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Manufacturing reshoring and sustainable development goals: A home versus host country perspective

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Abstract

After decades of offshoring their manufacturing activities, an increasing number of companies are revising their location strategies and implementing reshoring decisions, including backshoring (relocation in the home country) and nearshoring (relocation in the home region) alternatives. It has been recognized that reshoring strategies are consistent with the sustainable production approach, since they allow companies to produce goods in a manner that is socially beneficial, economically viable, and environmentally less harmful over the whole life cycle of those goods. Additionally, there are early indications that reshoring can also promote and support sustainable consumption approaches. Consequently, reshoring has a wide range of impacts in both the home and the host countries, also in terms of the Sustainable Development Goals (SDGs). However, this topic has received little attention in the extant reshoring literature. This paper seeks to contribute to the discussion by adopting a two-step approach. Initially, we analyze the very few contributions available on this topic; then, we identify and discuss which of the 17 SDGs are impacted by reshoring decisions at both the home and the host country level. It emerges that reshoring decisions have several and differentiated impacts in terms of SDGs. In general, these impacts are positive for home countries and negative for host ones. For this reason, a trade-off emerges when a single relocation decision is taken and implemented. Based on this evidence, implications for scholars, managers and policy makers are presented and discussed.

KEYWORDS

back-shoring, home country, host country, nearshoring, reshoring, sustainability, sustainable development goals

1 | INTRODUCTION

One characteristic of recent decades is that firms have internationally spread their supply chains (SCs), making the production of many goods and services a global process. Since goods and services incorporate value added generated in a large set of countries, interdependencies among economic systems are quite strong. Consequently, an event in a single country (e.g., a natural disaster or socio-political issue) may heavily affect the others. The expansion of firms' SCs has generated the so-called Global Value Chains (GVCs), which are

considered to be synonymous with Global Supply Chains (Gereffi & Lee, 2012); for the remainder of this paper, we will adopt the term GVCs. Extended GVCs has been a defining characteristic of the global economic system for a considerable period. According to UNCTAD (2013), 60% of international trade in the previous years was due to GVCs and 28% of the exported value added was produced in a different country from the one that exported the output. It is significant to note that the weight of foreign-made value added in exports was high both in developed and developing economies (31% and 25%, respectively; UNCTAD, 2013). However, since 2009, GVCs have stagnated (and in some cases declined) settling to a total share of around 50% of world trade (World Bank, 2020).

An analysis of these data reveals that the evolution of GVCs did not just affect a group of countries, but the entire world economy. One remarkable impact of the organization of economic activities in GVCs is that some of the effects derived from production activities located in a specific country may have an impact not only on that country, but also on those where consumption takes place and, more generally, on the rest of the world. This is evident when considering the environmental impacts of GVCs. In this respect, numerous scholars point out that the offshoring and global sourcing decisions of firms have dramatically changed the geographical distribution of environmental impacts (e.g., Akyelken & Keller, 2014). This shift is occurring as several polluting industries are moving their production activities away from their Western home countries, looking for laxer environmental regulations (Ferdows, 2018; Sawhney & Rastogi, 2015). As a consequence, while the Western countries are increasingly enacting more stringent regulations in order to reduce their emissions, the global amount of CO_2 emissions has also been increased due to the offshoring phenomenon and the creation of longer SCs. For instance, using the data on trade in value added, Yamano and Guilhoto (2020) conclude that advanced (i.e., OECD) countries are net importers of goods whose CO_2 emissions were generated in non-advanced (i.e., non-OECD) nations, that is, GVCs serve as a channel to displace such emissions to countries other than those where consumption takes place. All of this has induced researchers to focus on how the configuration of GVCs affects sustainability (on this aspect, see a recent literature review by Koberg & Longoni, 2019). This also help managers to consider the carbon footprint and the social impact of their supply decisions (Christopher et al., 2011), and final customers to increase awareness of the environmental and social impacts of their consumption behavior (Sesini et al., 2020).

Within a similar scenario, the entire world has been heavily affected by the COVID-19 pandemic since the end of 2019. The pandemic has emerged as a "trigger" (Benstead et al., 2017; Boffelli & Johansson, 2020) that induced a rethinking of the GVCs paradigm and led manufacturing companies to redesign their supply production footprint (Barbieri, Boffelli, Elia, Fratocchi, & Kalchschmidt, 2020; Barbieri, Boffelli, Elia, Fratocchi, Kalchschmidt, & Samson, 2020). In this respect, UNCTAD (2020) proposed four alternative trajectories of post-pandemic international production reconfiguration: diversification, replication, reshoring, and regionalization. The latter two imply the shortening of GVCs, as well as the relocation of manufacturing activities, and align with both the "relocations of second degree" phenomena outlined by Barbieri et al. (2019), and the "reshoring" strategy described by Fratocchi et al. (2014). Both of these phenomena indicate the broad relocation of production activities that were previously offshored and, in relation to COVID-19, reshoring strategies have been identified as "pathways to business improvement and strength" (Pimenta et al., 2022; p. 654).

Focusing on the relocations strategies, activities may be relocated to the home country (backshoring, corresponding to the reshoring scenario by UNCTAD, 2020), the home macro-region (nearshoring, corresponding to the regionalization scenario by UNCTAD, 2020) or in a new third location far away from the home country/region (further offshoring). This paper focuses on the first alternative, that is, backshoring; however, our findings may be, at least partially, applied to nearshoring strategies when the third country shares the same characteristics as the home one, in terms of economic and social development (e.g., either a Spanish or an Italian company that relocates its manufacturing activities from China to France). Both back- and nearshoring decisions have been implemented by manufacturing firms since the 1980s but rapidly increased after the Global Financial Crisis in 2009 (see Eurofound, 2019; Kinkel, 2012). The phenomenon has attracted the attention of both researchers (Barbieri et al., 2018; Boffelli & Johansson, 2020) and policy makers (Elia et al., 2021; Pegoraro et al., 2022). The latter have mainly studied the motivations (Barbieri et al., 2018; Fratocchi et al., 2016), while recent contributions have also focused on barriers and enabling factors (Engström, Hilletofth, et al., 2018; Engström, Sollander, et al., 2018). Also, policy makers have developed specific industrial policies to support the relocation of manufacturing activities to the home country and, in the case of Japan, also in the home region (Elia et al., 2021).

