



# Global value chain analysis

## What's new and what is still missing?

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### Policy recommendations

- The emergence of mainstream research on global value chains (GVCs) is an acknowledgment of the increased importance of trade which occurs within the production networks of global firms and Trans National Corporations (TNCs).
- Current trade data, based on gross flows, are failing to capture this shift, hampering a good understanding of modern trade within GVCs.
- While there are plenty of new descriptions and new data on trade in GVCs, there is little analysis on their implications. Description is not the same as identifying the power and control issues of relevance to GVCs or the incentive issues that are relevant for conventional economic analysis.
- The extent of intra-firm trade and that which occurs between TNCs and their affiliates, including under contractual relationships, presents both opportunities and challenges for all governments, particularly in relation to trade and tax issues, as previous benchmarks no longer hold sway.
- Understanding the barriers to more effective participation in GVCs requires greater consideration of public as well as private rules.

This briefing paper summarises how the policy and academic literature on global value chains (GVCs) has evolved. We draw conclusions for consideration by development agencies and their development partners. Such

consideration matters, given that future processes of globalisation may well reflect the relative success of countries in entering GVCs and upgrading within them.

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Policy-makers were alerted to just how coordinated trade patterns are by the dramatic decline in global trade flows in the wake of the 2008 global financial crisis. Trade had never before been so responsive to plummeting income. Since that time, new estimates suggest that around 80% of all trade takes place within the international production networks of transnational corporations (TNCs) which includes contractual relationships between firms; but around one-third of global trade is now estimated to be intra-firm trade – occurring within the ownership structure of a single firm, or TNC (UNCTAD, 2013). The evolution of the literature on GVCs – whereby components of products move through production centres with value being added at each stage – is interesting from several perspectives and recent years have seen GVCs becoming ever more prominent in both trade and development discourse.

### What's new in description and analysis

The emergence of mainstream research on GVCs is an acknowledgment of the increased importance of networked multinational firms as part of global trade overall. New developments within trade theory have for some time recognised the increasing importance of these trends, but the GVC framework provides an easier way for policy-makers to conceptualise these trends.

Success in trading in increasingly integrated global markets means entering and upgrading within GVCs. The ability of countries to do so depends on many of the policy measures applied at their borders, as emphasised by the traditional trade literature, as well as considerations related to institutions and geography. However, success also requires consideration of new issues that go beyond

border measures, including the management of foreign direct investment (FDI).

Within the literature, GVCs that are characterised by a more hierarchical type of governance are precisely those where firms are integrated into GVCs through FDI. As intra-firm trade has increased globally, the proportion of trade that takes place within a more hierarchical structure of GVC governance has increased (Keane, 2012). This means that policy-makers must address the relationship between trade and FDI policy, and management, in the context of GVCs.

More hierarchical structures of GVC governance are posited to result in rapid product and process upgrading at each node of production, but fewer opportunities to functionally upgrade: this means fewer opportunities for a firm to move up the GVC from one activity towards another. The need for this more hierarchical type of value chain governance, as discussed by Gereffi et al. (2005), results from weak supplier capabilities within the context of complex transactions. Relationships between firms can and should change as suppliers' capabilities develop. However, this process is by no means automatic and active steps must be taken to avoid being trapped in GVCs characterised by more captive, as opposed to relational, types of governance (Box 1).

The economic literature has attempted to better explain how and why certain GVCs may take a particular form. Baldwin and Venables (2013) explore the technological characteristics of products and economic geography considerations; they emphasise the presence of centripetal forces that bind some activities together – a process that differs across products, depending on the co-location of certain activities. A distinction is made between 'snakes'

#### Box 1: Description of government structures

**Market governance** is typical where transactions are relatively simple, information on product specifications is easily transmitted, and suppliers can make products with minimal input from buyers. Trade takes place through arms-length exchanges which require little or no formal cooperation, for example, carried out in auction houses or other spot markets, or other over-the-counter transactions.

