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Bringing it all back home: Is reshoring sustainable?

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Abstract

In spite of the media coverage about reshoring and the growing political pressure to encourage it, there are persistent uncertainties about the viability of profoundly rethinking complex global value chains that have been established for decades. Furthermore, decisions on whether to reshore are rarely based on concerns about a truly virtuous economy, and the benefit of reshoring on social and environmental footprints is not as clear as it may appear.

Based on existing research and our knowledge of the subject, we show that large-scale reshoring will not take place and that any improvement in the social and environmental impact of global value chains will stem from three phenomena: better reshoring, better footprint of offshoring, and transforming value chains and industrial organization.

Keywords: Reshoring, Global value chains, Sustainable development

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Introduction

The multiple, major and varied crises of the 21st century (terrorist attacks, subprime crisis, political upheavals, tsunami, etc.), and in particular those caused by the Covid-19 pandemic during the past year, have brought the "reshoring" of industrial activities to the top of political and economic agendas, with the aim of addressing issues of sovereignty, securing vital supplies and revitalizing the national industrial base. Numerous recent examples, such as the shortage of masks at the start of the epidemic, the slow pace of vaccine supply, the consequences of the Suez canal being blocked for a week in March, or bottlenecks in the supply of semi-conductors, reveal the downsides of global value chains and our society's heavy reliance on far-away manufacturing facilities, notably in Asia. Added to this are the geopolitical dimensions, in particular in the United States and Europe, for whom China is now pointed to as the main enemy, having become all powerful and dangerous. This feeling, heightened by the Covid-19 crisis, is increasingly present in political discourse, whether during the American elections or in France and Europe, where the symbolism of reshoring is closely linked to questions of sovereignty. For example, in February 2021 the new US president launched a 100-day study to conduct an in-depth survey of global supply sources of computer chips used in consumer products, large-capacity batteries for electric vehicles, pharmaceutical products and their active ingredients, and critical minerals used in electronics.¹

In addition to these political issues and the observed supply shortages, global value chains have also been criticized for their social and environmental footprint: overexploitation of natural resources due to the extractivist nature of the dominant forms of capitalism, increases in carbon emissions owing to the distance travelled by raw materials and other goods in different stages of the chain, poor working conditions and multiple types of pollution. All of these factors impact the legitimacy and reputation of multinational enterprises. But what is the reality of the situation? Should we expect a profound rethinking of global value chains and massive waves of reshoring? Will a growing awareness of the climate emergency and more generally of social and environmental challenges push us to accelerate reshoring and to rethink the industrial organization of value chains?

Depending on the perspective we take in trying to answer these questions in the field, the issues involved and drivers of such a transition will vary and the definitive response can only emerge if we simultaneously take into account all of the levels of analysis and factors that influence business strategies.

Clarification of scope

Reshoring is generally defined as a company's decision to bring its manufacturing operations back to its home country (whether in its own factories or subcontracted), generally after having earlier made the opposite decision, to offshore, i.e. to move its manufacturing abroad to other regions, very often in Asia. Following successive waves of offshoring starting in the 1980s, which accelerated in the 2000s with the entrance of China, "the world's factory", in the WTO, reshoring (also known as backshoring) has been at the centre of political and economic debates for a decade (Carbone and Moatti, 2016). Promising the return of local employment, a better social and environmental footprint, and a solution

¹ <https://www.politico.com/news/2021/02/24/biden-executive-order-supply-chain-industries-471304>

to numerous operational problems stemming from fragmented and lean global value chains – the first of which is a lack of agility and limited availability of goods in the right place at the right time – reshoring may be a solution to numerous harmful consequences of globalization.

Nevertheless, experience shows that effective and successful cases of reshoring remain few in number or anecdotal. Some companies, widely cited as emblematic of this movement, even end up abandoning the idea. For example, the German sports giant Adidas finally decided in 2019 to move its particularly innovative "Speedfactories" to Asia, having launched them just a few years beforehand in Germany and the United States amid a media blitz promising the creation of local jobs and a revival of industrial activities in the West. This example highlights the limitations of reshoring initiatives. In France, according to a specialized consulting firm, Trendeo, between 2009 and 2020 there were only 144 cases of companies reshoring, credited with a 1% increase in industrial employment, compared with 469 cases of offshoring (-6.6%).²

More recently, reshoring as such has been replaced by other phenomena such as moving manufacturing operations closer to home (nearshoring) or so-called "relocations of second degree" (Barbieri, Elia, Fratocchi, Golini, 2019), which include returning to the home country or moving offshore operations to a third country, or perhaps a more complex phenomenon called "omnishoring" – a portfolio strategy that combines different types of relocation and different modes of coordination (Abecassis and Moatti, 2017).