The existing literature on reshoring has, until now, paid little attention to the impact of such strategies on the countries involved, even if it has been recognized that reshoring may "contribute to sustainable supply chains", such as the reduction of greenhouse gases through the shorter transport distances (Nandi et al., 2021, p. 13). Moreover, the few studies that analyze the impacts of reshoring decisions only refer to the employment-related impacts. More specifically, there are two studies that examine the impact on employment (Fuster et al., 2020) and on wages (Krenz et al., 2021) in home countries, and one study by Faber (2020) that focuses on the impact on employment in the host country. However, there are still very few analyses focused on the impacts (if any) of reshoring on Sustainable Development Goals (SDGs). SDGs are, as is known, a set of goals, targets and indicators that United Nations (UN) members should apply when defining their policies by 2030. Such elements were developed to balance social, economic and environmental sustainability. Moreover, they are "designed to end poverty, hunger, AIDS, and discrimination against women and girls" (https://www.undp.org/eurasia/sdgs). The Agenda for Sustainable Development "encourage(s) companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle" (UN General Assembly, 2015 §12.6). Moreover, some initiatives (such as the design and calculation of the SDGs Business Index) specifically focus on a firm's contribution to the achievement of the 17 SDGs.

Considering the limited attention given to the impacts of reshoring on SDGs in the existing literature, the main objective of this paper is to examine whether reshoring has any impact, be it positive or negative, on the achievement of SDGs. Consequently, our research questions are as follows: Does reshoring affect, and how, the SDGs' achievements? And if so in what way? More specifically, we focus on reshoring strategies where developing economies are host countries and developed economies are home countries. Our proposal is consistent with Bondy and Starkey (2014) who, when analyzing corporate social responsibility (CSR) within multinational companies, found that "integrated internationalization strategies do not resolve global and local CSR issues. In fact, they reinforce outcomes similar to global strategies, where core issues identified by headquarters are legitimated and local issues are marginalized, an outcome that appears somewhat at odds with the spirit of local responsiveness embedded in CSR thinking" (Bondy & Starkey, 2014, p. 4).

Accordingly, the rest of the paper is organized as follows: in the next section, we briefly analyze the state of the art of reshoring and SDGs. After this, we discuss the impacts of reshoring on the specific SDGs, assuming both the host and the home country perspectives. Based on such findings, in Section 4, we discuss the implications of these results on the reshoring decision-making process. Finally, the last section concludes and offers some future research avenues.

2 | RESHORING AND SDGs: A STATE OF THE ART

In order to reach the earlier presented research aim, a two steps approach was implemented. We initially conducted a literature review in order to analyze the state of the art regarding the interdependences (if any) between reshoring strategies and SDGs. After this, we checked the possible impacts of reshoring decisions on each of the 17 goals, assuming both the home and host country perspective. While conducting such analysis, we took into account the extant literature on the back-shoring phenomenon (for an updated review see Barbieri et al., 2018; Merino et al., 2021) and the impact of Foreign Direct Investments on the host country.

The relationship between SDGs and reshoring strategies has rarely attracted the attention of scholars. A search on the Elsevier Scopus dataset conducted in June 2023 allowed us to find only three documents, all of which were published in 2022. This finding is not totally unexpected since a previous structured review on interdependences between reshoring and the more general concept of economic, social and environmental sustainability showed very few authors addressed such a topic. For instance, Fratocchi and Di Stefano (2019a) conducted a two-steps analysis to verify the role (if any) of sustainability in the reshoring decision-making and implementation process (Boffelli et al., 2020; Boffelli & Johansson, 2020). First, Fratocchi and Di Stefano (2019a) analyzed the extant literature on manufacturing reshoring, finding 28 Scopus indexed journal articles in which the environmental sustainability issue emerged as a reshoring driver (25 out of 28), a barrier/enabling factor to reshoring implementation (8) or an outcome (7). Then, they also verified that sustainability was explicitly cited as a driver by some of the reshoring companies included in the UnivAQ Manufacturing Reshoring Dataset[1]; based on these data, they found that the reduction of the firm's carbon footprint has been cited as a reshoring motivation since 2015. Companies citing sustainability issues as a reshoring driver are generally large, operate in the leather (NACE code 15) and machinery (NACE code 28) sectors, and have reshored from China and other Asian countries. More recently, Choudhary et al. (2022) found that, in the specific case of Apple and Jaguar suppliers' networks, the decision to reshore from direct foreign suppliers to direct domestic suppliers does not increase the overall sustainability of the SC network when it is verified in terms of environmental, social, and governance (ESG) indicators. However, authors have concluded that "sustainable supplier selection and reshoring strategy can and should be pursued mutually" (Choudhary et al., 2022, §14). This confirms the suggestion by Orzes and Sarkis (2019) of the need for specific systematic investigations on such a relationship. This request is becoming more and more relevant after the COVID-19 pandemic since sustainability was identified as one of the mega-trends boosting a reconfiguration of GVCs, also for adopting reshoring strategies (Barbieri, Boffelli, Elia, Fratocchi, & Kalchschmidt, 2020; UNCTAD, 2020).