**Modular governance** occurs when complex transactions are relatively easy to codify. Suppliers in modular chains make products to a customer's specifications. Information technology and standards for exchanging information are both key to the functioning of modular governance, which means greater control over transactions relative to the market-based governance.

**Relational governance** occurs when buyers and sellers rely on complex information that is not easily transmitted or learned. This results in frequent interactions and knowledge sharing between parties. Lead firms specify what is needed, and exert some level of control over suppliers but relational linkages take time to build, so the costs and difficulties required to switch to a new partner tend to be high. This type of governance is typically associated with contract manufacturing, but offshore contractors may source inputs.

**Captive governance** is a feature of chains where small suppliers are dependent on one or a few buyers that often wield a great deal of power. Such networks feature a high degree of monitoring and control by the lead firm. The power asymmetry in captive networks forces suppliers to link to their buyer under conditions set by, and often specific to, that particular buyer. Some cases of contract farming or types of commodity trade can exhibit this type of governance, given low supplier competence and complex transactions.

**Hierarchical governance** usually occurs when product specifications cannot be codified, products are complex, or highly competent suppliers cannot be found. This type of governance is typically associated with industries where all stages of production are carried out 'in house' as production is offshored rather than outsourced. Source: Adapted from Gereffi et al. (2005).

production processes (such as cotton to yarn to fabric to shirts), where a physical entity follows a linear process with value added at each stage; and ‘spiders’ (e.g. buttons), which are many limbed, with parts from different sources coming together in one place for assembly, which may not be the final destination, as any part of a spider might be attached to any part of a snake. The broader point is that products may be augmented and transformed at many different stages of any given GVC.

There are recognised tensions between the comparative costs that create the incentive to unbundle and the co-location or agglomeration forces that may bind some parts of a process together. The fragmentation of stages of the production process is determined by the opposing forces of international cost differences and the benefits of co-location of related stages. The end result will depend on the technological relationships between stages of production.

The logical prediction to draw from this framework, given recent trends on the proportions of trade controlled by TNCs and intra-firm processes, would be that increasingly complex and technologically sophisticated products are being produced in fragmented chains, but that control by lead firms remains high (through FDI), either because domestic capabilities in recipient countries are low, or because the benefits of co-location and agglomeration forces remain weak relative to those of cost and management differences.

In sum, it is fair to say that there are a lot of new descriptions and some new data on production networks, but much less analysis on the implications. Within the context of increased intra-firm trade and FDI flows, many of the concerns raised within the wave of GVC literature from the 1990s are accentuated. At that time, sector studies – rather than the input:output databases outlined in the next section – were motivated by the need to better understand how producers engage with the process of globalisation and the resultant implications for the development of productive capacity and capabilities.

## New databases

Trade data based on gross flows are increasingly inadequate as the basis for understanding modern trade as the value of a final good that now comes from many countries (Grossman, 2010). Policy-makers need to better understand where production is taking place and how value is being added. This can only be known through understanding the proportion of subcontracting components made elsewhere. As argued by Grossman (2010), and as national accountants have known for a considerable time, economic activity is best measured by value added, rather than gross output.

As a consequence, there has been a resurgence in Leontief-style<sup>1</sup> analyses, since the introduction of publicly available international input:output (IIO) tables, including those developed by the Organisation for Economic

Co-operation and Development and the World Trade Organization (OECD-WTO) (2013) and the United Nations Conference on Trade and Development’s Eora (UNCTAD-EORA) GVC database. These new sources of information have helped to debunk some myths. For example, China may be the world’s largest exporter within the global economy, but developed countries still capture the most of the global value added (Banga, 2013). Other studies that take a more disaggregated approach, and include firm-level analyses in China – which the new databases do not – reach similar conclusions (Dallas, 2014).

