The Emergence of Global Value Chains

Implications for Trade Policy

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Introduction

Global value chains (GVCs) have become a dominant feature of world trade, encompassing developing, emerging, and developed economies. The whole process of producing goods, from raw materials to finished products, is increasingly carried out wherever the necessary skills and materials are available at competitive cost and quality.

In Asia, GVCs are particularly dynamic, with a strong regional focus. Japan is an important supplier of high-technology parts and components, for example, with a share in the supply of world electronics components ranging from 16% to 30%. One-third of Japanese exports of goods and services are intermediate inputs that are further processed in global value chains, while 15% represent foreign value added embodied in imported intermediate goods and services that are used by Japanese exporters.

The growing fragmentation of production across borders highlights the need for countries to have an open, predictable and transparent trade and investment regime as tariffs, non-tariff barriers and other restrictive measures impact not only on foreign suppliers but also on domestic producers. It also highlights the importance of an ambitious complementary policy agenda to leverage engagement in GVCs into more inclusive growth and employment.

The OECD is currently undertaking comprehensive statistical and analytical work that aims to shed light on the scale, nature and consequences of international production sharing. This article explores just one aspect — the implications of GVCs for trade policy.

Trade in Value Added & Global Value Chains (TiVA-GVCs)

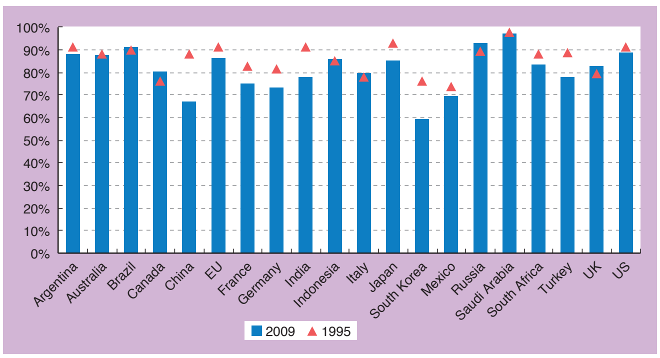
Measuring trade in value added terms is essentially a statistical approach that estimates the sources of value that is added in producing goods and services. It traces the value added by each industry and country in the production chain and allocates the value added to the source industries and countries.

The TiVA database provides clear evidence of the increasing international fragmentation of production. In most G20 economies, the domestic content as a share of gross exports has decreased between 1995 and 2009 *(Chart 1)*. Different levels are observed across countries, since the importance of domestic value added is determined by a variety of factors, including the size of the country, the economic structure and the export composition. Despite the heterogeneity in GVCs across products and industries, a lower domestic content is seen in most countries. In Japan, the domestic content of exports fell from 93% in 1995 to 81% in 2008. It is slightly higher in 2009, as a consequence of the financial crisis, but in industries such as electrical equipment or transport equipment, the decrease remains strong even when comparing 1995 with 2009.

Manufacturing activities and an increasing number of services sectors rely heavily on imported inputs. In industries such as mining, textiles and apparel, and machinery, electrical and transport equipment more than one-third of imported intermediate inputs are used to produce exports *(Chart 2)*. In the case of Japan, some of these percentages are even higher. For example, 41% of intermediate inputs imported by Japanese producers of electrical equipment are used for exports.

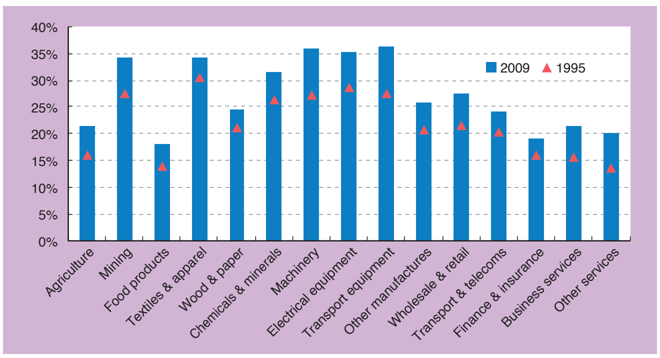
For a long time, trade in services was seen as contributing a small share of world trade (about one-fifth). TiVA reveals the extent to which services are embodied in exported goods, and hence the services content of trade is much higher when accounting for the value added originating in the services sector *(Chart 3)*. The average services content of trade for G20 economies was 42% in 2009, and is at or above 50% for countries such as the United States, the United Kingdom, India, France and the European Union as a whole.