Two of three articles specifically referring to the relationships between SDGs and the reshoring phenomenon were published in a special issue of the *British Journal of Management*, which explicitly focused on the relationship between reshoring and SDGs. Both articles are focused on the customers' perspective, which was earlier investigated only by Grappi et al. (2018, 2020). A first contribution by Gillani et al. (2022) investigates the relationship between the firm's reshoring strategy and the three dimensions of sustainability (economic, environmental, and social). Based on a qualitative research conducted through in-depth interviews with British customers, the authors found three different perspectives they may assume, namely: (a) "support reshoring conditionally", "inclusive reshoring" and "doubting reshoring". Given the specific aims of our paper, it is worth noting that customers adopting the "inclusive reshoring" perspective consider reshoring impacts in terms of sustainability at both the home, and the host country. These findings suggest that reshoring strategies not only influence sustainable production but also have implications for sustainable consumption.

At the same time, Foroudi et al. (2022) focus their attention on understanding how customers perceive SDGs-related activities implemented by reshoring companies. In this respect, they note that, after the Covid-19 pandemic, such companies are focusing more on economic, environmental, and social dimensions of SDGs. In so doing, they often experience difficulties since such goals were designed for country-level targets, therefore they are somewhat difficult to apply within a firm's strategy. Based on collected evidence, the authors suggest that companies may embrace SDGs in their reshoring strategies following three pathways: (a) contributing to society wellbeing;

[1]This dataset contains more than 1400 evidences from companies, including earlier data from the Uni-CLUB MoRe reshoring dataset (Ancarani et al., 2015, 2019; Ancarani & Di Mauro, 2018; Fratocchi, 2018; Fratocchi et al., 2015, 2016; Wan et al., 2019) and the European Reshoring Monitor (Barbieri et al., 2020a; Eurofound, 2019).

(b) creating new job opportunities—especially for the minorities—and improving work conditions; and (c) adopting a sustainable production approach—including circular economy ones to reduce the resource consumption—and boosting sustainable consumption though their external marketing communication. It is worth noting that Foroudi et al. (2022), differently from Gillani et al. (2022), only consider the home country perspective.

Finally, Ali et al. (2022), focus their attention on minerals (e.g., lithium, cobalt) that are required to develop infrastructures supporting the decarbonization process (e.g., batteries, solar panels). The authors suggest that Western countries should not completely decouple from countries such as China and Russia for the upstream, midstream, and downstream activities included in the mineral SC. On the contrary, they should combine multilateral treaties with such countries with the implementation of back- and near-shoring strategies. The latter ones should "a) promote diversification […]; b) influence standards [including the ones related to job conditions]; c) invest in infrastructure desperately needed for the circular economy" (Ali et al., 2022, p. 15287).

3 | IMPACTS OF BACKSHORING STRATEGIES ON SDGs IN HOME AND HOST COUNTRIES

Backshoring decisions may have different (and even opposite) impacts on the host and the home involved countries. Based on the extant literature on backshoring strategies, in the following subsections we identify and discuss the (either positive or negative) impacts on specific SDGs for both the home and the host country.

3.1 | The host country perspective

Manufacturing offshoring has been defined as the relocation of production activities abroad and has been a common practice among firms since the 1980s (Schmeisser, 2013). Offshoring can be implemented through contracts with foreign third parties (offshore outsourcing) and/or by the establishment of productive facilities in foreign countries (captive offshoring). The geographical distribution of production activities has led to the generation of GVCs which have several effects on both the firm's home country and the host countries where manufacturing activities are widespread. More specifically, home countries lose their production capacity, focusing on higher value activities (e.g., R&D) according to the so-called 'smiling curve' (Mudambi, 2008). Meanwhile, production is transferred to host countries where production costs (mainly labor) are lower and/or regulations (especially environmental and labor) are less constraining (Mihalache et al., 2012). Therefore, offshoring strategies allow host countries to obtain new production capacity, create new jobs, and exploit the advantages of production and managerial technologies.

In terms of SDGs, the incorporation of developing countries into the GVCs has often boosted economic development and poverty reduction (SDGs 1–3; Taglioni & Winkler, 2016). However, different paths have been identified in the existing literature (Carballa Smichowski et al., 2021), which has found that the magnitude of the benefits differs depending on the context in which the GVCs are developed, particularly with respect to the firms' ownership within the GVC. Thus, while Asian State-owned firms become national champions, in Latin America private companies do not provide benefits for the host country (Dünhaupt & Herr, 2021; Ravenhill, 2014). Additionally, offshoring strategies implemented by firms located in developed countries allow the creation of new jobs (SDG 8), often also for women due to their specific skills which are needed for production activities (SDG 5). They also encourage educational policies (SDG 4; Ibarra-Olivo, 2021; Moazzem & Radia, 2018; Solotaroff et al., 2019). It has been acknowledged that multinationals often implement more gender-oriented policies when operating abroad (Barrientos, 2019; Monge-González et al., 2021; Neumayer & de Soysa, 2011). Finally, especially in the case of captive offshoring decisions, host countries may increase their stock of capital and benefit from proprietary technology transfer (SDG 9; Chen et al., 2012). Although all these effects are inherent in the activities of multinationals, the size of the effects differs across firms. Furthermore, the culture and values of the multinational's home country appear to be a decisive factor, as customers (or other stakeholders) may compel companies to take specific actions in the foreign countries where they operate (Vachon, 2010).

