THE ROLE OF GLOBAL VALUE CHAINS IN THE PANDEMIC: IMPACT ON ITALIAN FIRMS

Giorgia Giovannetti, Michele Mancini, Enrico Marvasi, Giulio Vannelli*

- Global value chains were already slowing down even before the pandemic, partly as a natural adjustment.
- Comparing the Covid crisis to the financial crisis, global value chains were a less relevant transmission channel and the sectors affected were different: Covid-19 had a more severe impact on sectors less integrated in international production networks, services in particular.
- The *Business Outlook Survey of Industrial and Service Firms* conducted by the Bank of Italy shows that there are no widespread *reshoring* waves; on the contrary, internationalised firms seem to have suffered less from the effects of the crisis.

JEL Classification: F14; F23; F60.

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Introduction

In the three decades, prior to the 2008-2009 financial and economic crisis, trade liberalisation and the reduction of transport and communication costs allowed for an increasing integration of international markets and induced a gradual disintegration of production processes between different countries, both high- and low-income.

In the last decade, on the other hand, the world witnessed a gradual slowdown of globalisation and world trade. This phenomenon has been recently described by the term "*slowbalisation*".

The stabilisation of transport and communication costs, the stalling of the Doha Round trade negotiations (in some cases also accompanied by creeping new protectionism) and the erosion of wage differentials between emerging and high-income countries, a natural consequence of the progressive integration of previous decades, account for the slowdown.

The 2008-09 crisis helped to consolidate these processes, bringing globalisation to a substantial halt. Since the crisis, the growth rate of trade has been similar to the one of GDP, while it was more than double in previous decades, and it has always been lower than its ten-year growth forecast.

The health, economic and social crisis induced by Covid-19 comes in a peculiar moment for the world economy: the level of international integration is now very high, but at a standstill; firms, which have been facing increased uncertainty on international markets for many years, have adapted their behaviour to the new context; growth opportunities on international markets appear reduced, while foreign competition is pervasive, even in services, which are also increasingly tradable and internationalised. The only activities that seemed to be somewhat protected from international competition were those characterised by being "relational" and requiring physical presence ("face to face").

The recent pandemic further changes the picture, mainly affecting the activities that require face-to-face interactions (e.g., hotels, restaurants), and in some cases temporarily disrupting global value chains (e.g., medical chains producing many intermediate goods in Wuhan, where Covid-19 originated in January 2020).

This article examines this context to investigate the role of global value chains (GVCs) during the pandemic and to discuss their possible impact on Italian firms.

Analysis of country-level data on the relationship between GVCs participation and GDP growth rates during crises suggests that value chains have been a less relevant transmission channel than in the past. The negative correlation between participation in value chains and GDP growth found during the financial crisis is much weaker in the current crisis. At the sectoral level, the pandemic hit the service sectors harder than in the financial crisis, and some of these sectors are also structurally poorly integrated into GVCs.

Similar evidence emerges at the firm level. Data from the *Business Outlook Survey of Industrial and Service Firms* conducted by the Bank of Italy during fall 2020 allow us to examine the reactions of Italian firms to the pandemic crisis. Internationalised companies seem to have coped with the crisis better than companies that operate only in the domestic market and, despite substantial losses in turnover, they have not radically changed their production location choices nor their commercial linkages with foreign suppliers; above all, they do not intend to do so in the near future. In short, the behaviour of Italian manufacturing firms shows a strong hysteresis.

This article contributes to the debate on the possible shortening of value chains and the possibility that firms reconfigure their networks of suppliers and buyers, bringing back to their own country (in our case Italy) previously delocalised production phases. The results suggest that Covid-19 did not induce widespread "*reshoring*" waves. This could be, at least in part, due to the transitory nature of the shock: when firms pay sunk costs for internationalisation, they could adopt a "wait *and see*" attitude as a response to temporary shocks.

Our results seem to be in (partial) contradiction with the public debate that focuses on the usefulness of "reshoring"[1]. We believe that they can offer a scientific basis for a serious and non-prejudicial debate on the consequences of the crisis on GVC-involved firms.

Global Value Chains before Covid-19

The mid-1980s saw the start of a process of economic integration, known as hyper-globalisation, which was accompanied by the rapid development of GVCs. This process, favoured by increasing financial integration and liberal trade policies - just think of the conclusion of the Uruguay Round in 1993 and China's entry into the World Trade Organisation in 2001 - was made possible by the *Information and Communication*

[1] Among others, see for example *Il Sole 24 Ore* (November, 30th, 2020) "Reshoring post Covid: cos'è e come può essere utile al sistema Italia"; *Foundation pour l'innovation politique* (November, 6th, 2020) "Reshoring manufacturing after the Covid-19 outbreak?"; *Milano Finanza Fashion* (March, 6th, 2020) "Scatta l'ora del reshoring".

Technology (ICT) revolution, which, by drastically reducing international coordination costs, allowed companies to fragment their production in order to exploit specialisation, economies of scale and cost differentials in emerging countries.

This process seems to have come to a halt with the financial crisis of 2008, named the "*Great Financial Crisis*" for its strong and long lasting impact. The crisis had major repercussions not only on economic growth, but also on international trade. The impacts on growth were such that many mature economies, and not only them, went into a severe recession, immediately renamed the "Great *Recession"* with a clear reference to the Great Depression of the 1930s. Similarly, the collapse of international trade in 2009, which was much more pronounced than the reduction in world GDP[2], has been called "*The Great Trade Collapse*"[3].

After the crisis, a period of "*slowbalisation*", to use the neologism coined by *The Economist*[4] and recently taken up by Antràs (2020), characterised by a stable integration in value chains, began (Figure 1). The causes of this slowdown are numerous. The integration into the international trading system of some emerging countries, first and foremost China, has certainly played a role. This integration process may have exhausted its initial momentum and has now reached a stage of substantial maturity[5]. Similarly, technological advances, lower transport costs, the elimination of trade barriers and wage differentials have made the fragmentation of production possible and economically advantageous, but after a few decades this process may now have reached an equilibrium.

In other words, the levelling out of value chains would have been, at least in part, a natural phenomenon, the result of the transition from one equilibrium, that of the 1970s, to another, the post-crisis one. The former was characterised by high barriers to trade, low fragmentation of the production process and limited integration of emerging countries into the world economy; the latter, on the other hand, was characterised by a production process fragmented into numerous tasks geographically spread across countries, a low level of

[2] According to World Bank figures, -10% for trade and -1.7% for GDP.

[3] Richard Baldwin, *The Great Trade Collapse: Causes, Consequences and Prospects*, *VoxEU.org Report* (CEPR Press, 2009).

[4] "Slowbalisation: The steam has gone out of globalisation." The Economist, January, 24th 2019: 34-43.

