

Covid-19 and Global Value Chains: Reconfiguration of Activities across Borders

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Abstract

The international fragmentation of production based on the Global Value Chains (GVCs) model has been challenged during last years by several forces such as the macroeconomic changes, the digital transformation, the made-in effect, the rise of nationalisms and trade wars, and the increasing attention for environmental and social sustainability. The Covid-19 is expected to accelerate firms' relocations and GVCs' reconfigurations either towards closer locations (i.e. near-shoring) or back to the home countries (i.e. back-reshoring), thus acting as a trigger. In this chapter, we propose a 5W framework to explain the "Why" (Covid-19), the "Who" (single firms vs. manufacturing network), the "When" (short- vs. long-term), the "Where" (home country vs. home region) and the "What" (the object of the relocation) of this phenomenon. The framework helps in identifying four possible relocation modes triggered by Covid-19, namely individual or joint back-reshoring and individual or joint near-shoring. We also show how real cases can be explained by our framework and provide examples of the identified alternative relocation modes. Finally, we discuss "How" policymakers can provide a significant contribution by switching their attention from the single firms to the entire value chains, by restoring manufacturing skills and infrastructures, and by cooperating at macro-regional level (e.g. European Union) rather than acting only at national level in order to foster the near-shoring of the GVCs, thus giving birth to regional value chains.

Please cite the chapter as follows:

Barbieri, P., Boffelli, A., Elia, S., Fratocchi, L., Kalchschmidt, (2020). "Covid-19 and Global Value Chains: Reconfiguration of Activities across Borders", in Marin A. Marinov, Svetla T. Marinova (Eds.), Covid-19 and International Business, Routledge (pp. 160-179). ISBN: 9781003108924

DOI: 10.4324/9781003108924

Introduction

The concept of Global Value Chains (GVCs) has been used since the '90s to describe the phenomenon of international fragmentation of the production process (Gereffi and Korzeniewicz, 1994). This strategy has been pursued either by relocating some activities in foreign markets – i.e. through captive or in-house offshoring – or by outsourcing some activities to foreign suppliers i.e. through outsourcing offshoring. One of the main drivers underlying the creation of GVCs has been costs reduction, which explains why several manufacturing activities have been offshored from advanced to emerging countries, offering low-cost labour and cheaper raw materials (Kedia & Mukherjee, 2009; Mudambi, 2008). This is the case of manufacturing activities relocated from the US towards Mexico and other emerging countries and from Western to Eastern Europe (Fratocchi et al., 2015; Kinkel & Maloca, 2009; Schmeisser, 2013). An additional driver of GVCs configuration was the search for high-quality, more-productive and value-added inputs, which typically occurs in more advanced countries offering high-skilled labour in upstream (e.g. R&D and Design) and downstream (e.g. marketing and after-sales services) activities of the value chain (Mudambi, 2008).

Nevertheless, the GVC model has started to be challenged during the last decade. Indeed, a new trend of spatial reconfiguration of the supply chains is rising, reflecting companies' willingness to relocate their activities in other countries. Barbieri et al. (2019) have labelled these movements as "Relocation of second degrees", to identify either the return back to firms' home country or the relocation to third countries. The first type of relocation is known as "back-reshoring", while the second one has been labelled as either "further-offshoring" when the activity is moved from one far to another far country (e.g. a European firm relocating from China to Vietnam), or as "near-shoring" when the activity is relocated from a far to a closer country (e.g. a U.S. firm relocating activity from China to Mexico) (Ellram, 2013; Fratocchi et al., 2014). Extensive attention has been given to the drivers underlying back-reshoring, while neglecting the role of other relocations of second degree. In addition, the typical unit of analysis of the vast majority of the literature has been the single firm, while GVCs have been rarely considered as the focus of relocations. In the next paragraph, we will take into account the different drivers underlying the relocation of second degree, by paying attention to the GVC level of analysis and by distinguishing among the different types of relocations. We will then investigate the potential role of Covid-19 within this phenomenon, by concluding with a short discussion on the policies for GVC reconfiguration.