However, offshoring strategies in developing host countries can also have negative effects, often depending on the qualifications of the required workers. More specifically, Ibarra-Olivo (2021) points out that, when low-skilled jobs are offered and coupled with wages perceived as high for the local economic conditions, people may be tempted to interrupt their education (with a negative impact on SDG 4). In contrast, the presence of multinational subsidiaries operating in high-tech industries may offer an incentive to improve the local educational policies due to the requirement for higher labor skills and the possibility of allowing further technology transfers from the headquarters. Moreover, offshored production activities may place additional pressure on natural resources (SDGs 12–15). This is critical in the case of developing countries due to their lack of technical and human skills to handle extra pressure (Wang et al., 2021). Multinationals often locate production activities in developing countries due to their more relaxed legislation in terms of social and environmental issues (the so-called Pollution Haven Hypothesis). This sometimes causes disasters, as in the case of the textile factories affected by the Rana Plaza building collapse in Bangladesh (Oka et al., 2020) or the oil spill caused by Shell's extraction activities in the Nigerian region populated by the Ogoni community (Boele et al., 2001; Wheeler et al., 2001). In this respect, it is worth noting that public opinion generally became aware of the social and environmental consequences of offshored production only following such disasters, even though a growing awareness about such issues is now emerging among institutions and companies. For instance, the UN Alliance for Sustainable Fashion was established within the clothing, leather, and footwear industries with the objective of contributing to the SDGs through coordinated action in the fashion sector (www.unfashionalliance.org). At the same time, some

fashion companies promoted The Fashion Pact (www.thefashionpact.org) in order to stop climate change, promote biodiversity and protect oceans.

When companies backshore their production activity, initially, the relocation generally implies a reduction of production capacity in the host country. However, it must be pointed out that backshoring decisions are often taken using a 'slicing approach', relocating only some of the product lines and/or production phases to the home country (Baraldi et al., 2018). In such cases, the negative impacts (in terms of SDGs) of the relocation strategies will happen more smoothly, making room for some counteracting policies. Moreover, it may also be the case that production activities located abroad are maintained to serve the local foreign market/region; however, this is more likely to occur when host developing countries offer relevant market opportunities, as in the case of China.

The partial/total reduction of production activities in host developing countries has several negative impacts in terms of economic and social sustainability: people lose their jobs and local suppliers lose some of their customers, while local governments obtain lower tax revenues. Job losses affect mainly lower-skilled workers (Faber, 2020) and, beyond the purely economic impact of job losses, other benefits disappear: multinational firms often implement better labor conditions and pay more attention to workers' training and women's participation (Monge-González et al., 2021; Neumayer & de Soysa, 2011). In this respect, it is worth referring to agreements such as the Action Collaboration and Transformation Initiative (https://actonlivingwages.com/)—developed by the largest firms operating in the textile and garment industry—and the Decent Work for Sustainable Development (DW4SD)—promoted by the International Labor Organization. Finally, the decrease in the technology transfer to the host countries is another relevant consequence of the reshoring decision, with the consequent reduction of the host country's participation in GVCs (Iberahim, 2013; Macchiavello & Miquel-Florensa, 2019; Sampson, 2016).

In contrast, backshoring strategies may have positive effects in terms of environmental issues, since the majority of CO_2 emissions in developing countries are derived from production activities connected to goods to be consumed in advanced countries (Yamano & Guilhoto, 2020). To sum up, the reshoring phenomenon seems to have negative impacts on developing countries when considering SDGs more related to economic and social issues (SDGs 1, 4, 5, 8, 9), but has a positive impact in terms of environmental issues (SDGs 12, 13, 15).

3.2 | The home country perspective

The effects of offshoring processes in home countries have been widely analyzed in the economic literature, with positive results on the competitiveness, productivity and exports of companies (Bogliano et al., 2018; Chiappini, 2012; Fuster & Martínez-Mora, 2012; Gandoy et al., 2018; Lampón & González-Benito, 2019; Lo Turco & Maggioni, 2013; Martínez-Mora & Merino, 2017; Moser et al., 2015; Stentoft et al., 2018; Wagner, 2011). The offshoring processes lead to a reduction in certain production capacities related to low-skilled jobs, which are transferred to host countries where there are cost advantages for this type of work. However, locating these value chain phases in countries with significant comparative advantages enables companies to enhance their competitiveness, expand exports, and foster growth. Moreover, it increases the productivity in the remaining phases of the production process in the home country, and stimulates the investments in innovation and technological development, and ultimately results in higher-quality and higher-value products (Ghosh, 2018; Koch et al., 2021). These outcomes have the potential to generate positive effects on economic growth and greater possibilities of investment in innovation and technological development in home countries (SDGs 8, 9).

The negative effects of offshoring in home countries are mainly related to low-skilled workers. However, these negative impacts are expected to be temporary and offset by long-term positive effects on firm competitiveness. Such long-term positive effects should lead to increases in production and sales, and therefore also in the employment ratio (Blinder, 2006; Grossman & Rossi-Hansberg, 2006; Helpman, 2011; Olsen, 2006). The conceptual analysis does not determine the final net effect of offshoring processes on employment in home countries, as it predicts short-term negative effects and long-term positive effects. However, abundant empirical evidence concludes that the net impacts on employment are null in some cases and, when negative, they exhibit very small magnitudes (Agnese, 2012; Amiti et al., 2005; Fuster et al., 2019; Hijzen et al., 2007; Liu & Trefler, 2008; Michel & Rycx, 2012; Winkler, 2010). While empirical evidence has not detected significant net negative effects on employment, it is important to consider the disaggregated impacts by job type, as these results have implications for the SDGs. Offshoring processes in home countries have negative impacts on unskilled jobs and positive impacts on highly skilled jobs (Crinò, 2010; Ornaghi et al., 2017; Wright, 2014). This situation hinders the objectives of reducing inequalities (SDG 11) and promoting gender equality (SDG 5), as a significant percentage of women traditionally occupy these types of employment.

