Cadeias de Valor Global e o Abrandamento da Globalização

Global Value Chains and the Slowing Down of Globalisation

Pompeo Della Posta

Abstract—As cadeias de valor globais (CVG) têm sido uma característica importante da fase de globalização económica que começou após os anos 80. Após a crise financeira global de 2007-08, contudo, esta fase chegou ao fim, sendo substituída e caracterizada por um abrandamento significativo do grau de abertura económica internacional, devido não só a razões económicas mas também geopolíticas. Os CVG também mostraram uma tendência de abrandamento do crescimento a partir daí. Os cenários futuros para as CVG, contudo, sugerem a possibilidade de serem mais resilientes do que o esperado. Uma primeira explicação teórica fornecida na literatura argumenta que a "reshoring" da produção intermédia estrangeira seria impedida pelos elevados custos irrecuperáveis que teriam de ser incorridos. Contudo, uma razão adicional possível para a resiliência das CVG - esta é a principal contribuição teórica deste artigo - devido à opção de "friendshoring" ou "nearshoring", em vez de "reshoring". Deslocar a produção para destinos estrangeiros mais adequados, caracterizados por uma proximidade política ou geográfica com o doméstico, evitaria os custos estratégicos e geopolíticos recentemente percebidos, mantendo os benefícios económicos da deslocalização, tornando os CVG resilientes.

Palavras-Chave — Cadeias de Valor Global, margens extensivas e intensivas, offshoring, friendshoring, nearshoring, reshoring.

Abstract—Global value chains (GVCs) have been a major feature of the phase of economic globalisation that began after the 1980s. After the global financial crisis of 2007-08, however, this phase has come to an end, being replaced by one characterized by a significant slowdown in the degree of international economic openness, due to not only economic but also geopolitical reasons.. GVCs have also shown a slowing growth trend after then. The future scenarios for GVCs, however, suggest the possibility that they may be more resilient than expected. A first theoretical explanation provided in the literature argues that the reshoring of foreign intermediate production would be prevented by the high sunk costs that would have to be incurred. However, an additional possible reason for GVCs resilience - this is the main theoretical contribution of this article - is due to the option of *friendshoring* or *nearshoring*, rather than *reshoring*. Moving the production to more suitable foreign destinations, characterized by a political or geographical proximity with the domestic one, would avoid the newly perceived strategic and geopolitical costs, while retaining the economic benefits of *offshoring*, thereby making GVCs resilient.

Keywords — Global Value Chains, Extensive and intensive margins, offshoring, friendshoring, nearshoring, reshoring.

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1 Introduction

Global value chains (GVCs) have been a major feature of the phase of economic globalisation that began after the 1980s. After the global financial crisis of 2007-08, however, economic globalisation has started to slow down, as it is clearly shown by Figures 1-6, reporting the relevant indicators of international trade in the goods and services markets and in the markets of the factors of production, namely labour and capital (both financial flows and foreign direct investment) (see also Ikenson, 2022). Such a *slowbalisation* (as it has been dubbed recently by the Economist, 2019) is due to both economic and geopolitical reasons (Olson, 2022). Although GVCs across the world markets have exhibited a similar tendency to slowdown, it has been observed that GVCs shocks may be affecting the intensive rather than extensive margins of trade (Antràs, 2020). In other words, while the percentage of intermediate production abroad may be reduced temporarily, the number of firms involved in such a production may remain relatively more stable. This suggests, then, that future GVCs may be more resilient than expected. A first theoretical explanation for such a phenomenon, given by Antràs (2020), has to do with the fact that *reshoring* home the intermediate production processes previously *offshored*, would imply paying a new (this time domestic) sunk cost, thereby making *reshoring* too costly. Hence the GVCs resilience.

In this paper, however, I am arguing that the conclusion of an expected future resilience of GVCs should not be based exclusively on the argument that *reshoring* is too costly, but also on the fact that previously *offshored* companies may be moved to friendlier countries rather than *reshored*, what has been defined *friendshoring* (The White House, 2021, Olson, 2022). Examples of *friendshoring* are the relocation of the Apple production plants from China to Vietnam (Connors, 2022), or Japan's plan to move the production of chips and semiconductors from China to some other South East Asian nations (Harput, 2022). Although *friendshoring* has been subject to some criticisms (Harput, 2022, Grossman, 2021), it can be argued that even without *reshoring* the production into the US or Japan (or the EU), the former would still allow for the proposed *decoupling* of the US or Japanese economies from the Chinese one, thereby avoiding any perceived risk of economic and geopolitical dependency from the latter (although at the cost of increasing a more general global stability risk).

In this article I propose a simplified model (extending Antràs, 2020) to show how, after a geopolitical shock hits the initial GVCs arrangement, *friendshoring* may provide a solution *tooffshoring* which is more cost-effective than than *reshoring*. Antràs (2020) shows that the high sunk costs to be incurred to reshore an offshore production are such as to discourage the reshoring, therefore concluding that GVCs will be resilient in the future. My point, still within the modelling framework of Antràs (2020) is that GVCs resilience can be obtained also through *friendshoring*, that may become more convenient than keeping the production *offshore* in the initial (now unfriendly) country. This conclusion is reached by considering both the incentives provided by subsidies that may be offered by domestic governments in order to encourage the move to friendlier countries (therefore reducing significantly the sunk costs implied by moving the production from one country to another) and the fact that *friendshoring* would still allow enjoying approximately the same low labour costs of the initial *offshore* country (as it would be the case, for example, when moving the production from China to Vietnam). The resilience of GVCs, then, would be obtained not only because reshoring would be too costly as opposed to keep producing intermediate goods *offshore*, but also because *friendshoring* (and *nearshoring*) may provide an additional viable alternative to *reshoring*, thereby changing the structure of GVCs, while preserving them. This article is structured as follows. Section 2 accounts for the current phase of deglobalisation. Section 3 discusses the evolution and current situation of GVCs in developing coun-

tries. Section 4 outlines the current and possible future scenarios for GVCs and Section 5 provides a simple model to account for phenomena like *friendshoring*, as opposed to outright *reshoring*, thereby providing an additional theoretical justification for the expected future resilience of GVCs described in Section 4. Some concluding remarks close the paper in Section 6.

