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An Overview of Global Value Chains (GVC)

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What is a global value chain?

Global value chain (GVC) refers to the international fragmentation of the production process, that is the full range of activities (design, production, marketing, distribution and support to the final consumer, etc) that are divided among multiple firms and workers across geographic spaces (different countries) to bring a product from its conception to its end use and beyond (Seric and Tong, 2019). In effect, the whole process of production, from acquiring raw materials to producing and delivering a finished product, has increasingly been "sliced", so that each activity that adds value to the production process can be carried out wherever the necessary skills and materials are available at competitive cost (OECD, 2007; Feenstra, 1998).

Evolution of global value chains

It is widely believed that the modern global value chains that we are witnessing began in the 1990s with the advancement of information and communication technology. While GVCs existed before 1990, their fastest growth was witnessed from 1990 to 2007 which plateaued after the 2008 Global Financial Crisis. Some other factors that played a key role in the expansion of GVCs include the liberalization of trade policies, lower trade costs including reduced transportation and communication costs, logistics innovations such as containerization, etc. The soaring growth of the emerging economies in Asia has increased the global demand, boosting trade which has also played an important role in the evolution of GVCs.

Sources: WDR 2020 team, using data from Eora26 database; Borin and Mancini (2019); and Johnson and Noguera (2017). See appendix A for a description of the databases used in this Report.

Figure 1: GVC trade grew rapidly in the 19909s but stagnated after the 2008 financial crisis

The expansion of GVCs and cross border productions in recent decades has been possible with the emergence and growth of multinational enterprises (MNE), also known as multinational corporations (MNC) or transnational corporations (TNC) along with outsourcing or offshoring of activities. An MNE is an enterprise (irrespective of its country of origin and ownership, including private, public, or mixed) that comprises entities located in two or more countries that are linked, by ownership or otherwise, such that one or more of them may be able to exercise significant influence over the activities of the others and, in particular, to share knowledge, resources, and responsibilities with them (Seric & Tong, 2019). In simpler terms, these are corporations that own and/or control the production of goods in at least one more country other than their home country. According to the World Investment Report 2013 by UNCTAD, 80% of the world trade every year is accounted for by global value chains governed by TNCs.

While cross-border productions are not new, outsourcing or offshoring provides GVCs with a distinguishing feature. Outsourcing is the procurement of materials, goods, and services by a firm from another, i.e., from third parties with no equity links to the TNCs. In the case of international outsourcing, the outside supplier is located in a different country.

The economic significance of GVCs

Global value chains have become quintessential in the modern world for economic growth across countries, the creation of jobs, and employment, and the boost of technology in the production of goods and services. They are especially important for developing economies. They helped them move away from the traditional export of unprocessed raw materials to become part of the production chain without having to establish the suite of infrastructure and industries needed to produce a complete, final good. Developing economies that have fully embraced the bounties offered by GVCs have seen great economic growth, a rise in living standards, and a poverty reduction. Pahl and Timmer's (2019) research shows that GVCs indeed increase productivity but not necessarily employment, possibly because developing economies have large informal sector employment, which is largely unaccounted for. According to the Global Maritime Forum, an increase in GVC participation boosts per capita income levels by more than twice as conventional trade.