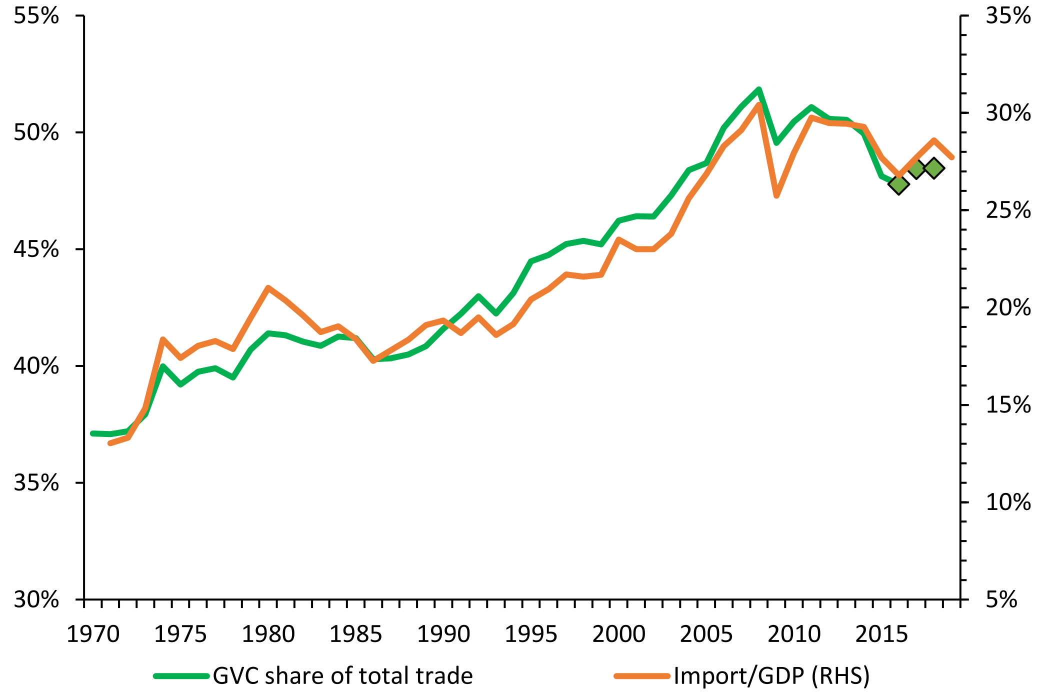
[5] However, the possibility that greater international integration of some emerging countries could foster the growth of international trade cannot be ruled out. This is the case for India and Sub-Saharan Africa, which are still relatively uninvolved in manufacturing trade and still have low labour costs.

barriers to trade and a mature degree of integration of emerging economies, especially China and other South East Asian countries.

During the hyper-globalisation phase, world trade grew at a double rate than output (Figure 2), whereas historically this ratio was just above unity[6], and these developments were in large part due to GVC related trade, as shown in Figure 2.

Figure 1

Share of GVCs trade in world trade (1)

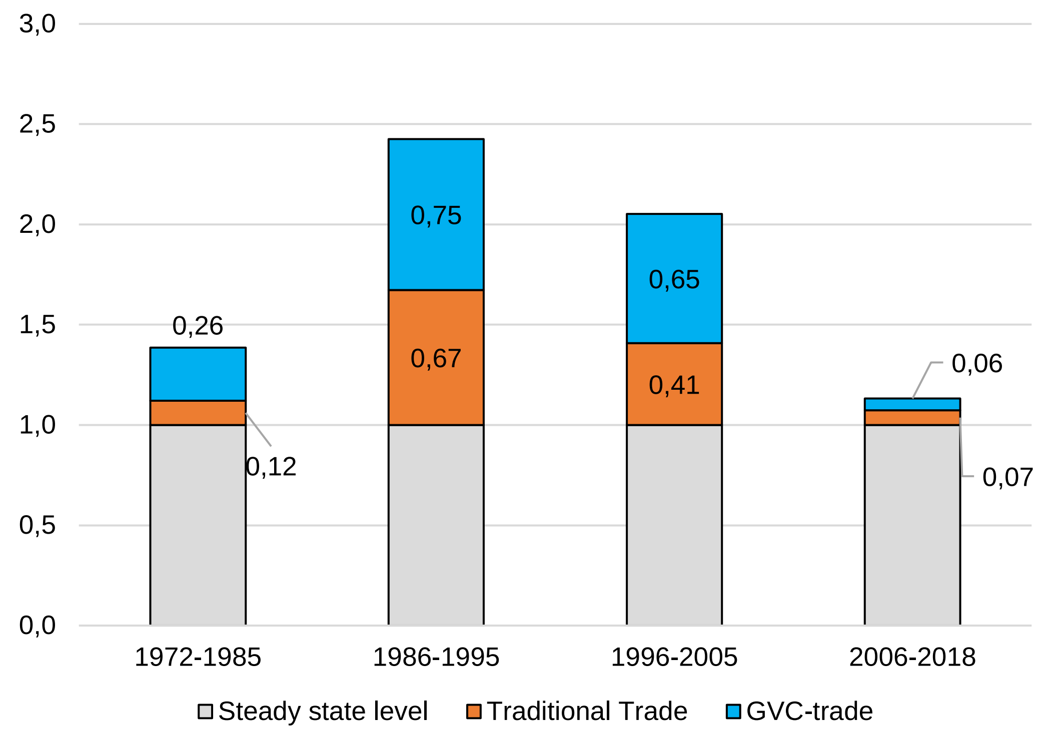


Source: Authors' elaboration on World Bank WDR 2020 data, Asian Development Bank MRIO, IMF. (1) GVC-trade decomposition from Alessandro Borin and Michele Mancini, "Measuring what matters in global value chain and value-added trade", Policy Research Working Paper, background paper of the World Development Report 2020, 8804.April 2019 (2019), 1-64

Borin A., Di Nino V., Mancini M., Sbracia M. (2018) "Trade Weakness: Cycle or Trend?" in: Ferrara L., Hernando I., Marconi D. (eds) "International Macroeconomics in the Wake of the Global Financial Crisis", Financial and Monetary Policy Studies, 2018, vol 46., Springer

Figure 2

Determinants of the relationship between trade growth and output growth (1)



Source: elaborations on World Bank, OECD, IMF WEO, Asian Development Bank MRIO data. (1) For the calculation methodology, see Borin A, Mancini M (2015) Follow the value-added: bilateral gross export accounting. Topics for discussion (Working Papers), no 1026, Bank of Italy.

Thanks to the increased division of labour and specialisation, for many years GVCs have positively contributed to global economic growth, poverty reduction and inequality between countries[7]. However, in period of crisis the increased interconnection between different economies and between companies operating in different markets facilitated the transmission of economic shocks, creating a global domino effect that led to trade blockages.

One element that characterises GVCs is indeed their procyclicality. In other words, the evolution of GVCs-related trade follows closely, with higher volatility, the evolution of economic activity. Moreover, the effect of integration in value chains on output is not constant, but procyclical, as shown in Figure 3, which plots the development of the world cycle and the responsiveness of economic output to the share of GVCs-related trade[8]. This

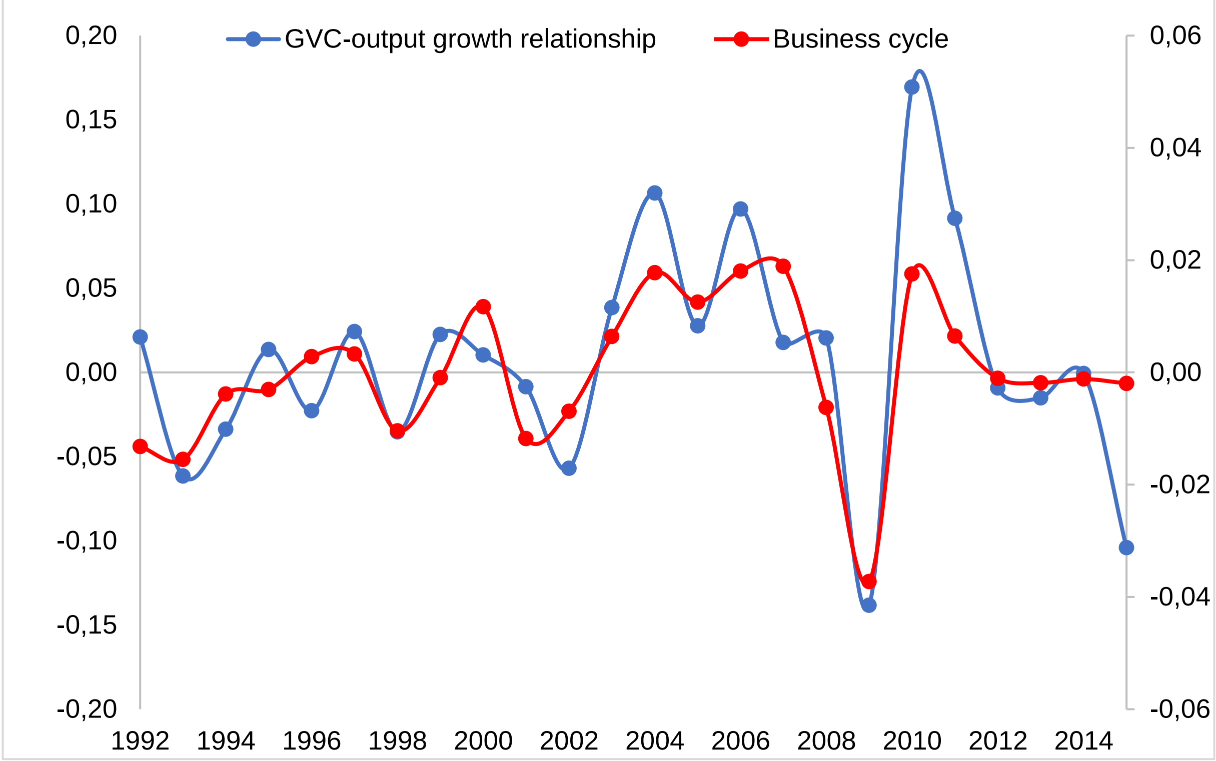
[7] World Bank, World Development Report 2020: Trading for Development in the Age of Global Value Chains.