2 Deglobalisation or *slowbalisation*

The first phase of economic globalisation covers the years of the Belle Époque, included between the end of the XIX century and the outbreak of World War I. The second phase started at end of World War II and the third phase is usually considered as starting at the beginning of the 1980s after the elections of Mrs. Margaret Thatcher as Prime Minister in the UK and Mr. Ronald Reagan as US President (this section draws on Della Posta, 2018a, 2020a, 2020b).

Some criticisms emerged a few years after the beginning of the third phase, focusing mostly on the negative effects it was producing on the economies of least developed and developing countries (Stiglitz, 2002, Rodrik, 2001) and to a minor extent on those of developed countries.[1]

Those critiques, coming mostly from a world Southern and 'left wing' perspective (referring, for example, to the fact that the world trade system was biased in favour of developed countries or that the 'losers' of globalisation in developed countries were not receiving the appropriate attention), were discarded as unreasonable and unrealistic attempts to stop the unstoppable, in line with the conclusions synthesized by the well-known TINA paradigm [2] (Bhagwati 2002, 2004, European Commission, 2002, Fischer, 2003 and Krugman, 1987). While stressing the expected benefits of globalisation, however, such rebuttals underestimated its actual costs, therefore overselling globalisation (see Stiglitz, 2005 and Rodrik, 2007).

It has been argued that those positions contributed to undermine the confidence in the élites advocating globalisation, producing the (this time) Northern and 'right wing' criticisms and populism as represented, for example, by the "America first" Trump's policies in the US starting in 2017 and Brexit, in the UK in 2016 (Stiglitz, 2017). After the 2007/08 global financial (and, as a result, economic) crisis, then, attention had started to be given again to the negative effects of economic globalisation by the press (Saval, 2017), academia (Krugman, 2016a, 2016b, Rodrik, 2017, 2018a, Stiglitz, 2017), and international institutions (European Commission, 2017, OECD, 2017, IMF/WB/WTO, 2017). Those analyses show clearly that some of the critical aspects that had been pointed out in the past were still there, for example as for the costs resented by large sectors of the population of the otherwise winning Northern part of the world (see Della Posta, 2020a and 2020b for further details). It seems possible to synthesize those problems with the observation that globalisation produces winners and losers who inevitably, at some point, react (Williamson, 2005 and De la Dehesa, 2006).

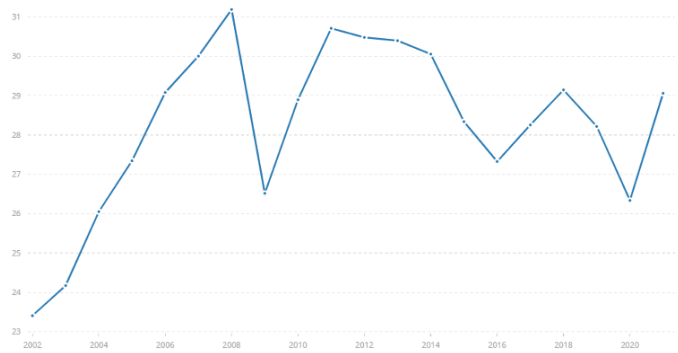
Political events like the 2016 Brexit referendum, and the November 2016 election of Mr. Donald Trump as President of the USA, can be interpreted precisely as such a reaction. They have been followed by the spreading of the Covid-19 pandemic crisis (which broke out in China in late 2019-early 2020) and by the growing tensions between the USA and China, suggesting then that the process of globalisation that started at the beginning of the 1980s has now changed nature, to say the least.

As a matter of fact, world exports of goods and services as a ratio of world GDP (Figure 1) have been showing over the last 14 years a clear downward trend, going from a peak of 31.2% in 2008 to 26.5% in 2020 (the clear effect of the pandemic) and 29.1% in 2021.

1. Della Posta (2018a) provides a detailed account of the many critical aspects accompanying the process of economic globalisation.

2. TINA is the acronym of the phrase, attributed to Ms. Thatcher, "There Is No Alternative" (to globalisation).

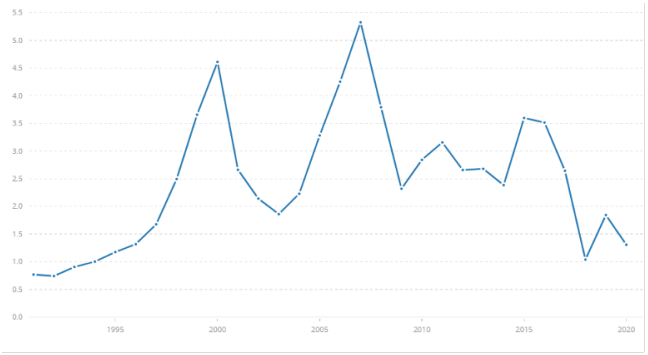
Figure1: World Exports of Goods and Services (% of World GDP).



Source: https://data.worldbank.org/indicator/NE.EXP.GNFS.ZS

The current degree of capital mobility is subject to tensions because of the negative consequences it is believed to produce in the countries of origin (for example because of the losses of domestic unskilled jobs that foreign direct investments [FDIs] imply). World FDIs net inflows for example, fell from a peak of 5.3% in 2007 to 1% in 2018 and 1.3% in 2020, again, with a clearly identifiable downward trend (Figure 2).

Figure2: World Foreign Direct Investment Net Inflows (% of World GDP).