Moreover, the impact of reshoring on SDGs' attainment is not limited to the question of job or economic activity that takes place in each country. For instance, the economic benefits of manufacturing backshoring strategies for the home country go beyond the increase in the local GDP and may also determine an increase in productivity and innovation technology due to proximity between the firm's R&D, development, and manufacturing departments (SDGs 8, 9). However, the relocation of manufacturing activities to the home country may have an even more relevant impact in terms of environmental sustainability (SDG 13). More specifically, five issues seem the most relevant to analyze the impacts that reshoring decisions may have in terms of environmental sustainability:

a. Reduction of CO_2 emissions related to lower transport usage and a less polluting "power mix" in the home country;
b. Reduction of overproduction and waste;
c. Implementation of circular economy projects;

d. Adoption of more innovative and cleaner production technologies;
e. Enhancement of the cohesion between the strategic aims and the operational policies of firms.

Regarding the reduction of CO_2 emissions, Andersen et al. (2010) state "shifts in production from industrialized countries to emerging economies have been going along with shifts in emissions between nations and an overall increase in emissions per unit of production" (p. 5797). These shifts are mainly due to transport usage and differences in the power mix between the home and host countries. While considering the first issue (transportation), specific attention should be paid to the final destination of the goods manufactured abroad and to the driver(s) of previous offshoring decisions. In this respect, it is useful to refer to the Dunning (1993, 1998) eclectic paradigm which identifies four different location advantages for Foreign Direct Investments. In all cases, except for marketing seeking, goods produced offshore are re-imported into the companies' home countries and/or regions, increasing both logistics costs and environmental pollution. Furthermore, raw materials and/or components are often transferred from the home country/region to the offshore production plant. For instance, Italian shoemakers in the medium-high segment prefer to supply foreign plants/contractors with leathers tanned in the home country, since this raw material has a high impact on the final product's quality (Di Mauro et al., 2018). This element further increases both the logistics costs and the negative environmental effects in terms of CO_2 emissions; while the former are often balanced by lower production costs offshore, the latter have a dramatic negative impact at a worldwide level. Therefore, if the final destination of goods manufactured offshore is the home country/region, back- and nearshoring decisions may have a positive impact in terms of environmental sustainability, not only for the single country/region but for the entire world. In this respect, Andersen et al. (2010) estimate the amount of emissions associated with the transport of goods exported by China minus those imported by China at 110 Mt CO_2 (values for 2007). In the same vein, we refer to a very recent study (Fernández-Miguel et al., 2022) on the analysis of the consequences of the necessary suppliers' shift Italian tiles companies had to face on one of the key inputs (plastic clay) that came from Ukraine. As a consequence of the war, those suppliers are no longer available, and firms have had to find alternatives. The technical analysis shows how the new supplies imply a notable decrease in the CO_2 emissions.

Another contribution of reshoring strategies to the reduction of CO_2 is related to the different power mix adopted in the home and host country. According to the Climate Watch by the World Resources Institute, energy production accounts for around 75% of global greenhouse gas emissions. However, the power mix is quite different among countries; for instance, while 16.5% of the EU's per capita energy is sourced by renewables, 12.7% corresponds to renewables in China and 7.8% in India (data from BP Statistical Review of World Energy). At the same time, while the EU has 282 g CO_2/KWh, China has 623 and India 740 (2017 data from World Bank). Within Europe, France has an even lower content of carbon (47 g CO_2/kWh); therefore, reshoring decisions implemented by French companies have relevant savings in CO_2 emissions. For instance, the 12 m shopping bags and canvas tote bags relocated by Les Tissages de Charlieu from Asia allow the company to save 48,000 CO_2 emissions per year, or 3.8 kg per bag.[2]

A second contribution of back- and nearshoring decisions in terms of environmental sustainability is related to the possibility of reducing overproduction and waste (SDG 12). In this respect, Carbone and Moatti (2021) point out: "given tension between shorter lead times and the consolidation of production volumes in a limited number of countries, it is difficult to produce and ship the exact amount of goods that will be purchased" (p. 5). Therefore, especially in the garment and printing industries, manufacturers often decide to overproduce to reduce the risk of a stock-out. This, in turn, generates massive amounts of unsold inventory at the end of the season which may even rise to 60% of total production after the sale season. Finally, these unsold goods are often destroyed, especially in the fast fashion industry; in this respect, Hasan (2018) provides evidence that 85% of United States clothing is disposed of in landfill, without any recycling activity. The aforementioned practices highly improve the environmental footprint of the fashion industry which accounts for around 4% of total greenhouse gas emissions (McKinsey and Company and Global Fashion Agenda, 2020). Relocation to the home country may also allow companies to implement an on-demand strategy, as in the case of the Swedish company Fugeetex (formerly known as Diemonde) which initially nearshored from China to Portugal in 2017 and then backshored to Sweden in 2018. The company's founder stated that this two-step decision was mainly implemented "to find a more resource-efficient production model with minimal waste that counteracts overproduction and reduces our environmental footprint."[3] This case study shares several common features with the one described by Ashby (2016) focused on a U.K. company operating in the fashion industry through a surfing lifestyle brand. The entrepreneur implemented a 10-year strategy to create a totally British SC; during this period, several decisions were made to near- and backshore from China, Australia, Japan, Italy, and Portugal. Evidence such as that discussed earlier induced some authors to suggest that the increasing attention to environmental issues in the fashion industry might persuade such companies to back- and/or nearshore production activities (Abbasi, 2016; Fratocchi & Di Stefano, 2019a; Hasan, 2018; Uluskan et al., 2017).

