Regional Value Chains in the new Global Scenario

Condidate:

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Research area

Area 13 - Economics and Statistics

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General presentation of the project and state of art

Recent years have witnessed a number of disruptions of Global Value Chains (henceforth GVCs), from the US-China trade war, Brexit, the Russian-Ukraine crisis, to systemic issues such as the Covid-19 pandemic and the new crisis to come such as the climate crisis. Meanwhile international political cooperation has begun to falter with increasing tariffs and sanctions. These trends put high on the policymakers' agenda the need to rethink the global supply chains and to discuss about their resilience. On this path friend-shore[1] organization of GVCs, in which partners are reliable countries in terms of political and environmental standards, could be a solution to be explored. From a European perspective trading primarily with countries sharing similar values could play an important role in the future and it would be interesting to show how countries already on this path

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[1] On April 13, 2022 in a speech at a special edition of Atlantic Council Front Page US Secretary of the Treasury Janet Yellen stated: "friend-shoring means […] that we have a group of countries that have strong adherence to a set of norms and values about how to operate in the global economy and about how to run the global economic system, and we need to deepen our ties with those partners and to work together to make sure that we can supply our needs of critical materials."

At https://www.atlanticcouncil.org/news/transcripts/transcript-us-treasury-secretary-janet-yellen-on-the-nextsteps-for-russia-sanctions-and-friend-shoring-supply-chains/.

could react[2]. More specifically the aim is to investigate how shocks affect the economic integration of European countries in GVCs.

Up to the Great Financial Crisis the attention of the debate has mainly focused on causes and consequences of the growing fragmentation of the production and globalisation (among others: Arndt and Kierzkowski, 2001, Melitz, 2003, Helpman et al., 2004, Castellani and Zanfei, 2007, De Loecker, 2007, Topalova and Khandelwal, 2011, Caliendo et.al., 2015). This period known in literature as *second unbundling* (Baldwin, 2016) have seen the emergence and the development of GVCs in which production of goods, and also services, is *unbundled* in different stages or tasks and scattered across countries[3]. Global value chains have had remarkable effects not only in the increase in trade exchanges but also on the development via changes in income, productivity, and poverty (World Bank, 2020). Even smaller countries with limited capacities or resources have a chance to benefit from global trade since GVCs allow the enterprises of a country to join existing supply chains instead of building them (Minten et al., 2009; Baldwin, 2012, Cattaneo et al., 2013; Swinnen and Vandeplas, 2014; Swinnen, 2016).

Meanwhile studies have developed various indicators and methods in order to properly measure and map the degree of involvement of countries and sectors in GVCs also trying to avoid the double counting bias of the traditional international trade data (among others: Fally, 2012, Antrás and Chor 2013, Koopman, Wang and Wei, 2014, Feenestra, 2017, Borin and Mancini, 2019, Mancini et.al., 2022). Lot of interesting indicators of positioning in GVCs were also built in literature (Mancini et. al., 2022) about the *downstreamness*, *upstreamness* and the length of the chain. All these measures together allow to pursue a quantitative and qualitative analysis of GVCs at the aggregate and sectoral level. Indicators and results will be compared by industry and countries in order to highlight their evolution over time. Following this approach, really interesting findings turned out especially investigating the European economies (Giovannetti et. al. 2022).

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[2] For instance, the European Union's Chips Act proposes "semiconductor partnerships with like-minded countries" and the EU's Important Projects of Common European Interest (IPCEI) program promotes supply chain cooperation between EU member states (Harput, 2022).

[3] Also called "age of GVC" (World Bank, 2020, Antràs and Chor, 2021)

With the world entering into a new phase of deceleration of the globalization also called *slowbalisation*[4] (from the terms *slow* and *globalization*), a new literature emerged in order to discuss the role of internationalization for shock transmission.

Moreover Covid-19 pandemic induced deeper investigations on the resilience of globally integrated countries and firms and on the ability to react to lockdown measures, supply chains disruptions and the sudden fall in demand (Bartik et al., 2020, Fairlie, 2020).