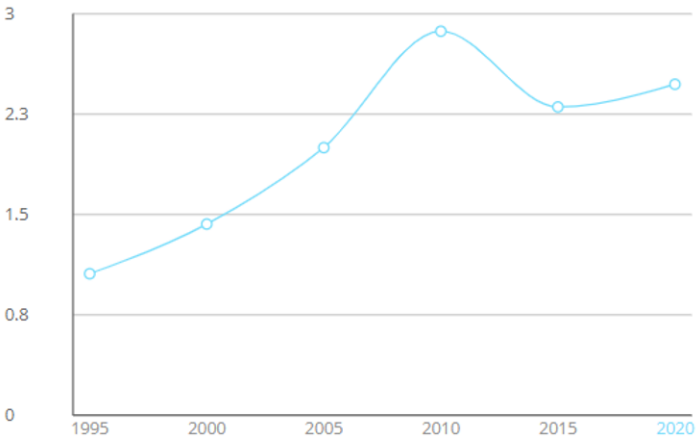
Source: https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS

As for migrations, the year-to-year variation of the stock of international migrants has been decreasing from the peak reached in 2010 and has only recovered slowly after 2015 (Figure 3). [3]

Figure 4 depicts the trend in the ease of hiring foreign labour (2008-2020), based on the Executive Opinion Survey conducted by World Economic Forum (2020), over the last few years. What we observe is that the indicator relative to advanced economies has been worsening (in 2018 for the first time respondents from emerging and developing economies found it easier to hire foreign people than respondents of the advanced ones).

The overall picture, then, corroborates the idea of a slowbalisation. This phenomenon is also explicitly recognized by Catão and Obstfeld (2019), Frieden (2019) and Hoeckman (2015), among many others. Events have proved, then, that Mrs. Thatcher's TINA conclusion is far from granted and globalisation can be at least slowed down, if not halted, when people conclude or just believe that it is not in their interest anymore.[4]

Figure3: Annual Rate of Change in the Migrant Stock in 5 years prior to 2020

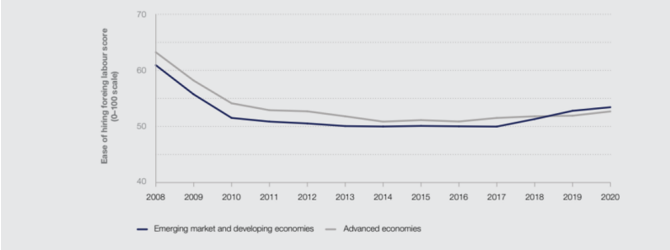


Source: UN DESA 2020 (https://www.un.org/development/desa/pd/content/international-migrant-stock)

3. TINA is the acronym of the phrase, attributed to Ms. Thatcher, "There Is No Alternative" (to globalisation). l.org/themes/international-migrant-stocks

4. Rodrik (1999) had anticipated the risk that "economic integration" might be accompanied by "social disintegration" because of the social opposition and problems it raises.

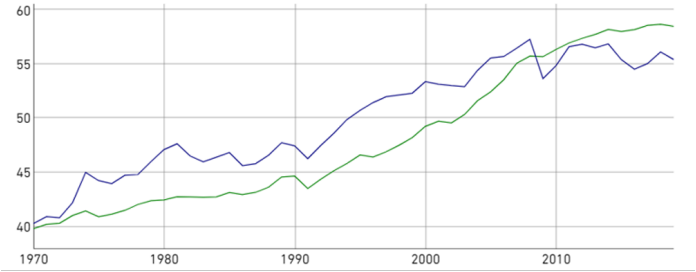
Figure4: Trends in ease of hiring foreign labour, emerging market and developing economies vs. advanced economies, 2008-2020



Source: World Economic Forum, Global Competitiveness Report 2020, Fig. 3.7 (https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2020.pdf)

A synthetic index of the evolution of globalisation is provided by Gygl et al. (2019), both 'De facto', namely as measured by the actual data reflecting the different aspects of globalisation, as De jure', namely by looking at the legal aspects affecting globalisation.[5]

Figure5: De Facto Trade Index and and De Facto FKO Globalisation Index.



Source: Gygli et al. (2019)

Focusing only on the De facto indexes, Figure 5 shows clearly how the overall Globalisation Index (represented by the initially lower curve) has been changing shape after the global financial crisis (with the second derivative being positive until 2007/08 and turning negative afterwards). If we compare it with the (still De facto) Trade Index, which is the curve initially above the former, we also observe that after 2007/08 the latter falls below the overall Globalisation Index and never goes back above it (this means that the Trade Index contributes negatively to the overall Globalisation Index). This also means that world trade has resented the drop in economic interactions more significantly than the labour and capital markets.[6]

The signs of the difficulties in the openness to international trade is also reflected in the current stalling of the WTO (the Doha Round, initiated 20 years ago, has never been concluded), in the difficulties experienced also in the processes of regional integration (Brexit in Europe and the US-Mexico Agreement–USMCA– revision, for example), in the failure of attempts to build transregional agreements (the Transatlantic Trade and Investment Partnership, TTIP, that should have integrated the United States with the European Union, and the Trans-Pacific Partnership, TPP, that should have integrated the Americas with Asia, and eventually went ahead without the USA under a modified designation), and maybe even more importantly, the recent USA-China trade war.

3 The evolution and the current situation of GVCs

An additional relevant feature of the wave of globalisation that started in the 1980s is the creation of complex global value chains (GVCs). ICT developments, a favourable international trade policy climate allowing for the reduction of trade barriers, and political developments that made it possible to increase the labour force available worldwide (Antràs, 2020), have allowed for the fragmentation of the production process, scattered over different parts of the world (although with some significant exceptions, like most of the African continent, or some landlocked regions of central Asia, recently involved in the Belt and Road Initiative, for example).

