	Increased costs in host country	Product/Process innovation/Industry 4.0	Interruptions in the supply chain	To bring the "know-how" back to Italy	Italian know-how	To increase sustainability	To higher the quality	Increased logistics costs	To have higher control	Increased raw material costs	Independence from other countries	To reduce distances between production and assembling/R&D	Delivery time
"Made in Italy" effect	1	-0,126	-0,126	-0,133	0,169	0,383***	0,273	0,388***	-0,213	0,067	-0,087	-0,437***	-0,011	0,089
Increased costs in host country	-0,126	1	-0,081	0,540***	-0,156	-0,113	-0,023	-0,371**	0,625***	-0,127	0,512***	0,125	0,125	0,185
Product/Process innovation/Industry 4.0	-0,126	-0,081	1	-0,012	0,533***	-0,291	0,367**	-0,040	0,017	-0,008	0,148	0,078	0,078	0,150
Interruptions in the supply chain	-0,133	0,540***	-0,012	1	-0,043	-0,368**	0,075	-0,190	0,337***	-0,225	0,477***	0,075	-0,088	0,051
To bring the "know-how" back to Italy	0,169	-0,156	0,533***	-0,043	1	-0,073	0,272	-0,141	0,061	-0,028	0,154	-0,065	-0,065	0,070
Italian know-how	0,383***	-0,113	-0,291	-0,368**	-0,073	1	-0,267	0,334**	-0,145	-0,070	-0,240	-0,267	0,207	0,247
To increase sustainability	0,273	-0,023	0,367**	0,075	0,272	-0,267	1	0,175	0,171	0,049	0,262	-0,182	-0,182	-0,123
To higher the quality	0,388***	-0,371**	-0,040	-0,190	-0,141	0,334**	0,175	1	-0,299	0,107	-0,201	-0,252	0,175	0,119
Increased logistics costs	-0,213	0,625***	0,017	0,337***	0,061	-0,145	0,171	-0,299	1	0,020	0,620***	0,171	0,171	0,116
To have higher control	0,067	-0,127	-0,008	-0,225	-0,028	-0,070	0,049	0,107	0,020	1	-0,147	0,049	0,262	0,177
Increased raw material costs	-0,087	0,512***	0,148	0,477***	0,154	-0,240	0,262	-0,201	0,620***	-0,147	1	0,049	-0,164	-0,111
Independence from other countries	-0,437***	0,125	0,078	0,075	-0,065	-0,267	-0,182	-0,252	0,171	0,049	0,049	1	0,212	0,144
To reduce distances between production and assembling/R&D	-0,011	0,125	0,078	-0,088	-0,065	0,207	-0,182	0,175	0,171	0,262	-0,164	0,212	1	0,677***
Delivery time	0,089	0,185	0,150	0,051	0,070	0,247	-0,123	0,119	0,116	0,177	-0,111	0,144	0,677***	1

Values in bold are different from 0 with a significance level alpha=0.05

*** p-value < 0.01 , ** p-value < 0.05 , * p-value < 0.1 , italic values are not significant

Table 2: *What is the correlation among the motivations that pushed Italian firms to reshore during Covid-19 pandemic?*

It is evident that the Italian reshoring phenomenon following the Covid-19 pandemic did not stem from a few, independent motivations, but rather this matrix shows a more complex situation in which several drivers coexist and influence the decision-making processes of Italian companies together.