The debate focused on de-globalization and reshoring (Antràs, 2020, Baldwin and Evenett, 2020) is based on after Covid-19 evidences. But, considering the new instances followed by the crisis resulting from the Russian-Ukrainian conflict, the field shouldn't be considered saturated. At the time of the writing, new questions has been placed: whether the re-organizing of international and global supply chains back on the political agenda it might be a solution and whether factors, such as new economic and geopolitical equilibria, security policy, expanded economic sanctions and environmental standards, might change internationalization strategies (Antràs, 2020, Javorcik, 2020, Miroudot, 2020, Di Stefano, 2021, Maihold, 2022). Friend-shore oriented trade prospect the emergence of a new trading bloc composed of democratic states pursuing economic and regulatory convergence and it is important to evaluate the impact on the "European Regional Value Chain". The purpose of this project is conduct research in this area and to identify possible variations of relationships within GVCs, especially for European countries.

At the time of the writing I've already made a preliminary work, in the attached master's degree work of thesis, that it is likely to be meaningful for the first step of project and it is related to two of the major European economies: France and Italy since the relationship within the GVC between Italy and Germany has already been extensively examined (Giovannetti et al., 2022).

By the analysis of the trade of Italy and France, using the study of trade in Value Added (VA) and TiVA and EORA Input-Output database, evidence show some interesting results and the fact that for both countries exports are strongly linked to the European market and in particular to Germany.

Below a brief summary:

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[4] This neologism, probably coined by the economist Adjiedj Bakas in 2015, has appeared many times in the main economic newspapers such as "The Economist". The Economist, "Slowbalisation: The Steam Has Gone Out of Globalisation", 24 January 2019, pp. 34-43.

1) The first user country of both Italian and French VA in its exports is Germany. Germany also plays a decisive role within the GVCs in which France and Italy are partners: the first country from which the FVA comes within Italian exports to France is Germany and the first destination country of the Italian added value through French exports is always Germany.

2) For Italy, France is the second supplier of foreign added value (the remaining part comes mostly from European economies), fundamental above all for Italian exports in the mechanical sector. For Italian mechanics, France supplies not only the innovative materials for the construction of products in this sector (metals and metal products) but also both upstream and downstream services. Furthermore, France, still after Germany, is the second exporting country of Italian VA. In particular, France exports Italian VA in sectors such as transport, computers and electronics, and mechanics.

3) Italy, the third exporter of French VA, after Germany and Belgium, is the fourth supplier of VA for French exports together with the United Kingdom, and the fourth supplier of VA in the most important sector for French exports, the transport sector. Italy supplies the French transport sector with intermediate inputs from the Italian transport sector and mechanical engineering sector.

4) From what emerged, it can be therefore concluded that France and Italy are mutually important partners within the GVCs: French and Italian companies are not only potential competitors, but also allies to support the competitiveness of exports in strategic sectors. In particular, from an Italian perspective, Italian companies find in France: an important buyer of final and intermediate goods; a supplier of VA, in particular for some strategic sectors for Italian exports such as mechanics and transport equipment; an relatively important hub through which the VA produced in Italy manages to reach the main European players, first of all Germany, but also many non-European countries including the United States, China and Japan.

Research Objectives

The preliminary goal of the research is to verify whether European economies shape a Regional Value Chain investigating the participation of the core-countries (Germany, France and Italy) and their partners.

Then the research moves on the re-evaluation of European economies' approach to globalisation considering geo-political tensions, new emerging crisis and disruption of

GVCs in order to provide an assessment of the impact of new crisis and shocks on the European Regional Value Chain. Trading primarily with countries sharing similar values could play an important role in the future and it would be interesting to show the impact on countries already on this path. More specifically the aim is to investigate empirically possible effects of shocks on the economic integration of European countries in GVCs. Findings could be also relevant to the literature on the decision-making process of enterprises. It will be of mainly importance to read the new releases of data (Input-Output Tables) by adding the filters changing from crisis to crisis and challenges (decarbonization, sustainable mobility, energy efficiency, geopolitical regional situations, etc.).