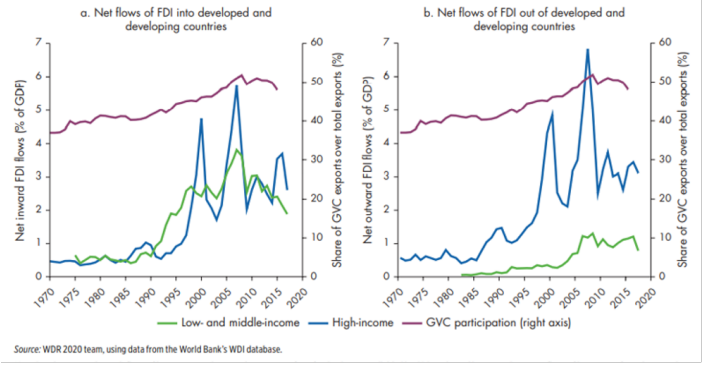
The formation of complex GVCs has been accompanied (and made possible) by the capital inflows resulting from foreign direct investments. Figure 6 shows the clear correlation between respectively inward and outward FDIs and GVC

5. The calculation of the KOF Globalisation Index was initiated by Dreher (2006).

6. The data are available until 2019, which means that the effects of the Covid-19 pandemic and of the intensifying trade war between USA and China are not captured by the figure yet.

participation for Low-, Middle- and High- income countries.

Figure6: Foreign direct investment and GVC participation



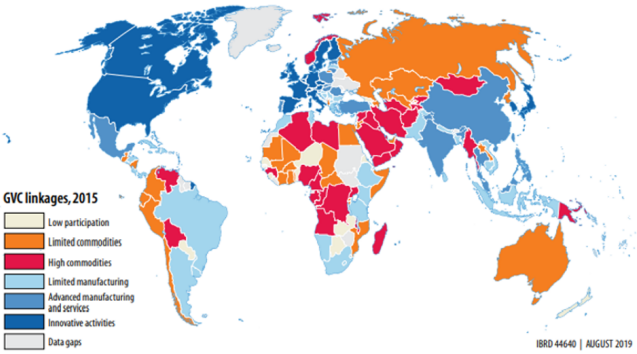
Source: WTO (2021) (Figure 1.15).

It is possible to measure GVCs by looking both at the production of the same good taking place in different countries as a ratio of the total production (Wang et al. 2017), or by looking at the exports of finished and unfinished products occurring more than one time across borders as a ratio of total trade (Borin and Mancini, 2019).

A further distinction refers to the different role played by a country in participating in a GVC. It is possible to distinguish, then, both forward GVC participation of a country (when the goods and services produced by that country are sold to foreign buyers), or backward GVC participation (when the country's production inputs are supplied by foreign countries). If the forward length is longer than the backward length, then that country is said to be relatively upstream, while it is said to be relatively downstream when the opposite applies (WTO, 2021).

Participation in GVCs differs significantly across countries in the world. Figure 7 provides a graphical representation of the situation in 2015.[7]

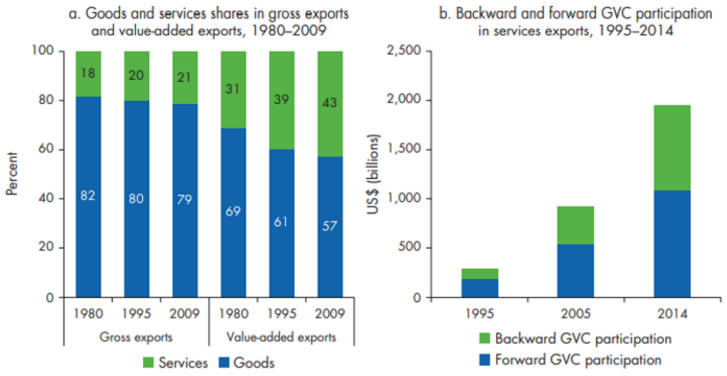
Figure7: World distribution of GVCs participation by macro-sector of activity



Source: World Bank (2020) (Map 1.1)

Figure 8 also shows the growing role of services with respect to goods in GVCs participation.

Figure8: The growing role of services in GVCs

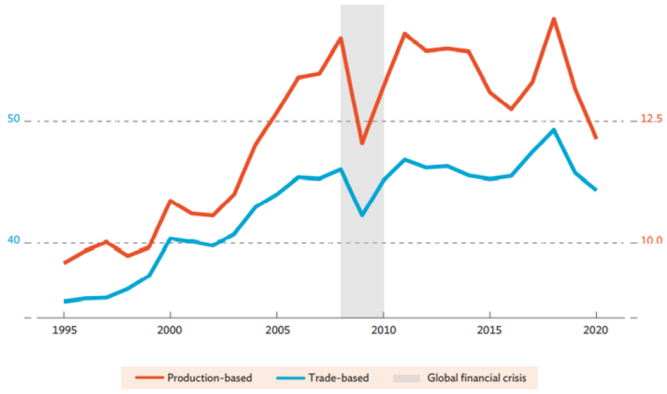


Source: World Bank (2020) (Figure 1.12)

7. Clearly, the value added resulting from the participation in a GVC is not the same across all its different components. Specialization in some phases of the production process (advanced manufacturing and services, or innovative activities, for example), may result in value added that is much higher than others (on commodities, for example). This is why a crucial element to consider is the evolution in the GVC participation of countries, to verify whether they manage to upgrade their participation and secure an increasing value added. Rodrik (2018b) provides a very interesting, but skeptical, view on the potential for development of least developed and developing countries resulting from their participation in GVCs.

When looking at the data, however, it is not surprising to observe that the current slowdown of globalisation is also reflected in the measures of GVCs intensity, in spite of the nominal growth (although at lower rates) of global indirect exports (the numerator of the trade-based GVC participation rate), Figure 9 shows that after the global financial crisis, participation rates (as resulting from both the production-based and the trade-based GVCs indexes) have stalled to say the least, with a dramatic drop in 2020 as a result of the pandemic crisis.