The results show a positive correlation between the drivers *"Made in Italy" effect* and *Italian know-how* (coef. = 0.383, p-value < 0.01) the drivers *"Made in Italy" effect* and *To higher the quality* (coef. = 0.388, p-value < 0.01) and the drivers *Italian know-how* and *To higher the quality* (coef. = 0.334, p-value < 0.05), proving the fact that during challenging times, such as the one triggered by the Covid-19, Italian companies have tried to rely on what historically represents Italianism in the world, that is, the pursuit of quality. Moreover, an important positive correlation was also found between the drivers *Increased costs in host country* and *Interruptions in the supply chain* (coef. = 0.540, p-value < 0.01), *Increased costs in host country* and *Increased logistics costs* (coef. = 0.625, p-value < 0.01), *Increased costs in host country* and *Increased raw material costs* (coef. = 0.512, p-value < 0.01) and also among the drivers *Interruptions in the supply chain* and *Increased logistics costs* (coef. = 0.337, p-value < 0.05) the drivers *Interruptions in the supply chain* and *Increased raw material costs* (coef. = 0.477, p-value < 0.05) and the drivers *Increased logistics costs* and *Increased raw material costs* (coef. = 0.620, p-value < 0.01). It is not surprising that all motivations that are in some way related to the supply chain, both from a logistical and cost perspective, are positively correlated with each other as these are considerations that come together when a company decides to evaluate the pros and cons of a potential reshoring. Furthermore, the results show that when companies are interested in *Product/Process innovation*, they are also concerned *To bring the know-how back to Italy* (coef. = 0.533, p-value < 0.01) and *To increase sustainability* (coef. = 0.367, p-value < 0.05). Finally, the last, and almost obvious, positive correlation was found between the motivations *To reduce distances between production and assembling/R&D* and *Delivery time* (coef. = 0.677, p-value < 0.01).

Besides all the positive correlations already identified, the Pearson matrix also shows some negative correlations. A negative correlation has been recognized between the motivations *"Made in Italy" effect* and *Independence from other countries* (coef. = -0.437, p-value < 0.01), *Increased cost in host country* and *To higher the quality* (coef. = -0.371, p-value < 0.05) and *Interruptions in the supply chain* and *Italian know-how* (coef. = -0.368, p-value < 0.05). These negative correlation indexes mean that, during the decision-making process, when a company considered a motivation as valuable, the other was non existing.

4.3 Motivations for reshoring with statistically significant variations in terms of frequency in the post-Covid era

Concerning the third and final test, we are interested in evaluating those results that are statistically significant (p-value < 0.01) and can be observed in Table 3. What can be deduced from the proportion test is that there is a significant difference between the companies that did reshoring during Covid-19 and those

that did it before Covid-19 for the above-mentioned motivation, and we can definitely assert that the discriminating factor for this difference is indeed Covid-19.

Independent-Samples Proportions Tests						
Test Type		Difference in Proportions	Asymptotic Standard Error	Z	Significance One-Sided p	Two-Sided p
"Made in Italy" effect = Made	Wald H0	0,080	0,103	0,765	0,222	0,444
Increased costs in host country = 1	Wald H0	0,056	0,100	0,565	0,286	0,572
Product/Process innovation/Industry 4.0 = 1	Wald H0	0,004	0,105	0,036	0,486	0,971
Interruptions in the supply chain = 1	Wald H0	0,059	0,080	0,763	0,223	0,445
To bring the "know-how" back to Italy = 1	Wald H0	0,193	0,083	2,503	0,006	**0,012**
Italian know-how = 1	Wald H0	-0,235	0,095	-2,308	0,011	**0,021**
To increase sustainability = 1	Wald H0	0,144	0,072	2,212	0,013	**0,027**
To higher the quality = 1	Wald H0	-0,059	0,105	-0,563	0,287	0,574
Increased logistics costs = 1	Wald H0	0,048	0,075	0,661	0,254	0,509
To have higher control = 1	Wald H0	0,065	0,074	0,925	0,178	0,355
Increased raw material costs = 1	Wald H0	0,167	0,062	3,240	0,001	**0,001**
Independence from other countries = 1	Wald H0	0,003	0,073	0,045	0,482	0,964
To reduce distances between production and assembling/R&D = 1	Wald H0	-0,041	0,070	-0,570	0,284	0,569
Delivery time = 1	Wald H0	-0,058	0,072	-0,779	0,218	0,436