CHART 1
Domestic content of gross exports



Source: OECD/WTO TiVA database, May 2013

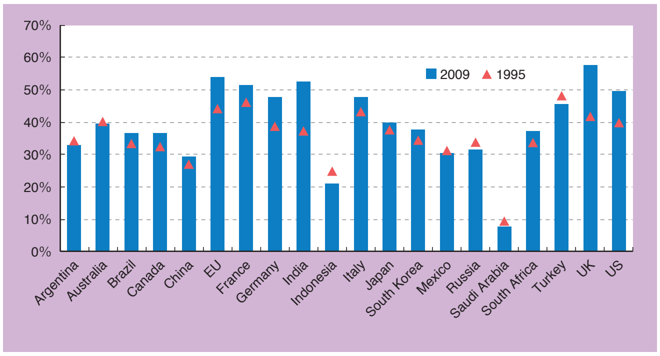
CHART 2
Intermediate imports embodied in exports



Source: OECD/WTO TiVA database, May 2013

CHART 3

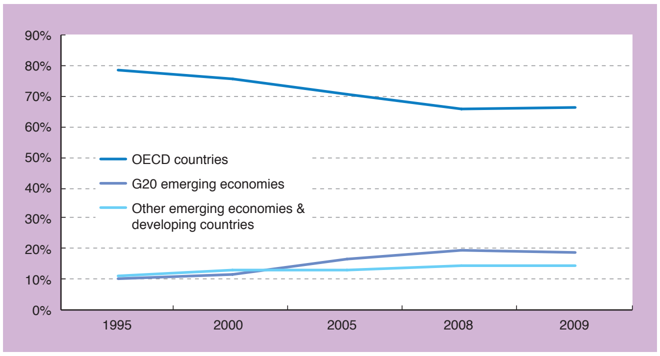
Services VA embodied in gross exports



Source: OECD/WTO TiVA database, May 2013

CHART 4

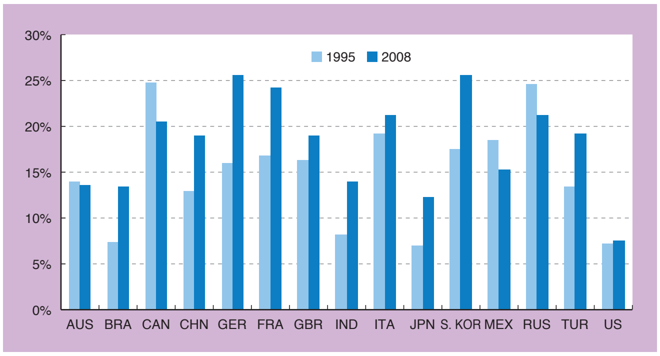
Share in VA exports



Source: OECD/WTO TiVA database, May 2013

CHART 5

Jobs sustained by foreign final demand



Source: OECD/WTO TiVA database, May 2013, and STAN, based on preliminary estimates

In the case of Japan, the share of services in exports more than doubles when looking at the value added figures. Japanese exports of services are only 15% of total exports when measured in conventional trade statistics, but rise to 40% when all the value added originating in services industries is accounted for. Japan is more specialised in exports of goods but about one-third of the value of exported goods reflects services value added.

The emergence of global value chains has benefited all G20 economies. The income derived from trade flows within GVCs, measured as the domestic value added embodied in foreign final demand (that is, "exports of value added"), has doubled between 1995 and 2009. This income has been to a significant extent redistributed towards emerging economies *(Chart 4)*, where the share in world exports of value added has increased from 21% in 1995 to 34% in 2009. But not all countries are joining global production networks to the same degree. Regions such as Africa or Latin America (excluding G20 members) still account for a limited share of world GVC income, perhaps highlighting the need for new strategies to enable better access to and upgrading within value chains.

The gains in increased income translate into more jobs. *Chart 5* illustrates that between 1995 and 2008, a higher share of employment consisted of jobs sustained by foreign final demand. The percentage varies according to the size and specialization of countries but an increase is observed in most economies. Based on preliminary estimates, the share for Japan has almost doubled between 1995 and 2008, from 7.1% to 12.3% with about 8 million jobs sustained by foreign final demand. In the case of China, the number has increased by more than two-thirds.