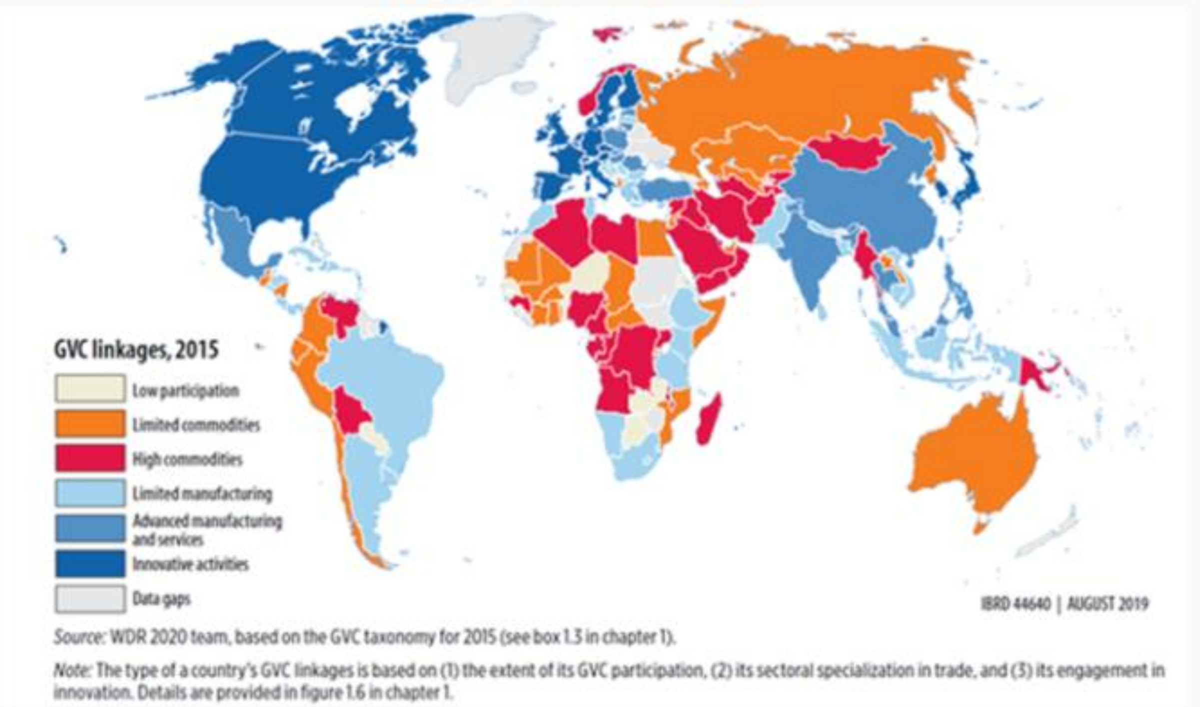

Figure 2: All countries participate but not in the same way

Environmental implications of GVC

GVCs have been found to contribute to global emission growth through the effects of scale and specialization. The rising participation of emerging economies in the global supply chains accounts for substantial growth in their CO2 emissions. There has been a significant increase in global greenhouse gas (GHG) emissions owing to the combination of a geographic shift of global supply chain (GSC) related production activity, energy efficiency, and low carbon technology gaps between developed and developing countries. Without changes in GSC geography, considerable fossil fuels which were used in the developing world for GSC-related production would have remained in the ground (Jiang & Green, 2017). Most developing countries in Asia bear a greater proportion of the emission responsibility than the proportion of value they capture from global value chains (Zheng, 2021). Developing countries also lack the system, policies, regulations, and infrastructure required to minimize the pollution caused by their economic activity.

GVCs demand more shipping and create more waste than standard trade, causing industries to choose to locate in jurisdictions with laxer environmental regulations (The World Bank, 2019). By allowing firms to specialize through the offshoring of relatively more polluting production activities, GVCs are associated with sizeable amounts of carbon leakage. Yet at the same time, participation in GVCs makes firms more energy and emission efficient than their domestic peers through a variety of mechanisms. Thus, GVCs also contribute to dampening emission growth.

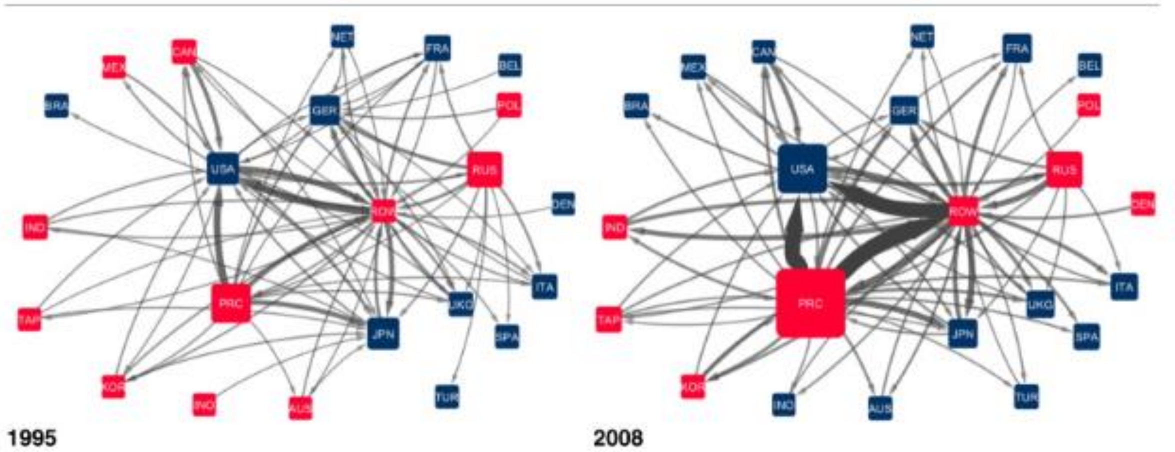

Figure: CO2 emissions embodied in international trade flows

Research shows that the main driver of carbon emission growth is not GVC, but rather the increased demand of the economies around the world, and with developed countries having larger consumptions owing to higher standards of living and larger populations, they emit more GHG. But the burden of their emissions is mostly borne by the developing economies, particularly by the countries in the global south and Asia. So current GVCs are not inclusive and equitable in terms of the share of environmental burden.

The issues of taxation and subsidies surrounding GVCs

In global value chains, different material inputs are produced in different countries along with assemblage taking place in a country foreign to the country of the MNC governing the production of the product. This global involvement in terms of value addition leads to taxation issues.

The current taxation system levies corporate tax in each location where the MNE reports profits. The system treats MNEs as loose collections of separate entities operating in various countries rather than as conglomerates making profits in a global marketplace.