[8] More precisely, we refer to the coefficient estimated in annual country-sector regressions carried out on Eora input-output table data (which provide more country coverage than other sources). The specification used is $\Delta y_{cst} = \alpha + \beta GVC_{cst} + \gamma_c + \delta_s + \varepsilon_{cst}$ where Δy_{cst} is the country's output growth rate c for the sector s in the year

means that, for example, a given level of GVCs participation is associated with output growth in expansionary phases and with output decline in contractionary phases. This dynamic is evident during the great financial crisis, when output contracts more in those countries and sectors most integrated in the value chains, or vice versa, during the subsequent recovery, when output expands more where the integration into value chains is higher. In other words, value chains transmit and amplify cyclical shocks: a negative impact during the downturns is matched by a positive stimulus during the upturns, when the recovery will be stronger in the most integrated sectors.

Figure 3

Business cycle and correlation between output growth and GVCs integration



Source: elaboration on EORA and IMF WEO data.

From a more structural point of view, a large body of literature has underlined how participation in GVCs and, more generally, in international trade is the result of being more productive, larger, more financially sound and in many ways better prepared firms to face moments of crisis[9]. Participation in GVCs implies high fixed costs, some of which sunk; it can therefore trigger both a selection effect of the "best" firms and the creation of

t (logarithmic difference), GVC_{cst} is the degree of participation in value chains (measured as the ratio of GVCs trade over output), γ_c and δ_s denotes country and sector fixed effects, and ε_{cst} represents the error term.

[9] *Bruegel Blueprint Series*, 43.3 (2008), 135–48.See, among others, Thierry Mayer and Gianmarco I. P. Ottaviano, "The Happy Few: The Internationalisation of European Firms", *Bruegel Blueprint Series*, 43.3 (2008), 135–48.

international linkages characterised by a high component of specific investments, which are relatively more robust compared to shocks[10].

Despite the post-crisis slowdown, GVCs-related trade continues to account for about half of world trade. The Covid-19 crisis fits into this context. The effects of the pandemic may have affected, as in the past, those companies and sectors that are most integrated in GVCs and therefore most exposed to external shocks. Moreover, to react to losses, firms may have been prompted to rethink their internationalisation strategies to improve risk-management associated with their international structure. In the following sections, we provide evidence on these aspects.

What future for Global Value Chains?

Covid-19 hit the world economy at a time when GVCs were already in a slowdown phase and the international landscape was less open than in the previous decades. The present crisis does not come in a period of expansion. On the contrary, economic actors and companies have been facing for years various factors of uncertainty, as well as increasingly rapid technological changes and limited cost advantages in emerging countries: it does not seem reasonable to think that companies, at least those actively involved in international activities and GVCs, were not aware of the changed international scenario.

If this hypothesis is correct, then we have to ask why we did not see a more pronounced retreat of globalisation earlier, i.e., just after the Great Recession. In turn, given that so far GVCs, while not expanding, are not clearly contracting either, why should firms change their plans now, given the presumably transitory nature of the pandemic shock?

Although some observers point out that Covid-19 might push towards deglobalisation and, in particular, imply the *reshoring* or *nearshoring* of production activities previously carried out abroad, there are some elements that make this less likely than it might appear at a first sight.

Several factors suggest that the pandemic may not induce drastic changes in GVCs in the long run. On the contrary, it cannot be ruled out that some technological changes may favour a rebound of globalisation, while much uncertainty remains about the role of economic policy choices.

[10] Pol Antràs, "De-Globalisation? Global Value Chain in the post-COVID-19 Age", *NBER Working Paper Series*, 28115. November (2020).

One of the reasons that might imply a certain degree of resistance to change in the GVCs relates precisely to the high fixed costs, some of which are *sunk* or non-recoverable, and the specific investments that international production requires. This leads not only, as mentioned above, to a selection effect of the firms that can bear these costs, typically the largest and most productive ones, but also to a hysteresis effect whereby past decisions matter. A degree of inertia or stickiness of GVCs is therefore likely: a firm that has invested abroad, directly or indirectly, even by just building up a network of relationships, has a disincentive to revise its decisions because it has already incurred the related sunk costs. On the contrary, it is the decision to change internationalisation strategy or to *reshore* that implies new fixed costs. Firms which, under current conditions, would choose not to relocate production, may still find it preferable to keep their offshored activities abroad.

A substantial change in the configuration of GVCs requires a shock that is not only very large but also with persistent and with long-lasting effects, or perceived so[11]. It is not obvious that the current crisis has such characteristics. Moreover, it remains to be considered that the shock has affected the major world economies in a substantially cross-cutting manner, albeit with differences in its magnitude. Companies' decisions will therefore also be linked to the domestic shock in their own country: the relative size of this shock compared to their partners could be a further decision-making factor for companies' internationalisation strategies.

The scant available evidence suggests that most firms have not currently moved their operations back home following the pandemic shock. The Shanghai American Chamber of Commerce's China Business Report 2020, conducted between June and July, shows that 71% of the more than 200 US companies surveyed have no plans to close their facilities in China[12]. Some 14% are relocating production, but not to the US. Only 3.7% *reshored*. The survey conducted by the Confederation of Swedish Enterprise[13] gives similar results: only 2% of Swedish companies declared that they would bring their foreign production back home. In order to improve risk management, about 15% of Swedish companies will increase the share of sourcing from Sweden, while 13% of large companies will increase the number of countries from which they source production inputs. Italian companies also seem to be following the same pattern: only 1.9% of those with plants abroad have brought their

[11] Ibidem.

[12] See https://www.pwccn.com/en/press-room/press-releases/pr-090920.html

[13] See https://www.svensktnaringsliv.se/english/no-reshoring-in-sight-for-swedish-firms_1162810.html

business back home in the last three years. This result, based on the interviews conducted by the Bank of Italy in the *Business Outlook Survey of Industrial and Service Firms* is analysed in detail in section 5.

Similarly, although some technological changes seem to reduce the benefits of international production, it is not obvious that their final effect is necessarily deglobalisation. Indeed, while automation and 3D printing imply respectively less need to exploit wage differentials and less need to trade, *ceteris paribus*, one has to consider the general equilibrium effects of such activities: for instance, the efficiency gains generated by new technologies lead to an increase in the scale of production and, in turn, in the demand for intermediate products, some of which are labour intensive and/or more efficiently produced abroad. What is the final effect, again, is not obvious and is mainly an empirical question. Some recent evidence contradicts the idea that automation is necessarily an alternative to trade. An industry-wide study of more than 200 countries shows a positive correlation between automation and trade in two decades before the pandemic (1995-2015): a 10% increase in the intensity of robot use in developed countries is associated with a 6.1% increase in imports from developing countries, especially of parts and components, and an 11.8% increase in exports towards them[14]. 3D printing also seems to have led, on average, to an increase in international trade; however, the positive effect would be decreasing with respect to the physical weight of the traded product, and would be the opposite for bulkier products[15]. Thus, not only might technological change not necessarily lead to a diminished role for GVCs, but information and communication technologies are likely to continue to reduce the costs of coordinating geographically dispersed activities.