Trade Policy Implications

Global value chains magnify the costs of protection

After more than a half a century of trade liberalization, nominal tariffs on manufactured products in developed economies are generally low, and the general trend has also been towards lower tariffs in developing countries. But in a world characterised by GVCs things are not so clear-cut: tariffs and other protection measures at the border are cumulative and can add a significant cost to the price of the finished goods. As shown in *Chart 6*, nominal duties on gross exports are an incomplete measure of effective tariff barriers. The effective burden for the exporter is better measured by tariffs on the domestic value added of exports, which are particularly high in those economies that have a large share of intermediate imports in their exports. In agriculture, the share of domestic content is often larger but effective tariffs can also be high as the pace of nominal tariff liberalization has been slower and tariff peaks and escalation remain an issue.

Success in international markets today depends as much on the capacity to import world class inputs as on the capacity to export. Protection measures against imports of intermediate products increase costs of production and reduce a country's ability to compete in export markets: tariffs and other barriers on imports are a tax on exports. Policies that restrict access to foreign intermediate goods and services also have a detrimental impact on a country's position in regional and global supply chains. Similarly, currency interventions which may aim at creating a competitive advantage for exporters lose relevance, as any export advantage gained from a cheaper currency is at least partially eroded by the cost of more expensive imported inputs. Lastly, where foreign investment is a driver of export capacity, the cumulative effect of a number of seemingly small costs may discourage firms from investing, or from maintaining investment, in the country — and may lead them to bring production facilities, technologies, and jobs elsewhere.

Beyond tariffs, what trade policies for engagement in GVCs?

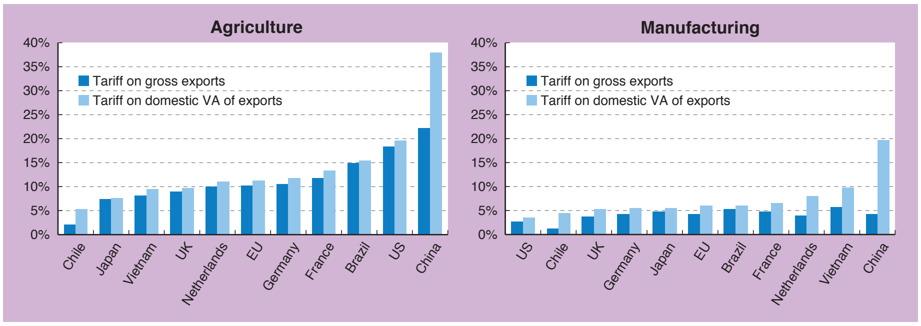
The globalization of supply chains calls for a more coherent view of trade and trade-related policies. The fragmentation of production has created potential new opportunities for developing economies and for small and medium-sized firms to access global markets as components or services suppliers, without having to build the entire value chain of a product. At the same time, GVCs place new demands on firms, in particular as regards the need for strong coordination and efficient links between production stages and across countries.

Trade facilitation: transforming border bottlenecks into global gateways

As goods now cross borders many times, first as inputs and then as final products, fast and efficient customs and port procedures are essential to the smooth operation of supply chains. To compete globally, firms need to maintain lean inventories and still respond quickly to demand, which is not possible when their intermediate inputs suffer unpredictable delays at the

CHART 6

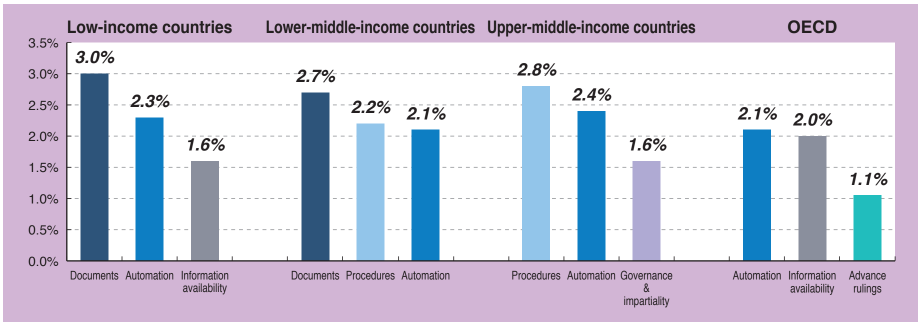
Tariffs on gross value & domestic value added of exports, 2009



Source: OECD, 2013. Applied ad valorem equivalent tariffs, weighted by share of each sector and destination market in the country's agricultural or manufacturing exports. For EU countries tariffs are calculated on extra-EU exports.

CHART 7

Trade facilitation measures: potential cost reduction in goods trade, most beneficial areas for reform, by main income group



Source: OECD, 2011 and 2013, covering 133 countries

border. A country where inputs can be imported and exported within a quick and reliable time frame is a more attractive location for foreign firms seeking to outsource production stages. As such, trade facilitation measures are crucial to foster integration into global production networks and global markets.