The objectives of this project aim to analyze the European GVCs (or so called RVC), with particular reference to Italy, France and Germany, in light of the events of recent years using indicators developed in the literature for the analysis of trade in terms of VA and data available thanks to Input-Output tables. In particular, the analysis of new data that will be shortly released will be crucial in order to analyze if and in what extent shocks have changed production chains.

Furthermore, in the light of the increasing risks associated with the interruption of the supply chains, which from US-China trade war escalated again with Covid-19 and if possible even more with the Russia-Ukraine war, it will be important to investigate processes that can be considered able to manage them more efficiently, including friend-shoring. In doing so it should be kept in mind that realistic timeframes for reconfiguring supply chains are largely incompatible with the rapid responses expected by political decision-makers, especially when chains are long and complex. For this reason, the European economies are an excellent case study since they are already very well integrated within the GVCs as demonstrated by Italy, Germany and France. For these countries it will be important to understand whether and to what extent the fact of being already on this path can or may not be an advantage.

Methodology and expected results

For what concern the part of the project that aims to map the GVCs the best available approach is the analysis of trade in terms of Value Added (Koopman, Wang e Wei, 2014, Borin and Mancini, 2019) in order to breakdown traditional international trade data.

To obtain a comprehensive view of trade of countries and industries in GVCs I will rely on global multi-regional Input-Output tables provided by the most important datasets (i.e. the EORA26 by UNCTAD and TiVA by OECD). Benefits of using Input-Output tables are vast as they provide the international inter-sectoral exchanges of VA and VA flows which accurately measure the production linkages between countries and sectors.

With Input-Output tables it will be possible to observe:

The bilateral and multilateral relations between the countries. The focus will be on European countries and their partners. This means investigating:
1) how much a country's exports rely on the value that was added by the upstream partner country (FVA, Foreign Value Added);
2) which sectors are most dependent on the value produced abroad, therefore with the highest FVA contained in the exported value;
3) what the partner countries supply to these sectors or from which sectors the FVA comes; 4) the Domestic Value Added in Exports (DVX), that is to say in the exports of which downstream countries we can find the value that has been added by the country under analysis. This is very important since the indirect ties between the countries are determined, i.e. those that are created through a third country;
5) whether and to what extent there are countries that are both upstream and downstream of the production chain or countries that re-import their Domestic Value Added from other countries;
In this way it will be possible to identify the role that each country plays within the GVCs (role of hub, peripheral role, role of supplier of added value, role mainly of consumer of VA).

After that it will be possible to make comparisons with data from previous releases in order to:
1) identify if there are new partners within the value chain, in which sectors and in which positioning;
2) if there are partners who have lost importance and others who have gained it, in which sectors and in which positioning;
3) whether there have been any variations in terms of participation and positioning of the countries being analyzed;
4) which are these partners, in terms of political alignment. Whether trade agreements have continued on the agenda or new ones have been prepared.

The analysis of these gaps will make possible to identify if and to what extent the externalities identified in the crises have been internalized by the GVCs' trade. For this reason, studies on the Global Financial Crisis, Eurozone Crisis, Brexit, the China-US trade war and Covid-19 are excellent parameters for comparison.

As regards what has been defined as the European Regional Value Chain, two of the possible non-self-excluding scenarios are: there is no clear change in the CGV configuration. This could be the result of European integration policies carried out over the years. There is the entry or strengthening of relationships with some partners both upstream and downstream of the production chain.

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Description of the research in the three-year period (feasibility)

The project is plausible and workable in the time-frame required. One of the main instruments of the project are the Input-Output tables and in a very short amount of time they will be released in their last version covering 2019-2022 period of time. Before this, the very first step consist to study the European Regional Value Chain and this would be possible also with the currently available releases (covering 1995-2018) of TiVA and EORA. The second one is to define the blocs that model the friend-shoring, for instance it could be followed the UN General Assembly vote on the resolution ES-11/1 on "Aggression against Ukraine" that took place on March 2, 2022 and assuming that the trade between the two blocs has heavy trade costs. Then the project will focus on the core by analyzing countries involvement in GVCs and deviations in trade.

As the project is analytical every result is plausible and expected and this allow to be prepared for any contingency and to have an alternative course of action in case the plan does not turn out as expected.