Independent-Samples Proportions Group Statistics					
CovidN		Successes	Trials	Proportion	Asymptotic Standard Error
"Made in Italy" effect = Made	= During Covid	23	36	0,639	0,080
	= Before Covid	33	59	0,559	0,065
Increased costs in host country = 1	= During Covid	13	36	0,361	0,080
	= Before Covid	18	59	0,305	0,060
Product/Process innovation/Industry 4.0 = 1	= During Covid	16	36	0,444	0,083
	= Before Covid	26	59	0,441	0,065
Interruptions in the supply chain = 1	= During Covid	7	36	0,194	0,066
	= Before Covid	8	59	0,136	0,045
To bring the "know-how" back to Italy = 1	= During Covid	**10**	36	0,278	0,075
	= Before Covid	**5**	59	0,085	0,036
Italian know-how = 1	= During Covid	**8**	36	0,222	0,069
	= Before Covid	**27**	59	0,458	0,065
To increase sustainability = 1	= During Covid	**7**	36	0,194	0,066
	= Before Covid	**3**	59	0,051	0,029
To higher the quality = 1	= During Covid	18	36	0,500	0,083
	= Before Covid	33	59	0,559	0,065
Increased logistics costs = 1	= During Covid	6	36	0,167	0,062
	= Before Covid	7	59	0,119	0,042
To have higher control = 1	= During Covid	6	36	0,167	0,062
	= Before Covid	6	59	0,102	0,039
Increased raw material costs = 1	= During Covid	**6**	36	0,167	0,062
	= Before Covid	**0**	59	0,000	0,000
Independence from other countries = 1	= During Covid	5	36	0,139	0,058
	= Before Covid	8	59	0,136	0,045
To reduce distances between production and assembling/R&D = 1	= During Covid	4	36	0,111	0,052
	= Before Covid	9	59	0,153	0,047
Delivery time = 1	= During Covid	4	36	0,111	0,052
	= Before Covid	10	59	0,169	0,049

Table 3: *What are the most important variations, in terms of motivation, between pre and post Covid-19 pandemic?*

More specifically, the drivers for which statistically significant differences were found are *To bring back the know-how back to Italy,* namely that this motivation was decisive for 10 out of 36 companies during Covid-19, while only 5 out of 59 companies did reshoring for the same reason**,** *Italian know-how*, for which 8 out of 36 companies declared that they returned to Italy for this specific reason during Covid-19 compared to 27 out of 59 who declared this prior to the pandemic, *To increase sustainability,* motivation that drove 7 out of 36 companies during Covid-19 and only 3 out of 59 in previous years and lastly *Increased raw material costs*, which was crucial for 6 out of 36 companies during Covid-19 and not decisive at all before Covid-19 in fact, none of the 59 companies reported reshoring for this reason.

5. Discussion

This work was carried out with the aim of investigating in depth what are the real motivations that drive Italian companies to undertake reshoring, beside assessing whether the advent of Covid-19 has in any way influenced or modified the phenomenon per se. The three analyses that were carried out produced convincing results that allow us to satisfactorily answer the three research points previously presented.

Results from the first test, that is the Pareto analysis, definitely assert that the main motivations for Italian companies undertaking reshoring after the outbreak of Covid-19 are the *"Made in Italy" effect* and *To higher the quality*. This is not a surprising result and is totally in line with previous studies dealing with the reshoring phenomenon in a pre-Covid era, matter of fact according to the previously mentioned interpretative framework developed by Fratocchi et al. in 2016, the main drivers for companies to reshore were, apart for logistics costs, both "made in" effect and poor quality of off-shored product. Without doubt the advent of Covid-19 has generated moments of extreme hardship, during which major production plants were shut down due to the inability of people to leave their homes, and major trade routes were disrupted due to the impossibility to travel. Under these circumstances, as soon as the lockdowns ended, Italian entrepreneurs believed that exploiting the quality of raw materials, labour, tradition and heritage typical to our country was the best strategy to make up for the huge economic losses.