The OECD Trade Facilitation Indicators and related analysis identify priority areas for reform. The potential cost reduction of all the trade facilitation measures combined add up to almost 15% for low-income countries, 16% for lower-middle-income countries, 13% for upper-middle-income countries and 10% for OECD countries. As shown in *Chart 7*, harmonizing and simplifying documents, streamlining border procedures and automating processes are among the most beneficial areas for reform in developing economies. Automation and the availability of information are bottlenecks for OECD countries. Analysis of the indicators also shows that comprehensive trade facilitation reform is more effective than isolated or piecemeal measures.

Standard setting: avoiding unnecessary restrictions

The rising number of quality and safety standards is in part driven by concerns about information, coordination and traceability which are more acute in a world dominated by GVCs. While the need to protect final consumers through appropriate safety and quality assurance standards should not be understated, their complexity and above all their heterogeneity has become one of the main barriers to insertion into GVCs, in particular for small and medium-sized enterprises. Upstream firms supplying intermediate inputs to several destinations may have to duplicate production processes to comply with conflicting standards, or to incur burdensome certification procedures multiple times for the same product. In agro-food value chains, meeting public and private standards has been identified as the main obstacle to participation in GVCs. Increasing international regulatory cooperation, including via the convergence of standards and certification requirements and mutual recognition agreements, can go a long way to alleviate the burden of compliance and enhance the competitiveness of small-scale exporters.

Efficient services markets: improving competitiveness behind the border

Global production networks rely on the logistics chain, which requires efficient network infrastructures and complementary services. There would be no GVCs without well-functioning transport, logistics, finance, communication, and other business and professional services to move goods and coordinate production along the value chain. As noted earlier, trade flows in value-added terms reveal that services play a far more significant role than suggested by gross trade statistics. The value created by services as intermediate inputs represents over 30% of the total value added in manufactured goods, as shown in *Chart 8*. More efficient services sectors enhance the competitiveness of manufacturing firms and allow them to better participate in global production networks. The OECD Services Trade Restrictiveness Index (forthcoming), which will cover all major services sectors and suppliers, will help identify priorities for action — unilaterally, plurilaterally, and multilaterally.

Complementary Policies: Towards More Inclusive Growth & Employment

A broad approach

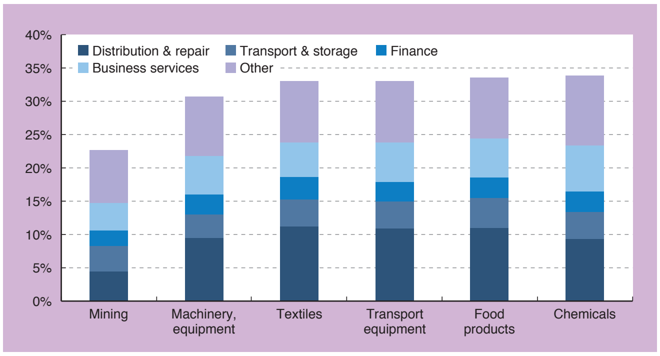
Trade agreements have the largest impact if they cover as many dimensions of GVCs as possible. While abolishing tariffs is a starting point to offer companies new trade opportunities, the value chain also requires efficient services as well as the possibility to move people, capital and technology across countries. Policy should thus address obstacles at all points of the value chain. Multilateral agreements covering not only goods but also services, investment, competition, intellectual property and the temporary movement of workers are likely to create an environment where firms can build efficient supply chains. Such a comprehensive approach would amplify the potential impact of trade liberalization on investment, growth and job creation.

Facilitating the adjustment to a GVC world

But trade opening is not the economic policy equivalent of waving a magic wand: complementary policies are needed to draw the benefits of GVCs for inclusive employment and income growth. Not all economies are equally prepared for the changes their firms and workers have to face as GVC participation increases, and an effective integration strategy necessarily takes into account adjustment conditions and country specificities. The process of GVC-induced growth entails the reallocation of

CHART 8

Services share of value added in manufacturing trade, all countries, 2009



Source: OECD, 2013. Share of distribution does not include distribution services for final goods.

workers to more productive activities, and this can mean that, even as average employment conditions improve, some workers experience unemployment or see their real wages decline. Facilitating the adjustment process is crucial, and requires well-designed social policies and a well-functioning labor market. Effective re-employment services, training programs and even publicly subsidized work-experience programs can help dislocated workers take advantage of new job opportunities.