Finally, the subject of reshoring also raises the question of which link in the value chain is brought back. Beyond the offshoring of industrial units, which was the focus of earlier debates and was brought back to the agenda with the 2008 economic crisis, the question of offshoring "is moving up the value chain" and increasingly concerns the access to and transformation of raw materials. Should we stop importing vegetable protein from Brazil for livestock feed and instead create a local vegetable protein industry? How can we support the development of the renewable energy industry – solar panels and windmills – in a context of heavy reliance on China for access to rare earth metals and other critical materials? As Guillaume Pitron (2018) has effectively shown, the environmental conditions at rare earth extraction sites are particularly disastrous, which ought to encourage the relocation of extractive activities to countries with stricter regulations. However, China's state intervention in the economy and strategic vision have enabled the creation of integrated industries on site, which are difficult to compete with or to effectively reproduce elsewhere. We are confronted with a mix of geopolitical, economic and environmental issues, which enormously complexifies the question of the scope of reshoring and mechanisms for taking action.

A reading of the design of global chains

Global value chains have been developing since the second half of the 20th century, thanks to the globalization of trade facilitated by innovations in logistics and technology, notably the invention and widespread adoption of the shipping container. These global value chains are built on a logic of task specialization and cost reduction in each link of the chain, achieved through low-cost labour and flow consolidation. This organization has led to the development of the consumer society and increasingly sophisticated products brought to market in large quantities and at accessible prices for a large number of consumers. This movement has been amplified and accelerated in an endless quest for efficiency in terms of cost and time, tending to make the flow of goods ever more complex and lean, and thus

²https://www.lemonde.fr/economie/article/2020/06/02/entre-mantra-politique-et-mirage-economique-le-difficile-retour-des-usines-en-france_6041434_3234.html#:~:text=Un%20combat%20loin%20d'%C3%AAtre,%E2%80%93%206%2C6%20%25

making it harder to offer flexibility (owing to inventory reduction, maximization of capacity usage, etc.).

However, since the start of the 21st century, research studies and empirical examples have started to point out the risks and hidden costs of fragmented global value chains and the phenomenon of offshoring that has accompanied them (Moatti, 2013). Alternative models, such as that of the Spanish company Inditex and its retail brand Zara, have demonstrated the success of building a different type of organization centred on local or regional production. Some of the downsides of offshoring that are regularly cited include increased logistics (transport, storage) and coordination costs, supply shortages, quality problems and the threat of counterfeits, and the difficulty of innovating and launching new products in an agile fashion when the R&D and production teams are so far apart. Moreover, the differences in production costs so often used to justify the offshoring of manufacturing operations have narrowed over time, thus limiting its benefits.

The various crises of the past decade, in particular the Covid-19 pandemic, have shone a harsh light on the vulnerability of supply chains. Following the closure of factories in China in early 2020, the supply of numerous products including textiles, masks, and antibacterial gel, was severely disrupted. Very recently, the six-day blockage of the Suez Canal – a strategic passage for east-west trade – by the giant container ship *Ever Given* caused cascading delays and supply shortages in numerous industrial sectors.³

Given these repeated examples and all the limitations of global value chains, some companies have effectively made the decision to reshore their industrial production unit. For example, the French company Stil decided to move its thermometer manufacturing operations back to France following the closure of its Chinese supplier (Barbieri et al., 2020). Similarly, the Krys group brought back part of its corrective lens manufacturing to its factory in Yvelines. In this case as in others, the Covid-19 health crisis either triggered or accelerated this reshoring movement.

While it would make sense to observe some reshoring and a return to more local production, once again it would be illusory to think that we are going to see a massive wave of reshoring. In spite of its undeniable advantages, large-scale reshoring is not realistic for numerous reasons. In particular, resources and competences have been durably moved to Asia in a number of industries and it is very difficult to rebuild them. Whether we are talking about raw materials and components, the skilled labour to operate these plants, or the technological and engineering competences needed for the operation, maintenance and upgrading of sophisticated equipment, these are all resources and competences that are more easily accessible in Asia than in Europe or North America. Moreover, the centre of gravity of consumer markets has shifted to the east, which has also strengthened the legitimacy of production in Asia.