The taxation of MNEs has been a headache for policymakers. In order to increase their profits, MNEs may transfer their activities from high tax regions to regions that have lax taxation requirements offering lucrative pecuniary and non-pecuniary benefits. This can potentially lead to inefficiencies, not enabling their investments to maximize their contribution to global value creation. Multinationals employ BEPS, which stands for base erosion and profit shifting to avoid taxes. BEPS refers to tax planning strategies used by multinational enterprises that exploit gaps and mismatches in tax rules to avoid paying tax (OECD). Developing countries are usually on the receiving end of the BEPS as they are more reliant on corporate taxes. BEPS practices cost countries USD 100-240 billion in lost revenue annually. (OECD). To tackle this, 141 countries and jurisdictions are working together in the OECD/G20 Inclusive Framework on BEPS. The framework has listed 15 measures to tackle tax avoidance, improve the coherence of international tax rules, and create a more transparent tax environment.

However, Devereux and Vella (2014) argue that BEPS framework is far from solving these issues. Although there may be some tax harmonization among countries, in general, a uniform tax rate cannot be expected as some countries lack incentives to coordinate their tax policies with that of other countries coupled with the costly enforcement of international tax treaties.

Another issue concerning policymakers is how MNEs can gain access to high-quality public goods without having to pay their fair share of taxes for their access and maintenance.

The tax burden has been shifted towards less mobile factors of production (Fjeldstad, 2017). Existing international tax rules have created, either by accident or by design, a system characterized by extensive secrecy, excessive complexity, and widespread loopholes and may also have contributed to deepening existing inequalities Existing international tax rules have been the cause of the growth of a global system of offshore financial centers – better known as 'tax havens' – which offer both wealthy individuals and multinational corporations an opportunity to disguise their wealth and profits. While most governments face such problems, they pose a particular threat to developing countries, where capacity to implement complex rules about international economic transactions remains limited.

Hoekman (2016) is of the opinion that the WTO rules regarding subsidies require revision to accommodate for the changing global economic landscape courtesy of GVC.

GDP calculation issues regarding GVC

In traditional trade measures, flows of goods and services are recorded on a gross basis i.e., the value of intermediate inputs is counted every time they cross a border for further processing. Therefore, in a world in which intermediate goods cross several borders before reaching the final consumer, GDP calculations run the risk of significant double counting.

Existing macroeconomic accounting frameworks do a good job of accounting for the relationship between two industries within a geographical region, however, they fail to portray the complexities involved in the international linkages of GVCs. These tools are more focused on products, industries, and sectors rather than the processes and activities required to explain GVC. The treatment of local entities in countries as individual enterprises can hide the real relationships between units within MNEs.

The calculation of the gross value of exports and imports, rather than the calculation of the value-added in each phase of production or the final value of goods, leads to a misleading picture of the contributions of countries in the trade flow along with a misrepresentation of the foreign value-added contribution to GDP. For instance, countries responsible for the assembly of the products make a small value-added contribution to the final value of the product. However, their statistics will record the entire value of the product instead of the value-added of the gross exports less intermediate inputs. Hence the statistics do not truly reflect the value added by the exporting country.

Moreover, the overall rise in trade associated with GVCs, combined with long-standing problems in the consistent recording of trade and investment flows across countries, have resulted in large asymmetries in bilateral trade and investment flows.

Some other issues surrounding accounting for the balance of payments include accounting for services trade having no change of ownership, accounting for intellectual property trade, which are sensitive to distortion, international merchanting where the goods never cross the border, and international finance.

Policy recommendations for tackling the emerging GVC issues

GVCs have become the new norm so it is quintessential that our policy research, initiatives, and recommendations factor in the features and issues surrounding it. To become more sustainable in the face of global warming, it is imperative that MNEs are held responsible for the pollution in their value chains. Gerdes et al. (2022) recommend a combination of sanction financed subsidies and state grants, as it was the best performing policy to reduce pollution in the mines of the Global South, along with improving their health. However, it is not a very politically feasible option.

Economies, especially that of developing countries need to be more carbon efficient. They not only need to reduce their CO2 emissions but also need to reduce the proportion of fossil fuel-derived energy in their energy consumption. Adopting greener technologies, investing in research and development (R&D) of more carbon-efficient production processes and the feasibility of carbon and pollution taxes need to be considered. Developing countries could also benefit from moving upwards in the value chain, becoming less labor-intensive and more technology-intensive in their production.

Zheng (2021) proposes a non-differentiated producer responsibility (NDPR) principle to assign carbon dioxide emission responsibility. The NDPR principle redistributes carbon dioxide emissions along a value chain according to the proportion of profits obtained, which can eliminate the unfairness of carbon dioxide emissions transfers caused by transnational production processes.

To tackle the issues of balance of payments accounting, taxation of MNEs, and subsidies, more resources need to be employed in the collection of international data. Extensive research is needed by economists and statisticians to develop a tailored framework of GDP counting in light of GVC expansion. A review of the BEPS framework is also needed to understand whether the framework is actually effective. More taxation research is also needed to ensure that MNEs are taxed more efficiently. New measures of trade like OECD-WTO TiVA database, WIOD, APEC-TIVA and the European FIGARO initiative are definitely a step in the right direction but not the most helpful tools in accounting for trade.

Overall, as the world becomes more interconnected in GVCs, it is imperative that countries also become more interconnected in terms of policies to make the GVCs more inclusive and its benefits more equitable.

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