Despite the above considerations, the possibility of *slowbalisation* turning into deglobalisation with an increase in the tendency to *reshoring* cannot be ignored. Some evidence in that direction exists. For instance, the *reshoring* index calculated by the US firm Kearney showed a strong increase in *reshoring* in the US, but prior to Covid-19 and almost entirely attributable to trade policies that caused a reduction in imports but did not lead to a sharp recovery in domestic manufacturing output[16]. Some commentators argue that

[14] Paulo Bastos, Erhan Artuc, and Bob Rijkers, 'Robots, Tasks, and Trade', *CEPR Discussion Paper Series*, 14487 (2020).

[15] Freund, Caroline; Mulabdic, Alen; Ruta, Michele. "Is 3D Printing a Threat to Global Trade? The Trade Effects You Didn't Hear About". Policy Research Working Paper;No. 9024. World Bank, Washington, DC. (2019).

[16] Patrick Van den Bossche et al, *Trade wars spurs sharp reversal in 2019 Reshoring Index, foreshadowing COVID-19 test of supply chain resilience*, 2020.

reshoring may now be facilitated by the pandemic that is effectively forcing firms to accelerate the adoption of automation technologies, which require less and better skilled labour and make the cost-savings of foreign production less apparent[17]. In this sense, automation-based *reshoring* would be seen as an alternative to integration into value chains[18]. Some recent contributions show how the pandemic has actually pushed some companies, mainly American, European and also Italian, to bring back some activities within their borders for different reasons including: (i) the need to reduce the degree of exposure; (ii) to improve quality; (iii) to increase domestic value-added where “Made in” can be a factor of competitiveness; (iv) to increase process and product innovation for which the proximity between manufacturing and research centres is advantageous; (v) environmental and social sustainability; (vi) erosion of the cost advantages of the previous relocation; (vii) economic policy incentives[19].

From the point of view of multinational firms, *reshoring* implies both costs and benefits. Notwithstanding the vulnerabilities of international production, the idea - perhaps intuitive and with a certain political appeal - that shortening supply chains and *reshoring* reduce risks and increase resilience has yet to be proven. Moreover, this reasoning is not supported by the specific literature on the subject[20].

The key question, beyond the anecdotal evidence, is to understand whether slowbalisation, the shortening of chains or their regionalisation and *reshoring* will become generalised trends in the near future. The question has obvious implications for research and economic policies, but, for now, as Pol Antràs notes, “*the anecdotal evidence based on individual firms' decisions that is often mentioned to justify the premonition of deglobalisation is not salient enough to show up in aggregate statistics*”.

As the future evolution of GVCs appears difficult to predict and partly dependent on policy choices, it is certainly useful to consider the advantages and disadvantages of possible developments. Some recent studies, while stressing the importance of diversification in

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[17] Dani Rodrik, "New technologies, global value chains, and developing economies", *NBER Working Paper Series*, 25164, 2018.

[18] Kemal Kilic and Dalia Marin, "How COVID-19 is transforming the world economy", *VoxEU. org*, 10.June (2020), 1–6.

[19] Paolo Barbieri et al., "What can we learn about reshoring after Covid-19?", *Operations Management Research* (Springer, 2020), 131–36; Centro Studi Confindustria, *Innovazione e Resilienza: i percorsi dell’Industria italiana nel mondo che cambia*, 2020.

[20] Sébastien Miroudot, "Reshaping the policy debate on the implications of COVID-19 for global supply chains", *Journal of International Business Policy*, 2020, 1–13.

coping with shocks, and the possibility that firms may change the current balance between production efficiency and risk management in favour of the latter, show quite clearly that a reduced role for GVCs would not bring benefits. A simulation of the effects of Covid-19 on 64 countries calculated an average GDP contraction of about 30%, of which more than a fifth was due to exposure to external shocks[21]. This seems to suggest that a lower degree of internationalisation may go some way towards mitigating the negative effects on the economy. Simulation results, however, point in the opposite direction: without GVCs, GDP would have contracted on average by a larger margin. Other studies come to similar conclusions[22]. Reducing the degree of dependence on foreign suppliers shields against external shocks, but at the cost of increasing exposure to the domestic economy, which is also susceptible to shocks. In essence, a retrenchment of GVCs does not bring any benefit in terms of increased resilience. This result allows for an interesting speculation: since international openness helps to mitigate the effects of shocks and containment measures more effectively, it is possible that GVCs help making such measures more sustainable for all countries. In this way, GVCs would act as a kind of support network, increasing the likelihood of appropriate action and thus facilitating virus control and economic recovery, as opposed to a scenario in which each country bears the full immediate cost of its measures and is therefore more disincentivised to implement them.

A comparison with the financial crisis

What will be the evolution and the role of GVCs in the coming years, as mentioned, remains an open question. However, it is clear that the current crisis is characterised by specific factors that differentiate it considerably from previous crises. The Covid-19 affected practically all countries in the world, albeit with different timing and effects, just as the countermeasures implemented by governments were partially different. Moreover, economic sectors were affected in a heterogeneous manner for reasons that were often exogenous and due to intrinsic characteristics of specific production activities. Differences in production structures and positioning within value chains are likely to have contributed to the country- and sector-specific effects of the pandemic.

[21] Barthelemy Bonadio et al., "Global Supply Chains in the Pandemic", *National Bureau of Economic Research*, 2020.

[22] Peter Eppinger et al, 'Covid-19 Shocking Global Value Chains', *Kiel Working Paper*, 2167, 2020.

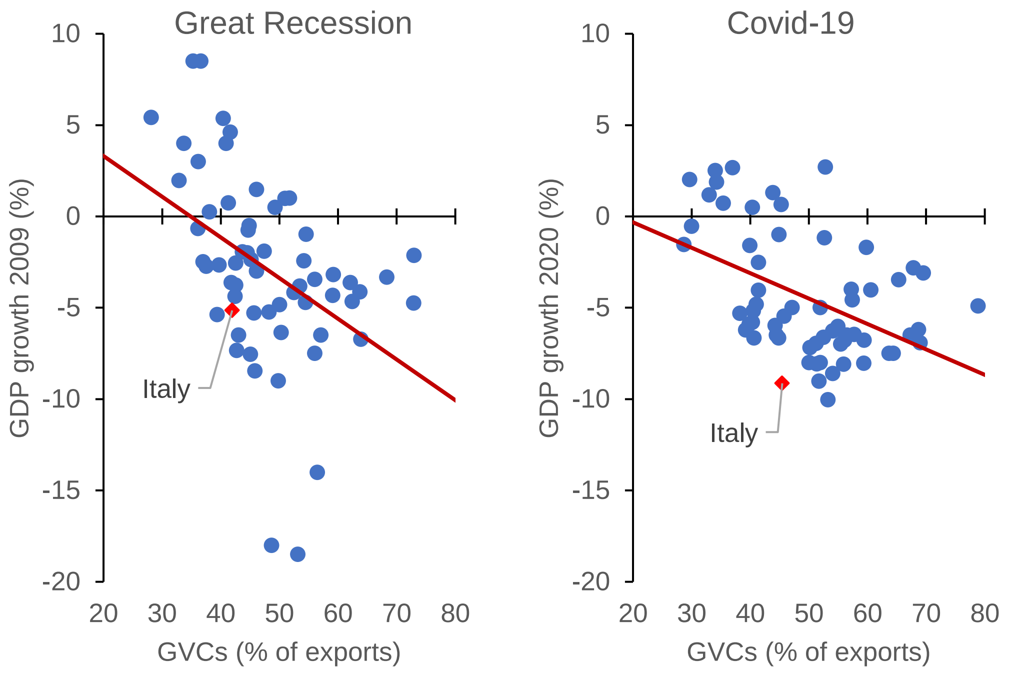
One of the most obvious aspects is that the nature of the contagion has affected more the activities that are more intensive in human contacts, i.e. services and some manufacturing activities. For the same reason, many of these activities also tended to be less open internationally. This suggests that the degree of participation in GVCs may not be particularly related to the negative effects of the shock.