In other cases, reshoring would put pressure on costs and lead to an increase in retail prices, which few consumers are willing to accept. Moreover, it is unlikely that reshoring would actually secure the supply chains. Indeed, bringing back an industrial unit is seldom accompanied by the reshoring of the entire value chain. The raw materials or semi-finished components needed would not necessarily be available in the home country and may have to be shipped in from distant countries before launching production. Moreover, it is often the *concentration* of supply sources rather than the distance which makes the chains vulnerable. Instead of reshoring, perhaps we need to rethink risk management in order to make global chains more resilient through multi-sourcing strategies and greater agility in assigning resources and organizing processes. This would mean diversifying supply sources

³ Goodman (2021), In Suez Canal, Stuck Ship Is a Warning About Excessive Globalization, *Financial Times*, March 26, 2021.

dynamically to reduce exposure to risks that are specific to certain geographical regions or suppliers.

According to many experts, the development of digital technology and Industry 4.0 offers many new opportunities in production methods and in the organization of value chains. The digitalization of chains should reduce problems of coordination and related costs. Moreover, these transformations should contribute to improving the social and environmental footprints of global value chains. For example, thanks to additive manufacturing, which includes the much talked about 3D printing technology, we can rethink traditional production methods and limit the waste of materials in comparison with traditional "subtractive" manufacturing. Additive manufacturing also opens the door to production that is more limited in scale and closer to the customer, or perhaps even on-demand and customized production. Fundamentally, like other observers (D'Aveni, 2018), we think that Industry 4.0 offers opportunities for innovation and the reconfiguration of value chains – though without going as far as a reshoring trend. Instead, the idea would be to transform the value chain. Successful transformations are often accompanied by a profound rethinking of the business model. In this regard, Digitally Native Vertical Brands (DNVB) offer an illuminating example. International brands like Allbirds, Everlane, and The Function of Beauty, or French brands like Asphalte, Jimmy Fairly and Tediber, have been built on a value chain model that is less fragmented and more concerned about social and environmental impacts. And some of them are keen to move toward an on-demand model of production (Lipskier, 2018). While promising, these examples nevertheless do not appear to carry much weight in comparison to the dominant model of global value chains: fragmented and with heavy socio-environmental impacts.

Reshoring to reduce the social and environmental costs of global chains?

Research on offshoring (for example Christopher et al., 2011; Sawhney and Rastogi, 2015) has shown a series of risks and negative impacts on the environment and on society (pollution, labour conditions, employment, etc.). As reshoring is essentially a return from offshoring, it should help to limit the social and environmental externalities caused by global supply chains. Intuitively, reshoring should also help to reduce transport and hence its carbon emissions. More radically, emblematic catastrophes such as those of Rana Plaza and Foxcon, sweatshop scandals since the 1990s, and more recent ethno-political controversies such as those linked to Uighur forced labour in China (which may produce up to 20% of the world's cotton) are an indictment of global value chain organization and embody the risks generated by offshoring. This organization of production was built on the principle of social and environmental dumping, contributing to lowering the costs of goods, which is what justified such forms of organization.

Finally, global value chains often generate overproduction and waste, which also adds to their environmental footprint. Given the tension between shorter and 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. This is why, for example, most textile retailers are stuck with massive amounts of unsold inventory at the end of the season, even though promotions and other product discounts constitute on average 60% of global sales.

However, according to recent research (Frattochi and Di Stefano, 2019) and our own experience with the subject, the relationship between reshoring and sustainable development remains largely unexplored, rather unclear, and social and environmental criteria appear to be rather marginalized in decisions about whether to reshore production

facilities. A European survey (Fel and Griette, 2017) shows that the main motives for companies to carry out nearshoring operations are cost reduction and to improve product/service quality and responsiveness – quite far from social and environmental concerns.