This result is in line with the analysis of Wan et al. (2019), which recognises that Italian reshoring has addressed the challenges imposed by increasing globalisation by raising product quality, exploiting positioning in premium segments and, consequently, increasing productivity. In the analysis by Wan, the "made in" effect is defined as a reputational resource and is one of the most effective examples to highlight how Italy's image in the world is synonymous with competence and quality in manufacturing, which add value to Italian products and make them more attractive to consumers. Therefore, this highlights that since the outbreak of Covid-19, consumer perceived value has become the main driver in reshoring decisions, and thus that increased quality and the actual perception of this higher quality are what companies seek in the post-Covid era. In support, the findings of Colamatteo et al. (2021) demonstrate that reshoring in the post-Covid era has positive effects on consumers' purchasing behaviour and their perception of the product itself, but also and above all on the image of the company.

In addition to this, by focusing on the less frequent, and therefore less influential, drivers of reshoring decisions for Italian companies in the post-Covid era, specifically *Delivery time*, *Increased raw materials costs*, *To have higher control*, we can see how they are motivations that, from different points of view, can all be defined as efficiency-driven. As a matter of fact, as for Fratocchi et al. (2016) we observed that value-driven motivations are in some sense stronger and more influential than efficiency-driven ones. However, it has to be mentioned that it is unusual to find the driver *Delivery time* in last rank, as Covid-19 has been found by several scholars to have led to a general slowdown and malfunctioning of global value chains and for this reason we would have expected to rate this motivation among the most important and to find it in a

different position. Indeed, in the aforementioned framework by Fratocchi et al. proximity to consumers is reserved an important role in the evaluation of possible reshoring, and also for Sequeira et al. (2020) delivery time and time to market are recognised as the most valuable time-related criteria. This difference between the expectations agreed upon with the cited theories and the empirical results obtained from the test could be explained on the basis of the theory of Di Stefano et al. (2022) according to which a relocation decision would only be pursued if the shock that would cause it would be perceived as long-lasting. Therefore, delays could be perceived as only momentary, or in line with the general functioning of global value chains and not directly related to the Covid-19 pandemic.

From the second analysis, we have evidence of motivations that are correlated with each other, both positively and negatively. From empirical results, we know that there is a positive correlation between the *"Made in Italy" effect* and *Italian know-how*, as well as between *"Made in Italy" effect* and *To higher the quality*. On, this link between drivers leveraging consumers' perceived value was anticipated by Fratocchi et al. (2016) whose framework shows that reshoring allows the company to leverage certain elements, such as "made in Italy" and know-how, to create additional value, and thus generate or maintain a competitive advantage over competitors. We can definitely assert that companies, by moving back to manufacture in Italy, aim to exploit the positive effects that "made in Italy" provides, namely high standards of quality and craftmanship, and this is achieved by exploiting our country's typical know-how, which is represented by all the procedures and techniques that have historically been transmitted in our territory, as well as traditions and heritage.

Furthermore, an important positive correlation was also observed within the so-called efficiency-driven motivations, that are *Increased costs in host country*, *Increased logistics costs*, *Increased raw materials costs* and *Interruptions in the supply chain*. To some extent, this is due to the way the dataset was constructed, as we recall that when a company declared reshoring for a specific reason between Increased logistics costs and Increased raw materials costs, the driver Increased costs in host country also assumed value, whereas in the absence of specification only the latter driver was taken into account. However, it is quite clear that the reasons behind this correlation, as Covid-19 has negatively impacted global supply chains in several ways and forms. The first disruptions in supply chains made the lack of flexibility on several levels, as well as the lack of diversification in supply, evident. Among the first effects were substantial differences between demand and supply of goods, caused by unexpected peaks in demand, due to the feeling of panic that spread during lockdowns, and product shortages, because production chains were either disrupted or did not sustain the pace required by the historical period (Chowdhury et al., 2021). We can therefore say that the simultaneous increase in raw material and logistics costs originated from the unexpected arrival of Covid-19, and that consequently the disruptions in supply chains that occurred during the same historical period also had as a cause the generalised increase in costs.