The comparison between the financial crisis and the pandemic shown in Figure 4 is in line with this reading. In the figure, we have related GDP growth rates to countries' participation in GVCs, measured as the percentage of exports attributable to GVCs, i.e. goods crossing at least two borders[23]. During the financial crisis, greater involvement in GVCs corresponded to a greater contraction in GDP; however, this correlation is much attenuated (almost halved) in the current crisis.

[23] The indicator is calculated using the ADB MRIO input-output tables following Alessandro Borin and Michele Mancini, "Measuring what matters in global value chains and value-added trade", *Policy Research Working Paper, background paper of the World Development Report 2020*, 8804.April 2019 (2019), 1–64.

Figure 4

GDP growth rates and country participation in GVCs during the Great Recession and during Covid-19 (1).



Source: elaborations on ADB and IMF data. (1) The horizontal axis shows GVCs participation before the shock in 2008 and 2018 (latest year available), respectively.

The association between GVCs participation and GDP growth is obviously a simple correlation from which it is difficult to infer causes and effects, especially at the aggregate level. However, if it is true that Covid-19 slowed down activity more in less internationalised sectors, then we should observe a difference between the Great Recession, where this did not occur, and the pandemic. Figure 5 confirms this hypothesis. Using data for about four thousand listed firms, we consider the percentage change in revenues for each sector at the global level, and compare it with sectoral participation in global value chains: also in this case we find a negative correlation that markedly attenuated during the current crisis.

These elements suggest not only that the Covid-19 crisis is profoundly different from previous ones, but also that, given the characteristics of the virus, GVCs may not have played a particularly important role in shock transmission.

Figure 5

Sectoral turnover growth rates of companies and sectoral participation in GVCs during the Great Recession and during Covid-19

Source: elaborations on firmlevelrisk.com and Eikon data

The impact on Italy

Italy was the first western country in which the pandemic spread and the first to introduce in Europe stringent restrictions on mobility. The impact on the economic system is, according to Istat estimates, very large, around 9%[24]. The data from the *Business Outlook Survey of Industrial and Service Firms,* collected by the Bank of Italy between September and October 2020, allow for a more precise quantification of this impact: in the first nine months of the year, more than 60 per cent of firms recorded a drop in turnover of more than 4 per cent with respect to the same period of the previous year (Figure 6)[25]. Compared to the great financial crisis of 2009, the share of companies in the service sectors indicating a decrease in turnover is much higher, about three times, while for manufacturing the share is about 8 p.p.

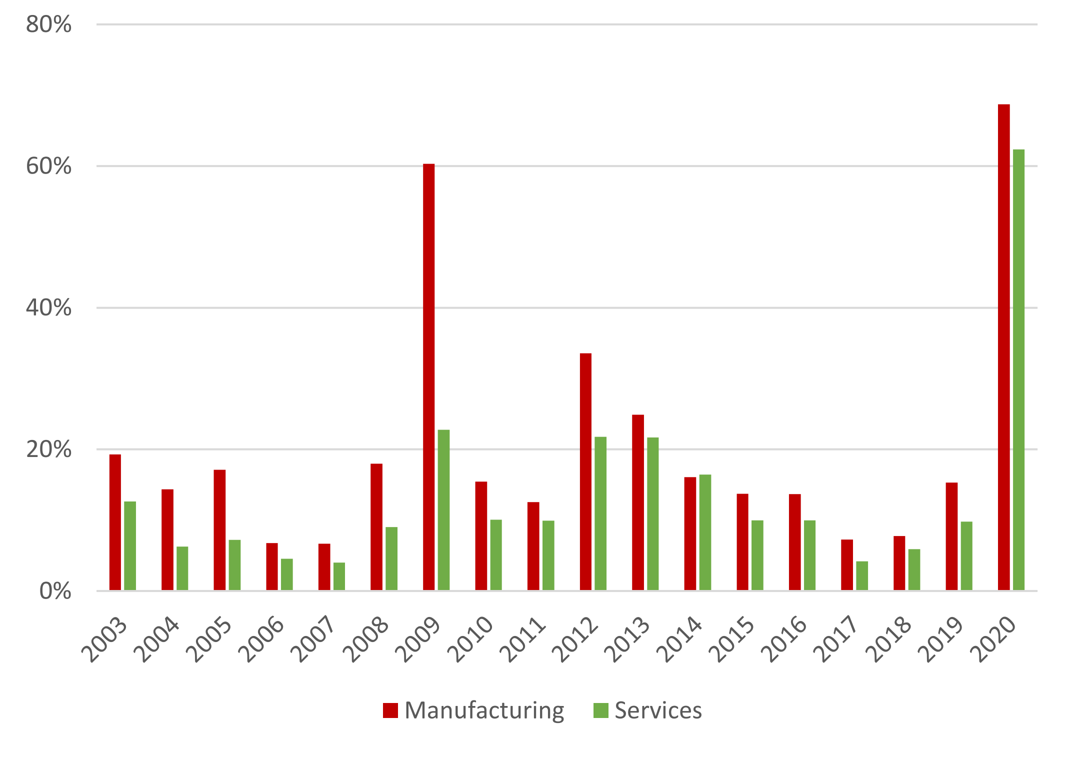
[24] See Istat, *Le prospettive per l'economia italiana nel 2020-21*, December, 3th 2020.

[25] This threshold is the only one comparable with the survey data conducted immediately after the Great Recession.

higher. The micro-data, therefore, confirm that the pandemic has hit services harder than in the previous crisis.

Figure 6

Share of companies indicating a decrease in turnover (1)

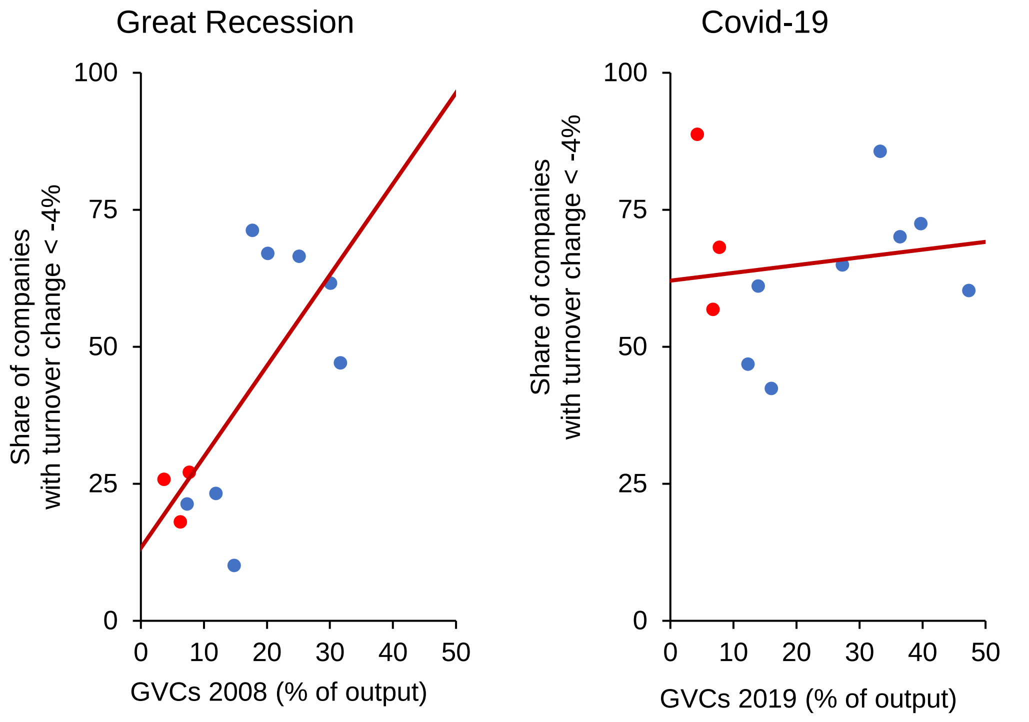


Source: elaborations on data from the Bank of Italy's Business Outlook Survey of Industrial and Service Firms. (1) Share of companies indicating a decline in turnover of more than 4 per cent in the first nine months of 2020 compared to the same period last year.