Figure9: Global Value Chain Participation Rates, World 1995-2020



Source: Global Value Chain Development Report 2021.

New phenomena like the so-called *reshoring* (bringing most of the production back to the home country), *friendshoring* (moving the production abroad to countries that are more politically aligned with the home country), or *nearshoring* (moving the production abroad geographically closer to the home country) explain such a slowdown of GVCs(Olson, 2022, Connors, 2022) and may be playing an even larger role in the future (The White House, 2021, Harput, 2022), given the objective of *decoupling* the domestic economy (removing any dependency from abroad or at least from countries that are not perceived as "friends").[8]

In Figure 10, the WTO (2021) identifies the most relevant economies driving indirect trade both by magnitude and growth in three benchmark years: 2000, 2010, and 2019. *Slowbalisation* is apparent from the GVCs data by observing how in France, China, Germany and Netherlands (4 of the 5 top indirect exporting countries), the (still positive) rate of growth of the indirect exports of 2019 has decreased dramatically compared to 2010. The change is particularly significant for China, whose indirect exports dropped from a growth rate of 20.0% a year in 2010 to a mere 4.6% in 2019. This may be due to the rising cost of labour in China, to the efforts of the Chinese government to reduce the dependency on external channels for the country's economic growth, but also to some *friendshoring* or *nearshoring* process undertaken by foreign companies and penalising the Chinese production of intermediate goods. Such phenomena are clearly apparent in countries like Cambodia, Lao PDR and Nepal when comparing their 2010 rates of growth of intermediate trade with those of 2019. Figure 10 shows that Cambodia's rate of growth of intermediate trade has moved from 11.9% in 2010 to 17.1% in 2019, Lao PDR's from 12.4% in 2010 to 16.5% in 2019 and Nepal's from 1.8% in 2010 to 13.1% in 2019.

Figure10: Economies with major indirect exports (million $)

Economy	Gross Exports			Indirect Exports		
	2000	2010	2019	2000	2010	2019
World	7,418,146	17,638,600	24,594,288	3,018,079	7,963,467	11,254,582
		(8.7%)	(3.7%)		(9.7%)	(3.8%)
Top 5 by Magnitude, 2019						
Germany	585,655	1,385,309	1,810,593	237,832	631,683	949,316
		(8.6%)	(3.0%)		(9.8%)	(4.5%)
United States	926,628	1,552,490	2,514,751	333,968	559,297	948,578
		(5.2%)	(5.4%)		(5.2%)	(5.9%)
PRC	262,018	1,697,752	2,664,103	80,676	595,559	903,902
		(18.7%)	(5.0%)		(20.0%)	(4.6%)
Netherlands	199,698	481,024	755,817	89,180	269,426	448,621
		(8.8%)	(5.0%)		(11.1%)	(5.7%)
France	356,767	649,302	862,767	144,159	295,172	424,097
		(6.0%)	(3.2%)		(7.2%)	(4.0%)
Top 5 by Growth, 2010–2019						
Cambodia	1,258	4,041	16,549	468	1,538	7,186
		(11.7%)	(15.7%)		(11.9%)	(17.1%)
Lao PDR	452	1,548	6,985	164	566	2,498
		(12.3%)	(16.7%)		(12.4%)	(16.5%)
Viet Nam	17,155	83,474	279,720	6,287	45,482	164,563
		(15.8%)	(13.4%)		(19.8%)	(14.3%)
Nepal	984	1,067	2,666	282	337	1,093
		(0.8%)	(10.2%)		(1.8%)	(13.1%)
Mongolia	441	2,955	8,413	196	1,315	3,433
		(19.0%)	(11.6%)		(19.0%)	(10.7%)

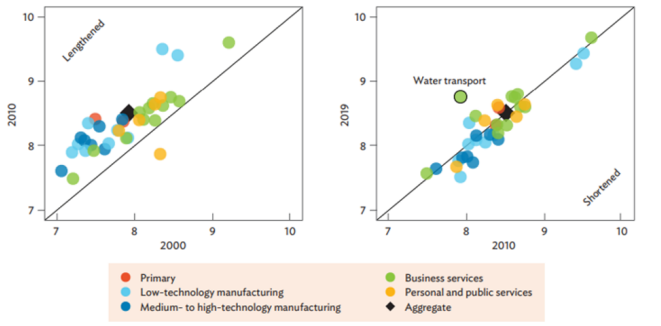
Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Notes:
1. Magnitudes are in millions of current dollars.
2. Numbers in parentheses are compounded average growth rates for 2000–2010 and 2010–2019.
3. Estimates of indirect exports are based on the source-based decomposition methodology of A. Borin and M. Mancini. 2019. Measuring What Matters in Global Value Chains and Value-Added Trade. *Policy Research Working Paper*. No. 8804. Washington, DC: World Bank.
Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Source: WTO, 2021 (Figure 1.1).

8. Harput (2022) doubts that moving the production from one country to another abroad would really allow the desired *decoupling*.

The overall current difficulties of GVCs emerge clearly also by looking at their production lengths, namely the number of *backward* and *forward* passages of the production process. Figure 11 shows clearly that while the length increased in most sectors over the period 2000-2010, it decreased over the period 2010-2019.

Figure11: Global Value Chain Production Lengths by Sector, World, 2010, 2019.



Notes: Global value chain production lengths are the sum of backward and forward lengths, computed following the methodology of Z. Wang, S. Wei, X. Yu, and K. Zhu. 2017. Characterizing Global Value Chains: Production Length and Upstreamness. *NBER Working Paper*. No. 23261. Cambridge, MA: National Bureau of Economic Research.
Sources: Asian Development Bank. Multiregional Input–Output Database. https://mrio.adbx.online (accessed 31 July 2021); Asian Development Bank estimates.