It is also important to beware of simplistic analyses and false good solutions. First, a country that offshores some of its industrial activities may generate the illusion that it has reduced its carbon footprint. To counteract this illusory effect, the emissions generated by the country's imports should be included in the calculation of its carbon footprint. In France, CO₂ emissions per capita amount to 11t per year, of which only 5t is from national production.⁴ In addition to its carbon footprint, the energy content of a country's imports should be taken into account to properly evaluate the environmental effects of offshoring/reshoring decisions and their impact on the decoupling of GDP/energy consumption (Treiner and Percebois, 2021).

Second, "local" production and consumption does not always have the least environmental impact. For example, supplying French households with groceries accounts for a quarter of their carbon footprint. But it would be a mistake to think that if food production were entirely local that this footprint would be significantly reduced, since the main source of carbon emissions in agri-food products is production – transportation of goods comes in second place. Turning to logistics, although the transport of food items represents one quarter of the traffic generated to supply households in France, it produces half the carbon emissions! Local transport generates a much greater amount of emissions than long-distance consolidated transport. In terms of the amount of emissions per tonne of goods transported per kilometre, a delivery van pollutes 10 times more than a truck and 100 times more than a cargo ship.⁵ It is important therefore to be wary of preconceived ideas and to know that long distance is not necessarily synonymous with pollution.

Finally, how can we imagine that massively reducing the number of Western orders placed with Asian factories will have a positive social impact when hundreds of thousands or perhaps millions of people may be out of a job as a result? It is important therefore to think globally and to avoid drawing overly simplistic conclusions.

Conclusion

Finally, in spite of all the media attention and political signalling, large-scale industrial reshoring will not take place. Geographical, material and organizational constraints are insurmountable. Similarly, it would be hard to change the financial and economic interdependences that currently structure global value chains, no matter how determined the national industrial policies.

Furthermore, it is necessary to move beyond an overly simplistic view whereby reshoring is synonymous with sustainability. It is illusory to think that reshoring in itself and managed independently might contribute significantly to improving the global social and environmental footprint.

⁴<https://www.statistiques.developpement-durable.gouv.fr/estimation-de-lempreinte-carbone-de-1995-2019#:~:text=M%C3%A9thodologie-,En%202019%2C%20l'empreinte%20carbone%20est%20estim%C3%A9e%20%C3%A0%20663%20millions,proche%20de%20celui%20de%202016.&text=Depuis%201995%2C%20l'empreinte%20carbone,France%20a%20augment%C3%A9%20de%207%20%25>

⁵ https://www.xerficanal.com/economie/emission/Remi-Godeau-Le-localisme-une-fausse-solution-ecologique-3747328.html?utm_source=sendinblue&utm_campaign=XC150421&utm_medium=email

In this context, it is important to shift the debate and to move forward on three parallel levels to make effective gains in sustainability. First, reshoring initiatives must, from their inception, consider these decisions as a opportunity to improve the social and environmental footprint of the value chain as a whole. A reshoring project should not be considered as an independent process done in the interests of national sovereignty, but rather should be built as mechanism to further the global ecological and social transition. Similarly, the growing enthusiasm for the circular economy and local production could accelerate virtuous projects for reshoring companies. But the law on the circular economy in France has not really provided an ambitious industrial policy to accompany these projects. Virtuous reshoring cannot be commanded by decree, it must be shaped!

Second, as large-scale reshoring is not currently on the agenda, it is necessary to act within global value chains to improve the environmental and social conditions at extraction sites and production facilities in emerging countries, particularly in Asia. Therefore, companies must be encouraged to examine their ecological and social footprint across the entire chain. Only global regulatory mechanisms (multi-stakeholder initiatives, international framework agreements on hybrid governance, integration of social and environmental costs in international trade negotiations, carbon tax at borders) can accelerate awareness and put an end to practices of social and environmental dumping.

Third, rather than reshoring, we should encourage and strengthen initiatives to reconfigure value chains and transform business models, which – like DNVB – can bring about more virtuous organizations in terms of their social and environmental dimensions. Wherever they are located, the industrial structures of Industry 4.0 can pave the way for organizations that pollute less, whether in their manufacturing processes or in adjusting production to real demand, resulting in a reduction in waste.

To conclude, better reshoring, improving the footprint of offshoring, and transforming value chains and industrial organizations are the three pillars of a more sustainable economy in the future. They need to be developed simultaneously and in a coordinated fashion to mutually reinforce their benefits.

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