As we continue with the discussion of the results of the second test, it is comprehensible why companies interested in innovation also turned out to be interested in sustainability. According to the relevant

literature, we can state that continuous research and development aimed at innovation, whether of product or process, leads to the establishment of Industry 4.0. I4.0 contributes significantly to sustainable value creation, enables the automation of production processes and fosters the creation of a sustainable society (Margherita et al., 2020). We can consider the post-Covid era as a period that companies can actually exploit for reshoring and as a period that, among the many obvious difficulties, offers an almost unique opportunity to innovate and restructure. Keeping this in mind, it is understandable how, for an Italian company that produces abroad with the working conditions of the host country, both from a social and an environmental point of view, and therefore wants to improve its sustainability performance at the same time as reshoring, a major innovation path towards the creation of Industry 4.0 is necessary. As a final positive correlation, the results showed a strong link between the drivers *To reduce distances between production and assembling/R&D* and *Delivery time*. This is due to the very nature of these motivations, since the reduction in the distance between research and development facilities and production facilities leads to a shortening and leaning of the entire supply chain and, as a consequence, it is logical and predictable that delivery times of finished goods will be reduced. The almost systematic pursuit of time reduction is a recurring theme when it comes to Covid-19, because timing was substantial in several cases, especially for primary goods.

With regard to the negative correlations revealed by the test, the dependence between *Increased cost in host country* and *To higher the quality* and between *Interruptions in the supply chain* and *Italian know-how* may be justified by recalling once again the evidences of the study by Fratocchi et al. (2016). The results further reinforce the theory according to which a company carries out reshoring either for value-driven motivations or for efficiency-driven motivations, and there is no possibility that both are pursued at the same time. Lastly, there are no theories or studies supporting the thesis according to which the motivations *"Made in Italy" effect* and *Independence from other countries* are negatively related to each other, as suggested by the results. However, it is clear that in order to exploit the "made in Italy" effect, production must be located in Italy and therefore the independence from other countries is already ensured. There is no sense in relating two motivations that could never exist at the same time.

The results of the third and final analysis show those motivations for reshoring that had a statistically significant pre-Covid and post-Covid difference in frequency, so that we can clearly state that Covid-19 was the discriminating element producing this difference. The know-how component is implicated in two distinct ways, in fact the driver *Italian know-how* has decreased in frequency since the Covid-19 outbreak while the driver has been taken into account considerably more, according to the cases analysed in this study. No theoretical evidence was found to support this result in the existing literature, however it is reasonable to assume that the difference can be explained by the historical period in which reshoring occurred. As a matter of fact, in a normal environment and in the absence of particular shocks that could significantly alter the conditions in which business relations take place, we have already verified that the exploitation of the Italian know-how, represented by quality craftmanship, traditions and heritage, is more

than a valid motivation per se to push a company to return to produce domestically. Therefore, it is not surprising to reflect this in the results and observe that in the pre-Covid period the driver Italian know-how was among the most frequent and most influential. With the outbreak of Covid-19, the scenario might have slightly evolved as, bearing in mind the series of lockdowns and disruptions of global value chains that characterised this period, for the Italian entrepreneurs who were advocating the idea of reshoring, the exploitation of know-how per se would not have been so important, but rather to avoid losing permanently that series of best practices and techniques typical of Italy. In any case, the boundary between these two motivations is very blurred and it is easy to assimilate them into the same concept.

With respect to the driver *To increase sustainability,* we find evidence of this result in the work of Barber et al. (2021). It is recognised that Covid-19 has had a number of effects on global value chains, creating not only particular difficulties but also many opportunities and challenges such as the one of creating more regional footprint in some industries (Barber et al., 2021). In the quest for a more sustainable industry, the crisis caused by the Covid-19 pandemic has created opportunities for an almost total reconfiguration of some production chains through the reshoring of companies. More generally, the relationship between reshoring and sustainability is much tighter than it may seem, as local production significantly improves all key sustainability indicators, such as carbon footprint, waste production and working conditions, and Covid-19 plays an important role in this relationship as it works as a trigger for developing a more sustainable local value chain.