A third relevant impact of back- and nearshoring strategies on environmental sustainability emerges from the possibility of implementing circular economy projects which create secondary raw materials, that is, recycled materials that can be used in manufacturing processes instead of, or alongside, virgin raw materials (De Angelis, 2021; Tsolakis et al., 2019). This issue is becoming increasingly relevant due to the widespread scarcity of certain raw materials and the growing dependency of the United States and EU on China and other foreign countries, especially in the case of critical

[2]Les Tissages de Charlieu lancent un projet de relocalisation de la production de sacs dans la Loire – Actualité: industrie (#1260239; fashionnetwork.com).
[3]https://www.vogue.com/article/angelo-da-silveira-diemonde-and-fugeetex-founder-stockholm

and rare earth materials heavily used in the electronics industry (Ali et al., 2022). As pointed out by Mhatre et al. (2021), a gradual transition to the circular economy is occurring within the EU; however, several barriers are still present. These include the specific role played by national legislations; for instance, Carbone and Moatti (2021) point out that "the law on circular economy in France has not really provided an ambitious industry policy to accompany these projects" (p. 7). At the same time, countries such as Italy still lack clear End-of-Waste Criteria legislation that would help establish a market for a wide range of secondary raw materials.[4] In this scenario, national legislation may also emerge as a barrier to the firm's decision to backshore production activities, as in the case of Van Merksteijn, a Dutch company which manufactures reinforced steel and fencing. At the end of 2017, it announced the opening of a new plant to produce wire rod from scrap instead of importing it from Turkey.[5] The new factory would have ensured both the stability of supply for the company's other plants and the creation of about 300 jobs. However, in August 2020, the project was blocked mainly by legal constraints and uncertainty with respect to the CO_2 legislation at both a national and EU level.

It must be recognized that environmental legislation may also act as a trigger factor (Benstead et al., 2017; Boffelli & Johansson, 2020) for reshoring decisions. This is the case of TES Scandinavia, a Swedish company producing air conditioners, air cleaners and dehumidifiers. The company had been importing some of its products from a Canadian contractor for a long time. After the EU decision to impose by 2020, the exclusive use of environmentally friendly gas for air treatment appliances, the contractor did not accept the need to develop a new eco-friendly product line, since the existing one could still be sold in the rest of the world. Therefore, TES decided to internally develop the new product by cooperating with local partners in product development, design, and production. Currently, around 90% of the total supplies for the new product come from Sweden and the production and assembly phases are entirely carried out in the country, thanks to the large use of production automation systems (Fratocchi & Di Stefano, 2019a).

A fourth benefit obtained when companies backshore to industrialized countries is the adoption of production processes that are more innovative than those implemented in the host country (Chudnovsky & Lopez, 2003; Luthra et al., 2021; Martínez-Mora & Merino, 2020; SDG 9). This is partially explained by the availability in the home country of a better trained workforce and skilled technicians for supporting production activities, such as machine tooling and maintenance (SDG 4). In this respect, of special note is the adoption of technologies enabling the Industry 4.0 phenomenon (Birkel & Müller, 2021; Niaki et al., 2019) which may help support the relocation of manufacturing activities to the home country (Ancarani et al., 2019; Ancarani et al., 2021; Ancarani & Di Mauro, 2018; Dachs et al., 2019; Fratocchi & Di Stefano, 2020; Unterberger & Müller, 2021). However, the adoption of more innovative technologies (including those enabling Industry 4.0) may have negative impacts in terms of inequalities (SDG 10) in both the home and host country. In the home country, such an adoption may widen the inequality (in terms of wage levels) between high-skilled and low-skilled workers, since the former are more likely to be employed for their competences (Krenz et al., 2021). In contrast, when considering the host countries, the adoption of such technologies is likely to increase the gap between developed and developing economies in terms of human capital stock (Bonekamp & Sure, 2015). Production technologies adopted in the home country are often also cleaner, due to more stringent environmental legislations, coupled with higher standards for working conditions (SDGs 8, 12).[6] In this respect, particularly interesting is the case of the jeans dyeing process. Traditionally, this production phase (generally offshored in Southeast Asian countries) requires a large amount of water and chemicals, often harmful to employees' health. However, when the Spanish firm Jeanologia developed innovative equipment based on laser technology, companies such as Levi backshored this production phase, thus reducing the environmental impact of their products (Martínez-Mora & Merino, 2020). Finally, technologies enabling Industry 4.0 may have a beneficial environmental impact, since they improve material usage and allow energy savings (Bonilla et al., 2018; de Sousa et al., 2018).

Finally, back- and nearshoring strategies implemented by manufacturing companies may improve the cohesion between their strategic aims and the operational policies actually implemented. In this respect, Moradlou et al. (2022) illustrate the case of a British company producing eco-friendly household products. It was "born offshored," that is, production activities were located in Southeast Asia since the firm's establishment in 2008; however, in 2011, the co-founder and managing director said "we are an eco-friendly company and it just didn't feel right to source things half way around the world… just didn't make sense" (Moradlou et al., 2022, p. 7). A similar path characterized the location decisions implemented by the U.S. company Beyond Green, which produces compostable plastic bags. This company was also "born offshored" in 2016 since the CEO, Mr. Veejay Patel, came from India and here he developed his previous work experience in the business. However, in 2019, the family firm owners decided to backshore production of biodegradable bags from India to the United States after deciding that "cost aside, their shipping method [to supply from India] wasn't environmentally friendly enough for a company whose mission is to be green."[7]

The analysis presented from both the host and home country perspectives, clearly shows that reshoring decisions have several and differentiated impacts in terms of sustainable production and, more generally, on SDGs. A trade-off emerges when a single relocation decision is taken and implemented; while host countries lose the possibility to fulfill some SDGs (especially those more related to social

[4] www.interregeurope.eu/condereff/news/news-article/10410/discussion-on-the-end-of-waste-and-by-products/

[5] Waarom in China produceren als het hier ook kan? – RTV Noord.