From global to regional and national value chains: the pre-Covid-19 drivers of reconfiguration

The drivers underlying the reconfiguration of GVCs are multiple. A primary role is played by macro-economic changes, such as the rise of new low-cost destinations, the international fluctuations of cost

factors and comparative advantages that modify the relative attractiveness of countries (Ellram, Tate, & Petersen, 2013). This was the case, for instance, of China, which has clearly switched from being a major cost-saving destination in the early '2000 to becoming one of the main market-seeking recipients in the last years. Another driver of GVCs reconfiguration is a general dissatisfaction over the advantages associated with offshoring (Albertoni et al., 2017), in terms of, e.g., less-than-expected costs reduction or quality drawback. These negative performance effects are typically due to the so-called “hidden costs” of offshoring (Larsen et al., 2013) arising from excessive coordination, monitoring and transportation costs, from over-complexities and opportunistic behaviours in the relationship with the supplier etc. The effects of both the macro-economic changes and the negative outcomes have been further exacerbated by the world financial crisis of the years 2008/2009 (Gereffi and Luo, 2014). However, both these forces might result not only in back-reshoring and near-shoring outcomes, but also in further-offshoring decisions, meaning that firms might simply move their activity from one far country to another, thus preserving the nature of the GVC.

More specific drivers fostering back-reshoring – i.e. making the GVCs more national – and near-shoring – i.e. making the GVC more regional – can also apply (Barbieri et al, 2016, 2018; Srari & Ané, 2016). The first one is the “made-in” effect, i.e. the possibility to improve the reputation and to capitalize on the use of the country of origin, thus affecting consumers’ perceptions and behaviours (i.e. purchase intention) (Roth & Diamantopoulos, 2009).

Another very effective driver underlying the back-reshoring and near-shoring of GVCs is technological change. More specifically, the emergence of new and integrated digital technologies, having disruptive consequences on manufacturing systems, products and business models, can reduce the need to search for low-cost locations (Ancarani, Di Mauro, & Mascali, 2019; Dachs, Kinkel, & Jäger, 2017; Strange & Zucchella, 2017). The possibilities offered by digital technologies to substitute labour, to consolidate intermediate products and to reduce the production stages are likely to open new production opportunities also in advanced countries (Laplume, Petersen, & Pearce, 2016; Rezk, Singh Srari, & Williamson, 2016). As a consequence, digital technologies provide firms with an unprecedented possibility to switch from a global and complex to a regional and more integrated value chain that can be concentrated either in one or in few locations, thus making back-reshoring and near-shoring a valuable option.

Recently, two additional drivers are further reinforcing these trends. The first one is the emergence of nationalisms and populisms (such as the Brexit phenomenon) and the associated rise of protectionism and trade wars (China and the U.S. at the top), which push policy makers to over-emphasize the need for domestic productions and national value chains (Rodrik, 2018). This mantra

has been supported by both back-reshoring policies implemented by some specific countries (e.g. U.S., U.K. and France) and policy recommendations proposed at regional level such as the 2016 policy brief “Renaissance of Industry for a Sustainable European Strategy” of the European Union, which mentioned the back-reshoring to European countries (thus including also the option of near-shoring) among one of the main strategies to favour the return of manufacturing activities in Europe.