Finally, a statistically significant difference was also found for driver *Increased raw materials costs* between the pre-Covid and post-Covid period. As mentioned above, one of the negative effects generated by Covid-19 was the mismatch between demand and supply of goods, caused by sudden spikes in demand that were not supported by slow-paced production (Chowdhury et al., 2021). Especially when dealing with quickly disposable raw materials, distance and timing play a key role and should not be underestimated in order to maintain an overall balance in the global economy. Following the outbreak of Covid-19, production shortages were common and almost obligatory due to the many restrictions imposed worldwide, therefore it is comprehensible and logical that, in order to make the value chains more efficient, the generalised increase in raw material prices was a more than valid motivation to relocate production back to Italy.

6. Conclusion

This work is intended to investigate the motivations and drivers for Italian companies to adopt relocation strategies such as reshoring in an extraordinary period such as the one represented by Covid-19. In order to do this, three research questions have been designed: to identify what the main motivations for reshoring for Italian companies in the post-Covid period is, what the possible correlations between these motivations are and how these motivations have changed between the pre-Covid and post-Covid periods. Three analyses were performed with the aim of addressing the research questions, specifically a Pareto analysis, a Pearson correlation test and a proportion test. The object of these analyses are the 95 reshoring cases of Italian companies reported in the dataset constructed by collecting data from secondary sources spanning from 2017 to 2022.

In the initial analysis, conducted through Pareto analysis, the primary motivations driving Italian companies to pursue reshoring in the aftermath of the Covid-19 outbreak were the *"Made in Italy" effect* and *To higher the quality*. This finding aligns with previous research on reshoring conducted before the pandemic, indicating that these motivations have remained consistent over time. The "made in Italy" effect has gained prominence as a reputational resource, emphasising Italy's competence and quality in manufacturing. Italian companies have leveraged this image to add value to their products and attract consumers, especially in premium market segments. Thus, the Covid-19 pandemic has reinforced the importance of consumer-perceived value as a key driver in reshoring decisions, with an emphasis on achieving higher quality and the perception of higher quality in products during the post-Covid era. Furthermore, motivations like *Delivery time, Increased raw materials costs, and Independence from other countries* were less frequent in reshoring decisions for Italian companies post-Covid. However, it was somewhat surprising to find *Delivery time* ranked lower in importance, given the disruptions caused by the pandemic to global value chains. This discrepancy could be explained by the perception that delays were temporary and not directly linked to the Covid-19 pandemic's lasting impact, as proposed by Di Stefano et al. (2022).

The second analysis revealed several correlations among the motivations driving Italian companies to pursue reshoring after the Covid-19 outbreak. Firstly, there was a positive correlation between the *"Made in Italy" effect* and *Italian know-how*, as well as between the *"Made in Italy" effect* and *To higher the quality*. This finding aligns with the notion that reshoring allows companies to leverage the positive attributes associated with the "made in Italy" brand, such as high-quality standards and craftsmanship. Italian know-how, including historical procedures, techniques, traditions and heritage plays a vital role in achieving and maintaining these quality standards. Additionally, a positive correlation was observed among efficiency-driven motivations, including *Increased costs in host country, Increased logistics costs, Increased raw materials costs,* and *Interruptions in the supply chain*. These motivations are interconnected due to the disruptive impact of the Covid-19 pandemic on global supply chains. Disruptions led to discrepancies between supply and demand, panic-driven demand spikes, and production shortages, all of which

contributed to increased costs across the supply chain. Furthermore, a connection was found between motivations related to innovation and sustainability. Companies focused on innovation tended to prioritise sustainability, as innovation often leads to the adoption of Industry 4.0 practices promoting sustainable value creation and automating production processes. The post-Covid era presented an opportunity for companies to reshore and innovate simultaneously, especially if improving sustainability performance was considered. Lastly, a strong negative correlation was observed between *Increased cost in host country* and *To higher the quality*, as well as between *Interruptions in the supply chain* and *Italian know-how*. These findings support the idea that companies typically pursue reshoring for either value-driven or efficiency-driven motivations, rather than a combination of both. However, it's relevant to note that the negative correlation between the *"Made in Italy" effect* and *Independence from other countries* may seem counterintuitive. Still, it can be explained by the fact that to leverage the "made in Italy" effect, production has to be located in Italy, ensuring independence from other countries in terms of production location.