Essentially, these new databases measure the extent to which countries are involved in vertically fragmented production. This is approximated by the sum of the value of imported inputs in the overall exports of a country (the backward linkage) plus the percentage of exported goods and services used as imported inputs to produce other countries’ exports (the forward linkage). The value-added shares describe the participation of a country in GVCs, both as a user of foreign inputs and supplier of intermediate goods and services used in other countries’ exports.

However, description is not the same as identifying the control issues that are relevant to GVCs or the incentive issues that are relevant to conventional economic analysis. At the core of the GVC frameworks developed in the 1990s remains the notion of governance that determines how the production and marketing of goods and services are organised globally, which in turn reflects economic power, as well as other considerations, such as producers’ capabilities. Economic power results from control over particular nodes of production, or sale, because of the presence of rents and barriers to entry; these may arise from proprietary knowledge. These aspects are not captured by new IIO tables.

Control over forward and backward linkages results in economic power and the ability to dictate terms of entry for other players, as in the producer-driven GVC typology developed by Gereffi (1999). What’s innovative, therefore, is the ability of the new wave of GVC literature to turn old concepts on their head, and reposition these terms within a GVC-driven global economy, as characterised by Factory Europe, Factory North America, and Factory Asia (Hoekman, 2014) – the three hubs that are estimated to account for around 85% of all trade in value (OECD, 2014).

The development of these new databases, and their calculation of trade in value added, provides some new slants on old phrases, including those with strong economic-geography connotations. For example, forward and backward linkages are now used to refer to the flow of inputs and outputs in production and subsequent export. Most students of economics will be more used to the forward and backward linkages terminology developed by Hirschman (1958) in his analysis of unbalanced growth. As discussed by Krugman (1997), although some crude followers consider this discussion as commensurate with input:output analysis, the interaction

<sup>1</sup> The Leontief paradox revealed some of the inconsistencies in trading patterns that new trade theory resolved. The input:output identity states that all products must either be consumed or used as intermediate input in production.

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between economies of scale and market size is, in fact, central to the original conception.

Backward linkages once related to the role of market-size externalities linked to economies of scale: an industry creates a backward linkage when its demand enables an upstream industry to be established. Forward linkages once related to the ability of an industry to reduce the costs of potential downstream users of its products and hence push them over a threshold of profitability. Now these terms are being used to refer to a situation where a country sources its inputs into production for export, and how one country's export subsequently contributes to that of another.

## New policy considerations

The extent of intra-firm trade and its implications are challenges for all governments, particularly in relation to trade and tax issues. International institutions continue to grapple with these challenges, and have been requested to do so, including by the G20, which requested implementing bodies such as the OECD, WTO and UNCTAD to explore the 'implications of GVCs for trade, investment, development and jobs'. No firm conclusions were reached, but there are continuing concerns about finance and transfer-pricing issues between firms that operate globally. How these issues will be resolved in practice remain unclear.

Rules between countries are far from standardised and, as we have seen, arms-length trade between firms has reduced as the proportion of intra-firm trade rises, meaning that previous benchmarks no longer hold sway. Where a large share of value added is generated by TNC affiliates, transfer pricing and over invoicing can lead to low-value capture. Import content is a significant factor in value added, and has been emphasised by new databases that seek to measure trade in terms of value added.

There is growing advocacy for 'whole of supply chain approaches' towards trade negotiations. The apparent distinction between goods and services made in previous rounds of WTO negotiations is now seen as artificial, making it necessary to look at supply chains holistically. Consideration of the stability and security of supply to developed countries is also being given due consideration.

The WTO's 4<sup>th</sup> Global Aid for Trade Review was all about 'connecting to value chains'. This event also gave new consideration to services trade and value chain development, including tourism. Donors working on helping developing countries enter and upgrade within GVCs recognise that what is good for their suppliers is also good for them. For example, there are instances when economic and social upgrading within value chains go hand in hand (Milberg and Winkler, 2013).