The second and probably more effective driver fostering the back-reshoring and near-shoring phenomena is the increasing attention towards social and environmental sustainability (Orzes & Sarkis, 2019; Fratocchi & Di Stefano, 2019), which is prompting firms to become more sensitive to these issues and, in several cases, to consider even green and social transformation of their business model in an attempt to improve their reputation and to reinforce their competitive advantage (Pagell & Wu, 2009; Ioannou and Serafeim, 2019). The rising concerns about climate change and ethical issues are pushing firms to opt for shorter and tighter value chains, which allow to reduce emissions and transportation costs and to better manage and supervise supplier’s operations and capabilities, by ensuring also a more effective enforcement of environmentally and socially acceptable practices for the whole value chain (Gualandris et al., 2014). Indeed, the shorter the distance, the more firms are able and willing to cooperate with suppliers to develop more sustainable products and processes, up to the adoption of a circular economy organization. Besides, the increasing attention for social issues has convinced some firms (e.g. in the fashion industry) to back-reshore some activities from those countries that do not respect labour and human rights. Hence, climate change and social sustainability can be considered (at least before the pandemic) one of the main drivers underlying GVCs reconfigurations.

Covid-19 as a trigger for new near-shoring and back-reshoring waves: expected modes

The Chief Economist at the European Bank for Reconstruction and Development, Prof. Javorcik, recently stated that the combination of trade policy shocks and Covid-19 sparks a rethinking of GVCs (Javorcik, 2020). In other words, the pandemic emerges as a trigger (Benstead et al., 2017) that activates the back-reshoring and/or near-shoring decision-making process (Boffelli & Johansson, 2020; Boffelli et al., 2020). The first stage of the epidemic (mainly concentrated in China) and the second one (with the consequent evolution into a pandemic) has started to induce managers and entrepreneurs to carefully re-evaluate their location decisions, independently of the adopted governance mode (out- vs in-sourcing). At the same time, several policy makers – especially in Europe – experienced their huge dependence on China and, partially, on India for several products needed to struggle with Covid-19. Consumables like surgical masks and disinfectants but also high-value products as Active Principle Ingredients (API) for pharmaceuticals became scarce. The business


community and governments understood that the Covid-19 pandemic has not been a “one-off shock event” which generated just “temporary disturbance”, like the 2011 tsunami in Japan (Javorcik, 2020). The tremendous shock of Covid-19 on business activities has been defined as the most impactful scenario of its time (The Economist Intelligence Unit, 2020).

To investigate such an impact, we suggest the adoption of a 5W approach (Who, What, Why, Where, When) since it has already been adopted, at least partially, to investigate the back-reshoring phenomenon (Barbieri et al., 2018; Fratocchi, 2018). Covid-19 is the trigger of the decision-making process regarding the GVC redesign, thus it is the “Why”. Based on it, the actor(s) of such a process (Who) should be defined. In this respect, attention should be paid to decisions involving not only single companies, but also on the broader manufacturing networks. To make the relocation of specific product lines more resilient and effective, it is necessary to relocate — either at the home country or at the home region - the entire set of business relationships within the product supply chain. Otherwise, the relocation of some production phases would not assure to cope with future pandemics and/or other supply chain disruption events.

The “Where” dimension refers to the final location of reshored production activities, namely the home country (back-reshoring) or the home region (near-shoring). The “What” dimension refers to the object of the relocation, as the type of products and activities or the industries that are more likely to be involved in the back-reshoring and/or near-shoring process, based on their relevance for the home country/region survival. Finally, the “When” dimension usually pertains to the time perspective, that is short vs. medium/long term. In this respect, it seems the timing of either back-reshoring or near-shoring decisions will be mainly related to the type of products (What) and the readiness of the home country/region manufacturing systems (Where), in terms of availability of skilled people and/or suppliers. For instance, medium/high tech industries production processes take more time to be set-up than low tech ones.

Based on the 5W adopted perspectives, we propose a theoretical framework to analyse and classify the expected modes that would emerge as a result of the back-reshoring and/or near-shoring decision-making processes triggered by the Covid-19 (Fig. 1). Particularly, four alternatives are identified, namely the individual back-reshoring, the individual near-shoring, the joint back-reshoring and the joint near-shoring.