In addition, what has been observed on aggregate global data regarding the role of internationalisation and GVCs is confirmed also for Italian companies: while during the Great Recession the most affected sectors were those more integrated into GVCs, this relationship is less evident during the current pandemic. This is partly because services, which are structurally less engaged in GVC activities, were relatively more affected. Figure 7 shows the relationship between GVCs participation and the share of firms with turnover losses (greater than 4 per cent) during the Great Recession and during the Covid-19 pandemic: as expected, turnover losses were relatively more widespread in services.

Figure 7

Sectoral share of companies with turnover decreases of more than 4% and GVCs over output ratio during the Great Recession and during Covid-19 (1)

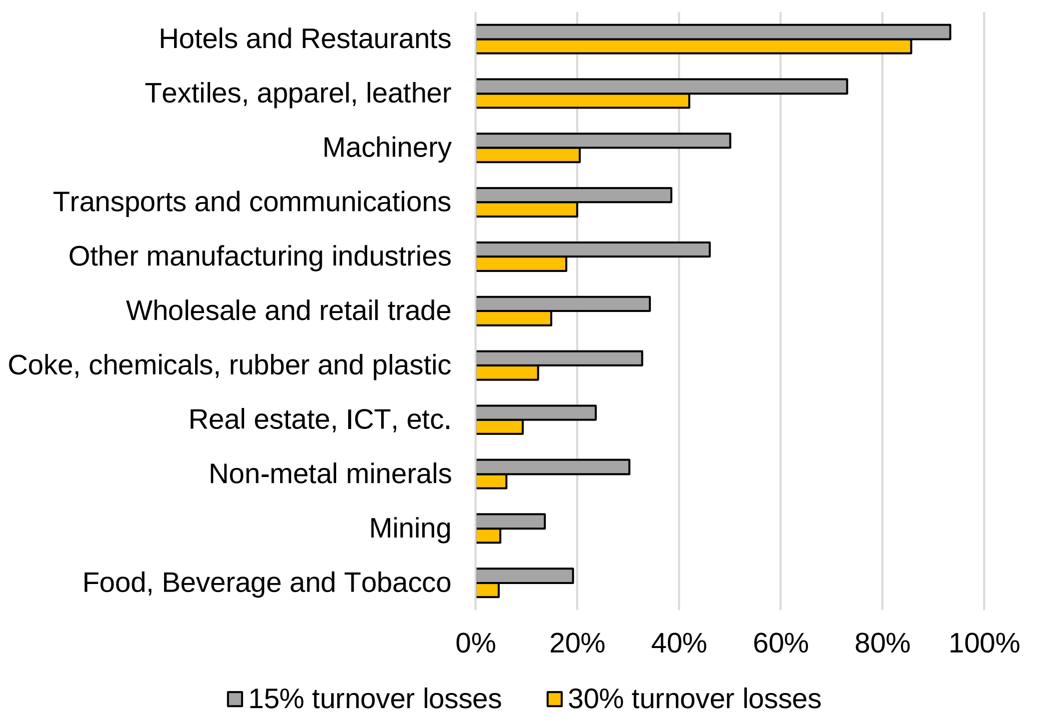


Source: elaborations on data from the Bank of Italy's Business Outlook Survey of Industrial and Service Firms. (1) Services sectors are shown in red.

The historical comparison allows us to appreciate how different the current crisis is from the past one both in terms of pervasiveness and sectoral composition. However, the 4% turnover decline threshold does not allow to fully appreciate the heterogeneity and the depth of the pandemic shock. Indeed, the effects of the current crisis are proving to be not only more pervasive but also more intense than in previous crises. Using higher thresholds (e.g. 30 per cent falls in turnover), one can immediately see how dramatic the losses have been for some sectors (Figure 8). In particular, the hotel and restaurant sector was the hardest hit, having been directly affected both by the constraints of *lockdowns* and falling demand. The textile sector also suffered significant losses, probably due to the drop in domestic and foreign demand. The food sector, instead, was less affected.

Figure 8

Sectoral percentage of companies with turnover decreases of more than 15 and 30%.



Source: elaborations on data from the Bank of Italy's Business Outlook Survey of Industrial and Service Firms.

It is therefore clear that the Italian economy, in which small and medium-sized enterprises are the majority, has suffered a severe blow from the pandemic shock. In recent years, several studies have shown the positive association between internationalisation and the performance of Italian companies[26]. Italy is deeply integrated in international production networks: sectoral participation in global value chains is in fact higher than the world average for all manufacturing sectors with the exception of computers and electronics; moreover, the main trading partners, Germany, the USA and China above all, are key hubs in the entire international production structure[27]. In light of this, it is important to provide some evidence,

[26] Among the others, Davide Castellani and Giorgia Giovannetti, "Productivity and the international firm: dissecting heterogeneity", *Journal of Economic Policy Reform*, 13 (2010); Alessandro Borin and Michele Mancini, "Foreign direct investment and firm performance: an empirical analysis of Italian firms", *Review of World Economics*, 152 (2016); Emanuele Brancati, Raffaele Brancati, Andrea Maresca, "Global value chains, innovation and performance: firm-level evidence from the Great Recession", *Journal of Economic Geography*, 17 (2017); Giorgia Giovannetti, Enrico Marvasi and Giorgio Ricchiuti, "Does the same FDI fit all? How competition and affiliates characteristis affect parents productivity", *Italian Economic Journal*, 5, 369-402 (2019).

[27] On Italy's GVCs participation see, for example: Giorgia Giovannetti, Enrico Marvasi, and Marco Sanfilippo, "Supply chains and firms' internationalization", *Small Business Economics*, 44 (2015), 845–65; Giorgia Giovannetti and Enrico Marvasi, «Food exporters in global value chains: Evidence from Italy», *Food Policy*, 59 (2016), 110–25; Giorgia Giovannetti and Enrico Marvasi, «Governance, value chain positioning and firms'

albeit descriptive, about the role of internationalisation during the most acute phase of the pandemic. It is natural to wonder, for example, whether the companies most integrated in the value chains suffered most than domestic ones from the pandemic, or whether, on the contrary, they were able to cope better with the crisis. Analysis of the micro-data seems to support this second hypothesis. In manufacturing, turnover losses tend to decrease as the degree of internationalisation of the company increases (Figure 9). Approximately one quarter of the manufacturing companies that operates only in the domestic market showed a sharp drop in turnover, exceeding 30%, while this share drops to 13% for companies that export a significant share of their products and, at the same time, import intermediate goods and have plants abroad.