Source: WTO (2021) (Figure 1.3).

Evidence of the *slowbalisation* era emerges, then, both in the globally stagnant GVC participation rates and in the shortening of GVCs lengths, although some emerging countries are trying to take advantage of the retreat of China (this is the case, for example, also of Bangladesh in textiles and garments, the Philippines in business services, and Vietnam especially in electricals, see World Bank, 2020 and WTO, 2021).

4 Is the future scenario for GVCs really gloomy?

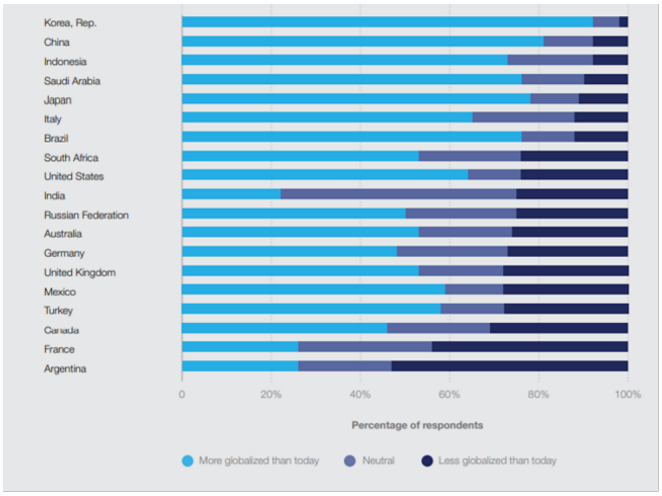
The current difficulties of the state of economic globalisation, as represented in the sections above), would suggest that the scenario that we should expect for the future of GVCs should be anything but gloomy. This is what Morgan Stanley (2022), for example, suggests.[9]

The current increasingly significant trade war between China and the United States, the COVID-19 pandemic crisis, and the Russian Federation's invasion of Ukraine, with the difficulties at different levels that all of these events have brought to the operation of GVCs (thus increasing the awareness on the part of individual countries and international institutions such as the European Union that the restoration of some form of industrial policy and the reduction of foreign dependence for some key inputs could be considered), are all suggestive of a future diminishing role for GVCs.

However, somewhat surprisingly at first sight, a recent survey on business leaders' opinions about the future of value chains' globalisation conveys a different picture (see Figure 12). The survey shows that for the large majority of the respondents from countries that play a rather significant role in the globalisation process (including China, the USA, Germany, Brazil, the Russian Federation, just to name a few) either globalisation is going to increase or it would remain like this (a neutral attitude).

9. Applying Rodrik's approach to GVCs (2018b) to this issue, we can argue that this might not be a serious problem if GVCs do not play a so significant role (at least in their current form) in favouring the development of the countries who are engaging in them.

Figure12: Business leaders' opinion on the future of value chains globalisation



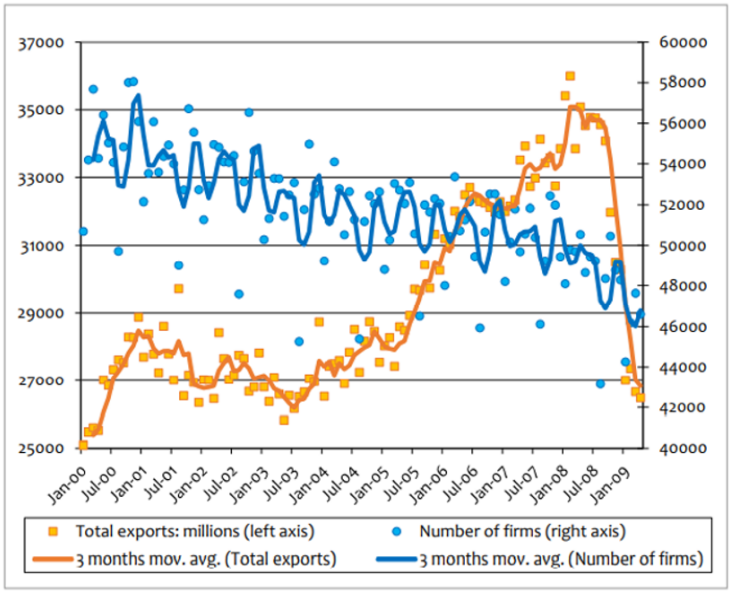
Source: World Economic Forum, Global Competitiveness Report 2020 (Figure 3.8). https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2020.pdf

So, a puzzle seems to emerge: the globalisation process has been scaled downwards, correspondinglyGVCs have also stalled, but business leaders are still willing to assign a relevant role to GVCs. Moreover, some studies have also show that GVCs may be more resilient than expected (see for example, Antràs, 2000, Dadush, 2022 or Giglioli et al., 2021). Antràs (2020), for example, argues that that fixed investment costs (*sunk costs*) must be borne by firms that want to take advantage of the low-cost production opportunities available abroad. *Reshoring*, then, would imply wasting the initial sunk costs and undertaking new ones (in addition to stop enjoying the lower labour costs available abroad). In other words, the past decisions to *offshore* part of the production process may be difficult to revert, being too costly. Needless to say, uncertainty in regard to the future perspectives may make this decision even more difficult. Only exogeneous shocks that are recognized as permanent would allow to calculate more accurately the expected benefit of a partial or complete relocation (Antràs, 2020).

Still, Antràs (2020) presents a quite significant figure showing how, in spite of the 2007-08 global financial and economic shock (producing its negative effects also in 2009) that implied a dramatic drop of the three month moving average of exports, the three month moving average of the number of firms engaged in those export activities has been relatively more stable (see Figure 13). In other words, the shock has affected the *intensive* rather than *extensive* margin of trade (Bricongne et. al., 2012 and Antràs, 2020).