More generally, enhanced involvement in GVCs is more likely to deliver large gains in job creation if it is accompanied by a broad package of labor and product market reforms, along with adequate social safety nets. Public and private investments to upgrade supply side capabilities, and the ability to exploit new market opportunities generally, are also needed. Developing countries, in particular, may need to consider the sequencing of reforms and invest in capacity building to maximize the benefits of GVCs on their domestic economies.

Investing in people

Investments in people are particularly important for engagement and upgrading in GVCs: education and skills training are key ingredients in an effective package of complementary policies. Without sufficient investment in skills, involvement in GVCs may not translate into productivity growth, and countries may no longer be able to compete in an increasingly knowledge-based global economy. An effective skills strategy should address the challenges of developing the skills relevant to the GVCs in which countries are involved, but also maintaining and upgrading those skills throughout life so that people can collaborate, compete and connect in ways that drive economies forward.

Implications for Trade Agreements

Multilateral and regional trade and investment agreements will need to reflect the fact that many goods and services are now from "everywhere" rather than, as they are defined today, from "somewhere".

A stronger case to move from reciprocal "concessions" to unilateral responses

With the emergence of GVCs, the mercantilist approach that views exports as good and imports as bad, and that views market access as a concession to be granted in exchange for access to a partner's market, is even more clearly self-defeating. Domestic firms can of course benefit from export opportunities, but they also depend on reliable access to imports of world class goods and services inputs in order to improve their productivity and their competitiveness. Responses to this reality can be undertaken unilaterally, and have indeed led to unilateral liberalization in recent years. "First movers" in liberalization can also be the first to gain from specialization and improve their position on international markets in downstream industries.

A stronger case for multilateral and plurilateral agreements

But the gains are even greater when more countries participate and markets are opened on a multilateral basis. GVCs strengthen the economic case for advancing negotiations at the multilateral level, as barriers between third countries upstream or downstream matter as much as barriers put in place by direct trade partners and are best addressed together. A good illustration of this approach is the 1997 Information Technology Agreement (ITA), whose success lies in covering as many products and as many countries involved in the IT value chain as possible. The ITA also highlights the benefits of applying the Most Favoured Nation principle in plurilateral agreements, which eliminates "red tape" related to rules of origin and their potential distorting impact on trade.

Designing regional agreements for GVCs

Sound economics is one thing; political feasibility is another. While multilateral agreements are widely accepted as the best way forward, most of the liberalization outside of purely unilateral opening has occurred at the regional level in the past two decades. To promote the expansion of GVCs, regional trade agreements (RTAs) are more effective when their membership is consistent with regional production networks. They also have a role to play in deepening integration provisions: the convergence of standards or the recognition of qualifications can start bilaterally or regionally. But the RTAs of the future should be careful to avoid the pitfalls of distorting firms' choices and losing the connection with the rest of the value chain. More liberal rules of origin, for example, would make RTAs more GVC-friendly and increase their impact on firms' productivity. In the longer term, consolidating and multilateralizing RTAs would help turn the "spaghetti bowl" of preferential agreements into a clearer and more efficient trading regime for all actors in GVCs.

Conclusion

TiVA-GVC work to date highlights that trade and investment openness are important components of comprehensive structural policy reforms that could contribute to an effective framework for strong, sustainable, balanced and inclusive growth. But much remains to be learned about the full range of policy implications for countries at different stages of development and for industries and firms of various characteristics, structures and sizes. The intention is to integrate TiVA into the international statistical system, in due course extending country, industry, and indicator coverage, and to expand our analysis across the full range of relevant policy areas. All of this work is expected to be carried out with an expanded network of partner institutions and governments.

(This paper draws heavily on two web-based briefs issued by the OECD Trade and Agriculture Directorate earlier in 2013: *Trade Policy Implications of Global Value Chains* and *The Transatlantic Trade and Investment Partnership: Why Does it Matter?* The views expressed here are those of the authors alone).

OECD/WTO Trade in Value Added database http://oe.cd/tiva

NOTE: OECD-WTO cooperation in this area has greatly benefited from the EU-supported World Input-Output Database (WIOD) and by research at the United States International Trade Commission (USITC) and the Institute of Developing Economies—Japan External Trade Organisation (IDE-JETRO). TiVA was developed on the basis of the OECD Input-Output Database, which has benefited from the financial support of Japan over time. JS

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