Figure 1 The proposed framework

Why	When	Who	Where	
			Home country (Back-reshoring)	Home region (Near-shoring)
Covid as a trigger 	Short term vs. medium/long term	Single firm	(What) Individual back-reshoring	(What) Individual near-shoring
		Manufacturing network	(What) Joint back-reshoring	(What) Joint near-shoring

Based on the developed framework, we used secondary data to illustrate the evidence of all the four proposed alternatives. Secondary data have been used both in International Business and in Operations Management research field (Roth et al., 2008; Yang et al., 2006). Among sources of secondary data, a specific role is played by newspapers and magazines, which have been considered particularly useful when no other sources are available (Cowton, 1998; Franzosi, 1987; Mazzola and Perrone, 2013). This might be the case of back-reshoring and near-shoring decisions triggered by Covid-19, due to its novelty. With specific reference to international business studies, Judd et al. (1991) consider written records such as newspapers suitable sources for longitudinal and multi-country studies. Yang et al. (2006) found that twenty empirical articles published in six leading international business journals from 1992 to 2003 adopted samples based in newspapers articles.

More specifically, we retrieved news of back-reshoring and near-shoring decisions (or at least proposals) checking journals, magazines, consulting company reports et similia adopting Internet research engines through several combinations of different keywords (like “reshoring”, “relocation”, “Covid-19”, “pandemics”). In this respect, it must be pointed out that our aim was not to have an exhaustive state of the art of the post-Covid-19 relocation decisions but only to populate the What section of the proposed framework with some examples in order to test its usefulness for future research on Covid-19 impact on manufacturing location revision.

As far as the upper left quadrant is concerned (*Individual back-reshoring*), we found two interesting cases. More specifically, the first case regards the French company Stil, which relocated at its home country the production of glass-made thermometers after its Chinese suppliers were obliged to interrupt the production due to the local lockdown. Fortunately, the company had spare capacity at its French plant and was able to leverage on production competences owned by the oldest employees who manufactured this type of products until 2005 when the production was offshored in China to reduce production costs (www.europe1.fr/economie/coronavirus-une-usine-de-thermometre-reloalise-sa-production-en-france-3953430). The second evidence belongs to the Italian firm Coccato

and Mezzetti, which developed a single-use biodegradable surgical mask; however, in 2005 production was interrupted due to the high cost of this innovative product compared to the low cost of alternative goods that the company could import from China. At the beginning of March 2020, the company restarted local production due to the scarcity of surgical masks in the Italian and European markets and to the usefulness of biodegradable solution when millions of products will be used daily for a long period (Greco, 2020).


When considering the lower left quadrant (*Joint back-reshoring*), an interesting case was proposed by Fondazione Altgamma, an Italian association of 107 brands operating in the high-end of fashion, jewellery, design, food, hotels, automotive and wellness industries. In April 2020, the Chairman of the association proposed to develop a systematic relocation of silk manufacture (actually 80-90% of this material is imported from China), given the long-end tradition of Italian companies in this business. At the same time, he suggested developing a production-network-based relocation project also for technical fabrics, which rarely are manufactured in Europe (Crivelli, 2020). Another interesting evidence comes from the Chairman of the French Federation of Health Industries and of the French pharmaceutical Group Sanofi. In March 2020, he stated that time had come to review the earlier decision to offshore production of Active pharmaceutical ingredients (APIs) for drugs as vital as antibiotics, anticancer and vaccines (Fayçal, 2020).

When considering the lower right quadrant (*Joint near-shoring*), useful evidence comes from a UE-financed project called Tex-Med Alliances which was presented on February 2020 in Madrid but is assuming a new role due to the Covid-19 pandemic. The project groups textile and fashion industrial districts in the Mediterranean basin (namely, Catalonia - Spain, Prato – Italy, Central Macedonia – Greece, Ben Arous and Tunis – Tunisia, Alessandria – Egypt, Amman – Jordan and Palestine). All partners will collaborate until 2022 to develop a certified traced supply chain to support back-reshoring and near-shoring strategies based on higher product quality and shorter delivery times compared to imports from Asia.