Further suggesting a relative resilience of GVCs, despite the bleak future of global trade relations, however, is the fact that future globalization may be increasingly characterized by what has been called *friendshoring*, which does not imply their abandonment. The term *friendshoring* originates from the USA-China trade war, in particular from a document of the White House (The White House, 2021) encouraging either the reshoring or the move to friendlier countries of the intermediate production of US companies. Such an indication has been relaunched at a high level, and even more explicitly, by the US Treasury Secretary, Ms. Janet Yellen (Atlantic Council, 2022). These proposals have been subject to some criticisms as to their effectiveness and long term sustainability (Grossman et al., 2021, Harput, 2022), not to mention the more general negative effects on the perspectives of peaceful relationships at the global level.

Figure13: The Extensive Margin of Trade during the Great Recession



Source: Bricongne et al. (2012, Figure 1)

While keeping these criticisms in mind, in the next subsection I will extend the simple model of Antràs (2020) (in which he provides a theoretical explanation of the resilience that GVCs might show in the future, due to the high costs of *reshoring*), to provide a theoretical representation of the *friendshoring* tendency described above, a phenomenon that implies the absence of *reshoring* and thus may also contribute to determining the possible resilience of GVCs as described above.

5 *Reshoring or Friendshoring?* A simple theoretical formalisation supporting the conclusion in favour of GVCs resilience

Following Antràs (2020), let us consider a simplified two-country model (we can think of a developed Nord, N henceforth, and a developing South, S henceforth). Production is assumed to be made of two different phases, a managerial one, which needs mostly human capital (K) and a manufacturing one, requiring mostly unskilled labour (L). The two phases are assumed to be used in fixed proportions, and to produce 1 unit of product Y are needed both all of K (provided by N because of its comparative advantage resulting, for example from the historical evolution of the country) and all of L (provided by S, again because of the historical heritage). Y, however, could also be produced fully in N, although at a higher marginal cost than in the case it is produced in S. So, we can say, for example that hiring an unskilled worker in N costs $\mathrm{W^N}$ while hiring her in S costs $\mathrm{W^S} < \mathrm{W^N}$. Still following Antràs (2020), we can also assume (to account for the fact that, for example, not all lower wages are such as to attract manufacturing activity) that workers of S are less productive than those in N, although the lower productivity is not such as to nullify S's lower unit cost of wages. So we can say that N requires 1 worker at the cost $\mathrm{W^N}$ to produce 1 unit of Y while S requires $\mathrm{Z^S}$ workers (with $\mathrm{Z^S} > 1$) at the cost $\mathrm{W^S}$, in such a way that $\mathrm{Z^S\ W^S} < \mathrm{W^N}$.

When producing in the South, however, there are also some additional costs that need to be considered. Antràs (2020) focuses on advalorem ICT costs, shipping costs, and tariff costs, that in this model can be aggregated for simplicity and called $\mathrm{c^S}$.

The firm will decide to fragment the production across the South of the world, then, only if the overall marginal cost of production in the South is lower than the cost of producing in the North, as shown in Eq. (1) below:

$$(1) \qquad \mathrm{Z}^S W^S C^S < W^N$$

We have considered so far only the variable costs of manufacturing intermediate products abroad, but some fixed costs have also to be incurred. Let us define C_N the *sunk cost* incurred when producing in the North and C_s the *sunk cost* incurred when producing in the South. We should also assume, for reasons due to distance, differences in the legal and regulatory environment and so on, that $C_s > C_N$, and to economize the notation we can just consider the difference between the two, so that we have $C_{s-n} = C_s$ - C_n. So, in the first period of production, in order to be optimal to produce in the South it must be that:

$$(1') \qquad \mathrm{Z}^S W^S C^S + C_{S-N} < w^N$$

Still following Antràs (2020), we can adopt the standard assumption of monopolistic competition in which consumers demand different varieties of the same product with preferences characterized by a constant elasticity of substitution (CES), so that a markup can be charged on the marginal costs depending on the value taken by the price elasticity of the demand faced by the firm, which is denoted with σ (so, when $\sigma < 1$ marginal cost differences do not matter fully and intra-marginal trade, characterized by trade in different varieties of the same products, takes place even in presence of cost differences, while when $\sigma \to \infty$ and products are therefore fully substitutable, the difference in the marginal costs when operating in N or in S matters fully). As mentioned above, the capital and labour services are used in fixed proportions, with a unit of output requiring a_K units of capital services and a_L units of manufacturing production. Let us consider, still to simplify the notation, a managerial zero marginal cost, and let us consider a price elasticity of the demand faced

by the firm as constant and represented by σ. It turns out that the firm will want to engage in a fragmentation of the production process, moving the manufacturing phase abroad, if and only if:

(2) B $(a_L Z^S W^S C^S)^{-(\sigma-1)}$ - C_{S-N} >

B $(a_L W^N)^{-(\sigma-1)}$

where B is the product demand that depends on the marginal costs of manufacturing (a_L $z^S w^S c^S$), on the net sunk cost of producing abroad (C_{S-N}) and on σ, the CES between the intermediate products produced in the two countries.

This inequality applies in the first period. If we consider, however, a second period, in which some negative shocks may be hitting the manufacturing costs abroad (for example because of the changed policy climate, like the one that we can see as occurring currently between the USA and China as discussed above), and in which the sunk costs undertaken in the first period do not matter anymore, the terms on the left hand side of Eq. (2) change and a new cost resulting from the production abroad, $g^S > 1$ may emerge. We can define g^S as the additional cost resulting from new international political friction or geopolitical costs. Geopolitical costs may result, for example, from the fact that some materials or some productive sectors are of strategic importance (after all, any standard international economics textbook has always acknowledged that national defence was an admissible reason for protectionism): when those geopolitical frictions and costs, that were absent when *offshoring* took place initially, emerge, they get added to the cost of *offshoring*. The term on the left-hand side, then, changes in the second period, so as to possibly reduce the final demand of the intermediate products produced in the initial *offshore* country, as represented in Eq. (3):

(3) $\frac{1}{B(a_L Z^s W^s C^s g^s)^{(\sigma-1)}} < \frac{1}{B(a_L W^N)^{(\sigma-1)}}$

So, the new source of international political cost g^S, may reduce the demand for the intermediate production abroad, and be sufficient to induce a reshoring of the foreign production.