In the last analysis conducted, the motivations behind the adoption of reshoring by Italian companies were investigated and an attempt was made to understand how these motivations changed significantly between the pre-Covid and post-Covid periods. It emerged that the Italian know-how component was involved in two distinct ways. On one hand the motivation *Italian know-how* saw a decrease in frequency in the post-Covid period, on the other hand the motivation *To bring the know-how back to Italy* became much more relevant during the pandemic. This change can be attributed to the historical context in which reshoring occurred. In the pre-Covid period, the exploitation of Italian know-how, represented by the quality of craftsmanship, traditions and cultural heritage, was already a valid motivation for reshoring. However, with the arrival of the pandemic and disruptions in global supply chains, Italian companies saw the need not only to exploit Italian know-how, but also to bring it back to the country to avoid losing it permanently. The motivation *To increase sustainability* emerged as an important factor in reshoring decisions in the post-Covid period. The pandemic has created opportunities for a reconfiguration of production chains towards increased sustainability. This is in line with a study by Barber et al. (2021), which recognises the link between reshoring and sustainability. Companies are trying to improve their ecological footprint, reduce waste generation and improve working conditions through reshoring. Finally, a significant difference was observed in the motivation related to *Increased raw materials costs* between the pre-Covid and post-Covid periods. The pandemic caused imbalances between supply and demand, increasing raw material costs. This prompted many companies to consider reshoring as a solution to make global supply chains more efficient and better manage raw material costs.

From the empirical results we can deduce what are practical recommendations and guidelines for managers who are considering whether reshoring during extraordinary scenarios like the one presented by Covid-19 is profitable or not. From the analysis of the data, we know that the motivations for reshoring are multiple and all of them for different reasons are relevant and sufficient to justify such a strategy. However, empirical results show that some motivations, such as the desire to exploit the "made in Italy" effect and to

raise the quality of the products, appear to be more important and powerful than others. It is evident that value-driven motivations have gained even more relevance since the outbreak of Covid-19 than efficiency-driven motivations for the effectiveness of the former in tackling the crisis presented by the pandemic. More generally, many companies, regardless of their size and market share, found themselves in extreme difficulty as a result of the actions that were taken to address the health emergency represented by Covid-19, as they were forced to stop supply and production, hence reshoring seems to be a useful tool both to diversify supply and to sustain an economic recovery after the Covid-19 emergency has subsided. As a matter of fact, through reshoring, companies can leverage a better image of themselves to consumers, they can exploit the know-how represented by culture, traditions and heritage and they can have more rapid and direct control over the entire production chain, reducing costs of all kinds, both those related to logistics and control as well as those for the purchase of raw materials. Furthermore, the advantages of a local supply chain include the reduction of distances and consequently of time, an element that was severely challenged during Covid-19, and also offers the possibility to innovate deeply in order to have a more environmentally friendly footprint. Based on these considerations, Italian managers and decision-makers should seriously consider moving their manufacturing facilities back to Italy if the intent is to base their economic recovery from Covid-19 on factors such as consumer perceived quality and more resilient and environmentally friendly supply chain.

However, this work presents some limitations that could be the object for future research and supplementary studies. Firstly, the study is only based on cases presented by 95 Italian companies, which considerably reduces the sample on which the analysis can be carried out. In order to gain a more comprehensive understanding of the phenomenon, the tests could be applied on dissimilar industrial contexts belonging to different countries, in order to understand if the motivations behind reshoring choices differ depending on the country. By doing so, we could have evidence of drivers that are only relevant to certain countries, depending on their reliance on different sectors or industries. In addition, this research takes Covid-19 as a time discriminator and evaluates its effect on motivations for reshoring. Interesting would be to analyse whether this event was unique, or whether the same effects would be produced, or were produced, by external events of the same magnitude. Finally, it would be interesting to research through direct interviews whether, once the reshoring strategy was adopted and the relocation completed, the companies rated it as worthwhile and whether they experienced performance improvements in areas they would not have expected.

7. References

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