Finally, we did not find any evidence for the upper right quadrant, that is the near-shoring decisions implemented by single companies (*Individual near-shoring*). However, future cases could emerge based on the recent decision of Japanese government to develop an industrial policy to support the relocation of manufacturing activities earlier offshored in China by Nippon companies either at the home country or in other Asian countries. More specifically, the policy finances the relocation costs to transfer production at home country/region (up to 70% for small and medium companies operating in the health-related businesses aimed to relocate in Japan). As a consequence, it is expected that low-cost productions are more likely to be transferred to South-East Asia countries (near-shoring) than in

Japan, given the high level of labour and production costs. Figure 2 summarizes collected evidence within the proposed framework.

Figure 2 The proposed framework with collected evidence

Why	When	Who	Where	
			Home country (Back-reshoring)	Home region (Near-shoring)
Covid as a trigger 	Short term vs. medium/long term	Single firm	Stil (France)	Expected near-shoring evidence boosted by Japanese policy
			Coccatto & Mezzetti (Italy)	
		Manufacturing network	Silk & technical fabrics (Italy)	EU-financed Tex-Med Alliances Project
			APIs (France)	

Concluding remarks

The proposed framework, based on the 5W questions, supports the analysis and classification of modes that will be adopted to re-design GVCs by making them either more regional (near-shoring) or more national (back-reshoring). Preliminary collected evidence shows back-reshoring or near-shoring decisions have already been implemented or are at least under evaluation, both at the single firm and the manufacturing network level.

The role of policy makers emerges as key in at least one case (near-shoring of single companies). This suggests to add a sixth question to complete the proposed framework, namely “How”, that is how post-Covid-19 reshoring decisions may be boosted by industrial policies. It is noteworthy that in the central months of 2020, several initiatives have been implemented – or at least discussed – to support post-Covid-19 re-designs of GVCs. The first country to implement such a type of policy was Japan on April 7th, offering financial and fiscal aids to companies aiming to relocate their manufacturing activities from China either to the home country or to other Asian ones. This decision is likely to create difficulties in political relationships between Japan and China (Oxford Analytics, 2020). At the same time, the French government decided to support the relocation of API manufacturing activities in France; however, the Prime Minister Mr Macron recognized the self-sufficiency of the drug supply chain is more likely to be reached at the European level. The European Commission is planning a roadmap for a new Pharmaceutical Strategy due in the last quarter of 2020. “The initiative is to help ensure Europe’s supply of safe and affordable medicines to meet patients’ needs (Sarantis, 2020).

At a national level, the French Minister of Finance has requested national carmakers (mainly Renault, which is partially state-owned) to back-reshore production activities, if they want to receive financial

aids to cope with the post-pandemics effects (Reuters, 2020). A similar position is under discussion also in Spain, where the Ministry of Industry announced a specific policy to support the relocation of health-related products and also the attraction of foreign direct investments in the same business area. Evidence collected adopting a “How” perspective allow us to revise the proposed framework introducing the role of policy makers aiming to support the post-pandemic economic recovery and to make critical supply chains more resilient at a national/regional level.

However, policy makers should carefully evaluate how to design their industrial policies, since previous experiences of pro-reshoring initiatives have been partially unsuccessfully in some cases. For instance, the South Korea government in 2013 provided tax reductions and subsidies for land, equipment and employment to promote the relocation of manufacturing activities at the home country. Only 44 Korean manufacturers have back-reshored and they were generally marginal rather than competitive firms. Poor effects are mainly due to issues related to both, the country’s economic system (mainly, shortage of excellent workforce and high wages) and the specific regulation characteristics (e.g. insufficiency of incentives for R&D) (Choi, 2019). Therefore, policy makers aiming to develop pro-reshoring initiatives should carefully evaluate how to improve success rates of their initiatives by matching reshoring policies with other ones aimed to re-establish manufacturing skills and infrastructures. Finally, at least for Europe, it is recommendable to set up such policies under a regional approach to leverage on wider and more heterogeneous resources and capabilities in order to recreate the GVC into the European area.

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