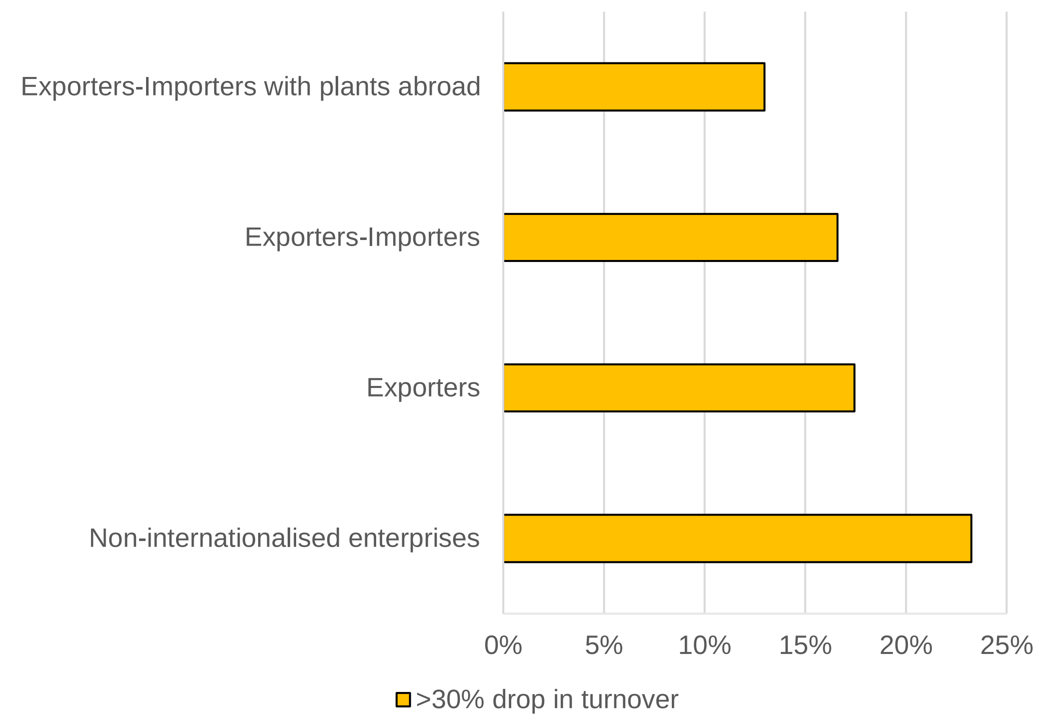
This association is certainly affected by other factors, such as firm size (internationalised firms are on average larger). However, a more formal analysis confirms that, even controlling for size, sector and geographical area, participation in GVCs is associated with smaller drops in turnover or, more precisely, with a lower probability of recording large drops in turnover (Figure 10). In particular, in the textile and machinery sectors, companies more involved in international production processes are about 20 and 15 percentage points less likely to experience large drops in turnover than companies operating only in the domestic market, all things being equal.

Although this preliminary evidence suggests that internationalised firms have coped better with the crisis, they have nevertheless suffered significant turnover losses. In the face of such losses, and given the increased uncertainties in international markets, from protectionism to recent geopolitical tensions, some firms may be inclined to review their internationalisation strategies in the near future. However, the micro-data indicate that, for the time being, this had not been the case for the majority of Italian firms.

heterogeneous performance: The case of Tuscany», *International Economics*, 2017; Alessandro Borin and Michele Mancini, «Participation in global value chains: Measurement issues and the place of Italy», *Rivista di Politica Economica*, 7 (2017); Antonio Accetturo and Anna Giunta, «Value chains and the great recession: Evidence from Italian and German firms», *International Economics*, 153 (2018), 55–68; Mariarosaria Agostino et al., «Firms' efficiency and global value chains: An empirical investigation on Italian industry», *The World Economy*, July, 2019, 1–34

Figure 9

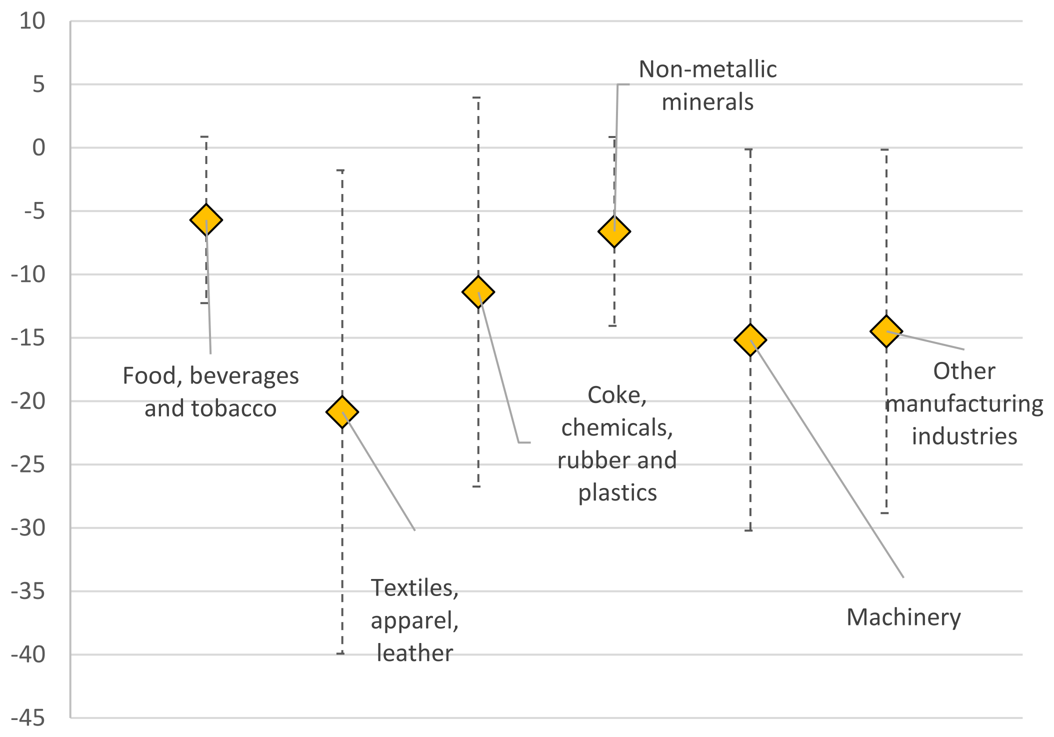
Percentage of enterprises in manufacturing with turnover drop >30% and international status of the enterprise



Source: elaborations on data from the Bank of Italy's Business Outlook Survey of Industrial and Service Firms.

Figure 10

Reduction in the probability of recording turnover losses of more than 30 per cent for internationalised companies (percentage points). (1)