## What's missing: data, analysis and policy

The country coverage of existing public IIO tables is fairly limited. Only one sub-Saharan African country is included in the OECD/WTO Trade in Value Added (TiVA) database, although the UNCTAD-EORA GVC database has wider

country coverage. Given the focus on vertically fragmented production, the added value of these datasets and their understandings of how GVCs operate in most of the least-developed countries (LDCs), as well as other regions where trade data is limited, are rather more questionable.

Much attention is focused on the manufacturing sector and inputs into this – intermediate goods trade – as opposed to other forms of GVC trade, including commodities as well as services. The UNECA (2013) *Economic Report on Africa: Making the Most of Africa's Commodities* was a landmark publication on this issue. In general, however, the new wave of GVC literature fails to engage with the particular challenges faced by commodity exporters. This is despite the acknowledgement that producers in some cases have moved from what could be termed a market-based system in the 1980s to what now looks more like a captive value chain (see Ponte, 2002). There have been important changes in how commodity products are traded both in the virtual as well as physical sense, that are overlooked in the current literature as it retains its focus on the physical movement of goods.

Instances of downgrading as a result of GVC participation are recognised. The whole point of the 1990s wave of GVC literature was to emphasise changes in the way in which value chains are governed because of increased concentration and consolidation amongst lead firms, and subsequent implications for upgrading processes. The qualitative GVC literature – developed on the basis of case-study analysis – now draws particular attention to the concept of social embeddedness, and, therefore, the reasons why firm ownership matters (Staritz and Morris, 2013). Some of the risks associated with GVC participation by the OECD/AfDB/UNDP (2014) include 'being locked into low value-added stages of GVCs' and 'foreign investors operating in isolation with only limited spillovers to the domestic economy'.

The link to firm-level performance in most qualitative GVC studies tends to be limited and based mostly on a descriptive rather than a quantitative analysis. Where quantitative analysis of GVC participation and employment outcomes has been undertaken (e.g. Shepard and Stone, 2013) there is a failure to differentiate GVCs by their firm ownership structures, and hence their governance structures. This matters because many of the same concerns that are raised within the trade and FDI literature on spillovers and absorptive capacity remain relevant within the GVC context and should not be downplayed. As Banga (2013) has emphasised, countries may be integrated into GVCs, but the link may not necessarily be gainful, given the different types of relationships and power hierarchies that exist between firms that operate in GVCs.

Recent trade in value-added data also suggest that services represent about 30% of the share of value added in manufactures trade (OECD, 2013). This conclusion is being used to argue that a country cannot be competitive and join GVCs unless it has an efficient domestic services sector, or is closed to the importation of such services (Cattaneo et al., 2013). However, in essence the new

databases measure *net* exports and not domestic value added or the depth of GVC participation, including control over production and services such as marketing and retail in end markets. The paucity of services data that exists, as well as the framework used to assess services liberalisation, makes it difficult to interpret these trends. The whole point about the earlier GVC approaches was to also consider access to the services that reside in end markets such as marketing and retailing, as well as trading, since this is where the more lucrative returns may reside.

## Implications for governments

Despite much of the hype that surrounds the new wave of GVC discourse, there are no hard and fast rules, no easy policy prescriptions and definitely no ‘one-size-fits-all’ solutions. If anything, the literature reveals the increasing complexity of global trading patterns. It is misleading, therefore, to try to distil this into a simple message of, for example, using Aid for Trade, attracting FDI, and integrating with GVCs.