[6] However, it must be recognized that, in some cases the relocation to the home country of formerly offshored manufacturing activities has induced companies to implement informal employment and informal subcontracting practices, such as in the case of the U.K. fast fashion industry (Hammer & Plugor, 2016).

[7] https://eu.app.com/story/money/business/2019/07/15/small-businesses-find-overseas-factories-lead-colossal-headaches/1699185001/

TABLE 1 Summary of the observed impacts of reshoring on the achievement of SDGs.

SDGs	On host-country (developing/less advanced)	On home-country (developed/ advanced)
(1) No poverty	Negative	
(4) Quality education	Negative	
(5) Gender equality	Negative	
(8) Decent work and economic growth	Negative	Positive
(9) Industry, innovation, and infrastructure	Negative	Positive
(10) Reduced inequality	Negative	Negative
(12) Responsible consumption and production	Positive	Positive
(13) Climate action	Positive	Positive
(15) Life on land	Positive	Positive

Source: Authors' elaboration.

and economic issues, i.e., 1, 4, 5, 8, 9), the entire world may obtain huge benefits in terms of environmental sustainability (SDGs 12, 13, 15), although the impact differs between the home and host countries, as discussed throughout the two previous sections. The results are summarized in Table 1.

It is interesting to note such contrasting results are consistent with the recent findings collected by Gillani et al. (2022) analyzing the British consumers' perspectives on reshoring to the home country.

4 | IMPLICATIONS FOR THE RESHORING DECISION-MAKING PROCESS

From a firm-based perspective, it has been widely recognized that companies (especially multinationals) are part of the sustainable development problem and should be part of the solution (Kolk & van Tulder, 2010). In this respect, the United Nations considers that the role of companies is a key element in achieving SDGs (see the UN General Assembly, (2015), p. 67) and firms may find profitable business opportunities in contributing to their achievement (Han, 2020). As pointed out by Trollman and Colwill (2021), there are significant barriers for firms to transition toward more environmentally sensitive activities, some of which may be inherent in the current economic model. Therefore, it is necessary to gain a better understanding of the actual impact of firms' decisions in order to encourage them to consider all the consequences of their actions in their decision-making processes. Our results have stated that reshoring has clear consequences for the achievement of SDGs of both the home and host countries where the firm operates; thus, a careful evaluation of the impact of reshoring decisions on the SDGs must be included in a firm's decision-making process. As has been shown, the consequences go beyond the positive impacts that reshoring may have on final customers (Foroudi et al., 2022; Gillani et al., 2022), However, the extant reshoring literature pays little attention to the reshoring decision-making process, and only seven articles specifically address this topic (Bals et al., 2016; Benstead et al., 2017; Boffelli et al., 2018, 2020; Boffelli & Johansson, 2020; Gray et al., 2017; Oshri et al., 2019). Among them, the proposal by Bals et al. (2016) is the only one based on a literature review, whereas the others are also practically validated using case studies (Benstead et al., 2017; Boffelli et al., 2018, 2020; Boffelli & Johansson, 2020; Gray et al., 2017; Joubioux & Vanpoucke, 2016) or surveys (Oshri et al., 2019; Schmidt et al., 2017). Finally, while Gray et al. (2017) specifically address small and medium-sized enterprises, the others are more general.

To discuss how SDGs' issues may be included by managers in their reshoring decision-making process, we can use as a reference the findings of Boffelli and Johansson (2020) as these are the most comprehensive and detailed among the sampled models proposed by the extant reshoring literature. We focus on the decision-making phase in order to identify which elements should specifically be addressed by managers when evaluating the impact of reshoring strategies on the SDGs in home and host countries. Within the decision-making phase, Boffelli and Johansson (2020) point out the relevance of the risk assessment phase, which is consistent with Christopher et al. (2011). When performing this assessment, managers aiming to include the impacts on SDGs in the evaluation should pay attention to the three levels of analysis included in Boffelli and Johansson's (2020) model: namely, the "offshore external factors," the "domestic external factors" and the "global factors." While the first two refer to issues such as the host and home countries' industrial landscape and regulations, the third concerns global industrial trends and events. In this respect, we propose the extension of these definitions, specifically including the evaluation of the risks in terms of SDGs, respectively at the host country ("offshore external factors"), the home country ("domestic external factors") and the worldwide level ("global factors"). Within these three levels, following Fratocchi and Di Stefano (2019a), we suggest that managers focus on two main contents, namely drivers and barriers.

When considering the drivers, Engström, Sollander, et al. (2018) point out "with stakeholders becoming more concerned with sustainability, it is evident that the lenient environmental, social and economic regulations in low-cost countries have in the eyes of companies changed from an advantage to a risk". Regarding barriers, Engström, Sollander, et al. (2018) refer to the case of a Swedish company in the fixing products industry which decided to specifically evaluate the impact of its reshoring decisions on the host country labor market after experiencing sabotage during previous reshoring decisions. At the same time, Engström, Hilletofth, et al. (2018) refer to the case of the family owner of a Swedish furniture company, who delayed the backshoring decision several times to protect the host country staff from unemployment.

The inclusion of the driver and barrier perspectives related to "offshore external factors," "domestic external factors" and "global factors" within the reshoring decision-making process would enrich the top management's risk assessment, together with the inclusion of

the perspective in terms of SDGs. The adoption of the proposed approach also allows the reshoring company to improve its performance in terms of CSR, which has gained a growing impact on customer perception in recent years. The model allows top managers to follow a "right-shoring" approach (Hilletofth et al., 2019; Tate & Bals, 2017), that is, to make correct and resilient manufacturing location decisions which "do not favor any particular type of relocation and instead take a holistic view and focus on how to balance global and local supply chains" (Hilletofth et al., 2019, p. 2). Also, the proposed approach allows companies to better integrate CSR core issues identified by the headquarters and local ones at the host country level (Bondy & Starkey, 2014).