The point that Antràs (2020) makes, however, is that an additional element has also to be considered when deciding to *reshore* the foreign production of intermediate goods: deciding to do so would imply undertaking some completely new sunk costs, that would increase the domestic production costs and decrease the overall demand for domestically produced intermediate products. So,in the second period, the changes are not only relative to g^S, but also (in the absence of any new foreign sunk costs, C_S) to the emergence of the reshoring sunk costs, C_N.

This means that the new equation, then, is as follows:

Eq. (3')

$$\frac{1}{B(a_L Z^s W^s C^s g^s)^{(\sigma-1)}} > \frac{1}{B(a_L W^N)^{(\sigma-1)}} \text{ - } C_N$$

It is rather likely, then, that the necessary *reshoring* sunk cost, C_N, is such as to more than compensate the international policy friction costs g^S, and this would determine the absence of significant reshoring and would make GVCs resilient, at least in its extensive margins, as it has been observed above, as shown by Antràs (2020).

However – this is the novel contribution that I am adding to this literature – in the current phase we observe also the emergence of the different phenomena mentioned in the Section above, namely *friendshoring* and *nearshoring*. As already discussed, *friendshoring* occurs when the production of intermediate products abroad is moved to countries implying a lower international policy friction cost, while allowing to retain the same lower wage costs, ICT costs, and trade policy costs enjoyed when initially moving abroad the production of intermediate goods; *nearshoring* can be interpreted as being something similar, since it implies to move the intermediate production to a closer country, which is more likely to be a friend.

So, the point that I am making here is that while the higher costs of moving the production at home may well explain the relative resilience of GVCs (in their extensive margins) that we are observing, such a resilience may also be compatible with *friendshoring* and *nearshoring*.

In order to show this conclusion, let us consider a situation in which the comparison is between producing in the initial offshore country and *friendshoring* that production.

This would allow to benefit of the low labour costs of the previous country ($z^S w^S$), together with the other lower ICT costs and initial policy trade costs, c^S, while not incurring the international policy friction costs g^S. It might also well be that the new sunk cost to incur in order to move the production from the initial foreign country to a more friendly country, C_S^F, will be lower than the cost of *reshoring*, so that $C_S^F < C_N$. Even when that may not be the case, *friendshoring* may be encouraged by the provision of some government subsidies, S^F (Harput, 2022). The new *"friendshoring"* equation is then:

(3")

$$\frac{1}{B(a_L Z^s W^s C^s g^s)^{(\sigma-1)}} < \frac{1}{B(a_L Z^s W^s C^s)^{(\sigma-1)}} - C_S^F + S^F$$

In the left hand side of Eq. (3") $\frac{1}{B(a_L Z^s W^s C^s g^s)^{(\sigma-1)}}$ represents the product demand in the original offshore country (now not perceived as friendly anymore), while $\frac{1}{B(a_L Z^s W^s C^s)^{(\sigma-1)}}$ is the demand obtained in the country in which the new *friendshoring* takes place. The benefits of such a larger demand (due to the fact that the geopolitical cost, g^S, is missing in the *friendshoring* country) is reduced by the sunk cost C_S^F, and increased by the subsidy S^F.

It is possible to conclude, then, that while not being convenient to do a *reshoring* of the foreign intermediate production, as shown by Antràs (2020), it may well be convenient, instead, to do a *friendshoring* of it. In other words, considering that switching from an *offshore* country to a (still *offshore*) *friendly* country may imply sunk costs that are lower than those incurred when moving back to the home country; that such a move may be encouraged by subsidies granted by the government of the country of origin; and, above all, that keeping the production in a friendly (Southern) country allows enjoying wage costs that are as low as those in the initial *offshore* country, the result of *friendshoring* emerges, thereby strengthening the conclusion of resilient GVCs, precisely as described in Section 4 above.

6 Concluding remarks

After the global financial crisis of 2007-08, economic globalisation in its different facets (goods and services, labour and capital, both real – foreign direct investment – and financial) began to slow down. The reasons are not only economic but also geopolitical.

GVCs have played a very important complementary role in economic globalisation and it is not surprising, then, to observe some slowdown also in their growth rates.

However, quite surprisingly, opinion surveys keep assigning an important role to GVCs, and past experiences suggest that the shocks that have been hitting intermediate trade have been affecting more the *intensive* than the *extensive* margins. In other words, GVCs may well be more resilient in the future than the current situation and data would suggest. The reasons for such a resilience have to be found in the fact that an outright *reshoring* of the foreign intermediate production would imply forsaking the sunk costs previously undertaken and incurring in new ones in the domestic country.

Such an explanation, however, assumes that *reshoring* is the only alternative to *offshoring*, where as GVCs can be kept alive also by moving the production of intermediate goods to *friendlier offshore* countries.

The theoretical model presented in this article (extending Antràs, 2020) shows that while the relevant sunk costs for relocating home the *offshore* production discourages *reshoring* (as shown by Antràs, 2020), the subsidies that governments may provide to encourage *friendshoring*, the relatively lower sunk costs and the low labour costs that can still be enjoyed when doing so , would also allow the survival of GVCs (although differently composed).

Future research is needed to investigate, among other things, the consequences of such reshuffling processes on all countries involved, the effective *decoupling* that they would allow and, most importantly, their long-term sustainability and the risks they pose to peaceful relations worldwide.

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