## References

- Baldwin, R. and Venables, A. (2013) ‘Spiders and snakes: Offshoring and agglomeration in the global economy’. *Journal of International Economics*, Elsevier, vol. 90(2), pages 245-254.
- Banga, R. (2013) ‘Measuring Value in Global Value Chains’. UNCTAD Background Paper. Geneva: United Nations ([http://unctad.org/en/PublicationsLibrary/ecidc2013misc1\\_bp8.pdf](http://unctad.org/en/PublicationsLibrary/ecidc2013misc1_bp8.pdf)).
- Cattaneo, O., Gereffi, G., Miroudot, S., and Taglioni, D. (2013) ‘Joining, Upgrading and Being Competitive in Global Value Chains’. World Bank Policy Research Working Paper 6406. Washington, DC: World Bank (<http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-6406>).
- Dallas, M. (2014) ‘Foreign Ownership, Governance and Value Chains in China’s Light Industries’. *World Development*, Volume 75, pp47-62.
- Gereffi, G. (1999) International trade and industrial up-grading in the apparel commodity chain. *Journal of International Economics*, 48(1), pp. 37-70.
- Gereffi, G., Humphrey, J. and Sturgeon, T. (2005) ‘The Governance of Global Value Chains’, *Review of International Political Economy* 12: 78-104.
- Grossman, G. (2010) Panel Discussion at World Bank Workshop on: Fragmentation of Global Production and Trade in Value Added. Washington, DC: World Bank (<http://bit.ly/1o4IBzb>).
- Hirschman, A. (1958) *The Strategy of Economic Development*. New Haven, CT: Yale University Press.
- Hoekman, B. (2014) *Supply Chains, Mega-Regionals and the WTO*. London: Centre for Economic Policy Research publication (summarised at <http://www.voxeu.org/article/supply-chains-mega-regionals-and-wto-new-cepr-book>).
- Keane, J. (2012) ‘The Governance of Global Value Chains and the Transmission of the Global Financial Crisis to Producers in Africa and Asia’. *Journal of Development Studies* (48:6), pp 783-797.
- Krugman, P. (1997) The Rise and Fall of Development Economics, Mimeo (<http://web.mit.edu/krugman/www/dishpan.html>).
- Milberg, W. and Winkler, D. (2013) *Outsourcing Economics: Global Value Chains in Capitalist Development*. Cambridge: Cambridge University Press.
- OECD/AfDB/UNDP (2014), African Economic Outlook 2014: Global Value Chains and Africa’s Industrialisation. Paris: OECD Publishing for Organisation for Economic Co-operation and Development, African Development Bank, United Nations Development Programme.
- OECD and WTO (2013) ‘OECD-WTO Database on Trade in Value-Added First Estimates: 16 January 2013’. Paris: Organisation for Economic Co-operation and Development and World Trade Organization.
- Ponte, S. (2002) ‘Brewing a Bitter Cup? Deregulation, Quality and the Re-organisation of Coffee Marketing in East Africa’. *Journal of Agrarian Change* 2(2): 248-72.
- Shepard, B. and Stone, S. (2013) ‘Global Production Networks and Employment: A Developing Country Perspective’. OECD Trade Policy Papers, No. 154. Paris: the Organisation for Economic Co-operation and Development (<http://dx.doi.org/10.1787/5k46j0rjq9s8-en>).
- Staritz, C. and Morris, M. (2013) ‘Local Embeddedness, Upgrading and Skill Development: Global Value Chains and Foreign Direct Investment in Lesotho’s Apparel Sector’. Capturing the Gains Working Paper 20. Manchester: Capturing the Gains, University of Manchester (<http://www.capturingthegains.org/pdf/ctg-wp-2013-20.pdf>).
- UNCTAD (2013) *World Investment Report: Global Value Chains: Investment and Trade for Development*. Geneva: United Nations Conference on Trade and Development ([http://unctad.org/en/publicationslibrary/wir2013\\_en.pdf](http://unctad.org/en/publicationslibrary/wir2013_en.pdf)).
- UNECA (2013) Economic Report on Africa 2013. Making the Most of Africa’s Commodities: Industrializing for Growth, Jobs and Economic Transformation. Addis Ababa: United Nations Economic Commission for Africa (<http://www.uneca.org/publications/economic-report-africa-2013>).



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