5 | CONCLUSIONS

The aim of this paper is to shed new light on the consequences of reshoring, going beyond the internal (firm's) to the external (societal) area, focusing specifically on the SDGs that countries are adopting. Based on the analysis of the extant literature on offshoring and reshoring phenomena, it has been shown that reshoring decisions have several and differentiated impacts in terms of SDGs. While they seem to have negative social and economic impacts on the host country's SDGs level (especially in developing countries), they generally promote beneficial environmental effects which are widespread on a global level. The decision-makers of companies need to consider this trade-off when evaluating relocation strategies, since firms incorporate the external consequences in their decisions and do not only focus on internal aspects. We suggest introducing the evaluation of SDGs within the risk assessment phase of the reshoring decision-making process, as proposed by Boffelli and Johansson (2020). We also recommend that this approach is adopted in any industry and not only by companies under high social scrutiny and with stakeholders concerned about ethical and environmental issues (Martínez-Ferrero & García-Meca, 2020). Finally, initiatives focused on (re)location strategies and SDGs should also be managed through collaboration between companies, as in the case of the Action Collaboration and Transformation Initiative developed by the largest firms operating in the textile and garment industry.

Given the aforementioned trade-off, the impact of reshoring strategies in terms of SDGs in the home and host country is not only an issue for manufacturing companies; it calls for interventions by policy makers at the national and supra-national levels (e.g., UN, G20). In this respect, the time has come to promote regulations in terms of social and environmental issues which prevent companies from taking advantage of arbitrage opportunities due to local legislation. In this respect, initiatives such as the UN Alliance for Sustainable Fashion (Home—The UN Alliance for Sustainable Fashion [unfashionalliance.org]) and the Decent Work for Sustainable Development (Decent work for sustainable development [ilo.org]) represent useful references with respect to social sustainability. At a national level, it is worth referring to the "Federal Act on Corporate Due Diligence to Prevent Human Rights Violations in Supply Chains" recently approved by the German Bundestag. As is known, this Act holds companies liable for the conditions at their global suppliers (The German Supply Chain Act was approved by parliament—a legislation in a nutshell | Rödl & Partner [roedl.com]). At the same time, the recent decision of the European Union to establish a Carbon Border Adjustment Mechanism—which imposes a duty on imports based on the carbon emitted during the production of carbon-intensive goods—is a worthy example of the environmental sustainability issues. As stated by the EU officials, the mechanism aims "to encourage cleaner industrial production in non-EU countries" (Carbon Border Adjustment Mechanism (europa.eu).

Our study offers a conceptual base for further research on the topic; future studies should primarily investigate empirical evidence at the firm's level, through longitudinal case studies related to different industries and host countries. A first set of research questions refer to contingencies characterizing the internal (firm) and external (home and host country) level. At a company level, it would be useful to verify whether the reshoring decision-making and implementation process is affected by the adoption of one or more of the following sustainability-related initiatives by the reshoring firm:

a. Adoption of voluntary international standards (e.g., carbon footprint, OHSAS);
b. Formal adoption of sustainability-strategic goals by top management;
c. Suppliers' selection policies including sustainability-based criteria;
d. Collaboration with non-government organizations on sustainability projects;
e. Implementation of product/process eco-innovations before and/or after the reshoring decision;
f. Implementation of life cycle assessment for the firm's production portfolio.

Moreover, it would be necessary to verify whether reshoring companies implement compensatory policies in the former host country when adopting the relocation decision. For instance, they could maintain the supplier's base abroad or support entrepreneurial initiatives in the former facilities. Finally, the possible different impact of industries and the reshoring magnitude (selective vs. total relocation) should be investigated. At the external level, the impact (if any) on the reshoring decision should be analyzed considering differences between the home and host country in terms of SDGs-related social and economic conditions. In the case of compensatory policies, it could be expected that the larger the negative effects expected by the reshoring decision on the host country (e.g., the low-income ones), the more likely it is that such policies are adopted. Further analysis should be then conducted, considering gaps between the environmental and social legislation in the home and host country. Also, the role of customers (Grappi et al., 2015) warrants a more in-depth research, especially in industries such as fashion (Fratocchi & Di Stefano, 2019b). In this respect, studies such as the one by Gillani et al. (2022) should be replicated in other countries and for a differentiated set of industrial and consumer markets, in order to have a

better understanding of the impact of reshoring on sustainable consumption.

From a distinct perspective, we could say that the impact of firms' activities on some of the SDGs also needs further study. As previously discussed, there are no academic papers that address how the reshoring actions of firms affect the achievement of SDGs related to the economic, social, environmental, and institutional dimensions. Then, academics should investigate the impact (if any) of industrial policies oriented toward environmental sustainability, as in the case of the EU New Green Deal.[8] By analyzing the influence of multinational firms' activities on the socio-economic landscape, environmental effects, and their role in developing and strengthening institutions, we can enhance our understanding of how the expansion of GVCs affects the potential achievement of SDGs. Additionally, it is crucial to examine the interconnections among SDGs to advance the Agenda 2030, as emphasized by Dawes (2019). Finally, at the conceptual level, it would be useful to develop broader theoretical models that incorporate the effects of reshoring on SDGs, considering the different entry modes to a location that firms may choose. A starting point could be the integration in the Boffelli and Johansson (2020) work, but other alternatives can also be considered. Further exploration of the relationship between each reshoring driver and the various SDGs' objectives discussed in the model would allow for the development of a new framework that specifically highlights the impacts of reshoring processes on factors related to SDGs.

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