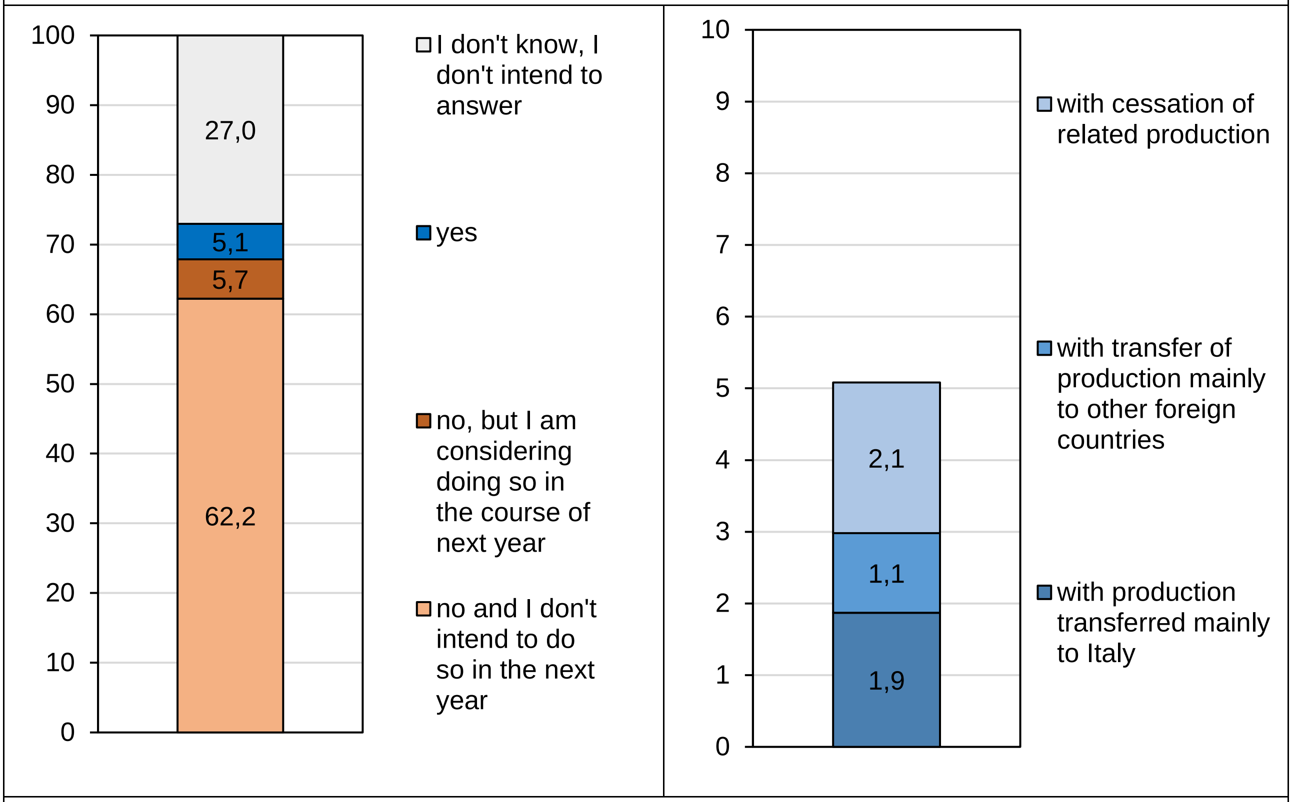


Source: elaborations on data from the Bank of Italy's Business Outlook Survey of Industrial and Service Firms. (1) The figure shows the marginal effect on the probability of recording turnover losses greater than 30 per cent attributable to the highest degree of internationalisation (export-import and at least one plant abroad), compared to the case of non-internationalisation, controlling for firm size, geographical area and sector. Estimates available on request.

Figures 11 and 12 suggest that the vast majority of companies have not reduced their international presence in the last three years and do not intend to do so (62% of the total number of companies with plants abroad); furthermore, they do not intend to reduce the number of foreign suppliers (78% of the total number of companies with foreign suppliers). This evidence is in line with the idea that, in order to create stable relationships, companies have incurred a high sunk fixed cost, which is irrecoverable in the event that the relationships are interrupted. As far as plants closures are concerned, although a non-negligible proportion of companies have stated that they intend to consider this strategy for the near future, in the last three years only a small number of companies has actually chosen to bring foreign production back home, through *reshoring* (1.9 per cent).

Figure 11

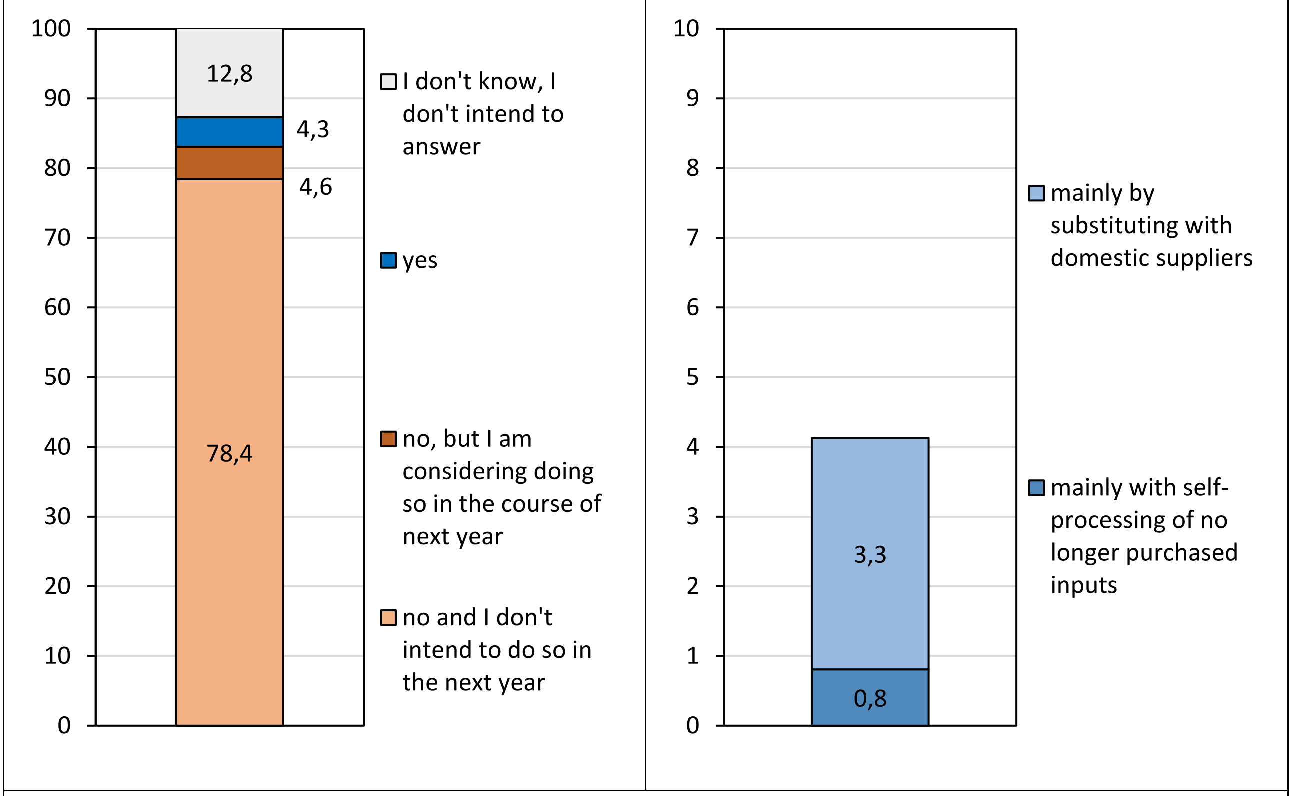
Has your company closed one or more production facilities abroad in the last three years?



Source: elaborations on data from the Bank of Italy's Business Outlook Survey of Industrial and Service Firms.

Figure 12

Has your company reduced the number of foreign suppliers in the last three years?



Source: elaborations on data from the Bank of Italy's Business Outlook Survey of Industrial and Service Firms.

Conclusion

The article contributes to the debate on the impact and transmission of shocks at both the aggregate and firm level. Moreover, it provides a first empirical evidence useful to quantify the impact of the Covid-19 crisis: sectors where value chains are more pervasive seem to have withstood the shock better than in previous crises (in particular compared to the 2008 financial and economic crisis). Indeed, we find an inverse correlation between GVCs and growth during crisis phases, but this correlation seems lower during the pandemic. During the financial crisis, both at the country- and sectoral-level, greater involvement in value chains corresponds to a greater contraction of GDP. In the current crisis, this relationship is found to be much weaker. This is true both at global and Italian level.

Analysing the data at the firm level, we describe how Italian enterprises integrated in the GVCs seem to have adopted “*wait and see”* attitudes and have not revised their choices. Reshaping GVCs, in fact, is not easy: in the short or medium term many intermediate products used in production processes are not easily replaceable or available from other suppliers. The relationship between firms is stronger the less standardised are the products exchanged (which implies wide sectoral differences). Disrupting existing relationships has a high sunk cost component. At the moment, therefore, it seems that the pandemic, which has reduced the turnover of most Italian firms, has not had the disruptive effects on *offshoring* that some commentators expected.

However, it cannot be ruled out that new changes in the economic environment or technology may push towards a geographical agglomeration of production activity and a reduced role for international trade. International trade is more costly and uncertain when protectionist policies prevail, as in recent years. Moreover, although the empirical evidence does not fully support this view, international trade may become less beneficial as automation and 3D printing expand. These processes (including robotics) reduce the role of cheap labour while increasing the importance of training, human capital and intellectual property protection.

In addition to the economic and technological factors mentioned above, the political and social scenario of the years to come will have a major influence on trade and internationalisation dynamics. The effects on incomes and employment and the increase in inequalities within countries have already contributed in the recent past to exacerbating tensions on international markets, and protectionist pressures have resulted in recent phenomena such as Brexit and the trade war between the United States and China. A transition towards a more sustainable globalisation is possible only by resorting to economic policies aimed at compensating for losses, increasing social inclusion of those most affected by the crisis, and managing the negative effects of new technological processes.