

Global Value Chains: Implications for Trade, Investment and Development Policies

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Value chains have been the principal engines driving globalization. Starting in the 1960s, companies increasingly began to move some of their operations offshore, seeking to reduce costs by sourcing components or conducting labour-intensive operations in countries with lower wage rates. This 'fragmentation' of the production process was facilitated by three developments: increasing liberalization of trade and investment regimes; changes in technology that substantially reduced the costs of transporting goods; and the emergence of new business models.

Companies that controlled the various stages of production—from research and development to manufacture to marketing and distribution—were able to concentrate on those stages that were most profitable. Beginning with the athletic footwear industry—the 'Nike model'—companies increasingly opted out of the manufacturing process rather than themselves establishing subsidiaries offshore, generating their profits from their control over design, brand name, and distribution. Although they often did not have any equity stake in their suppliers, they provided critical inputs such as the blueprints for products. The electronics industry quickly followed this model with many of the big name companies in computing and mobile phones outsourcing their manufacturing. The logic of the business model has been carried furthest in recent years by Apple, which derives its profits from its control over research and development, proprietary technology, brand name, and distribution channels, but contracts other companies to make its products.

The fragmentation of production has dramatically transformed the structure of international trade, integrating developing economies into manufacturing networks. By the middle of the first decade of this century, for instance, manufactures accounted for 85 percent of the total merchandise exports of developing East Asia and they constituted nearly three-quarters of ASEAN's exports. International merchandise trade is now increasingly based on vertical specialization, that is, trade in components that are part of the same product. World trade in components increased substantially in the first decade of the 21st Century, up from 24 percent of global manufacturing exports in 1992–3 to 54 percent of the total in 2003 (OECD 2007: 2). In the same period, the share of developing economies in exports produced within value chains doubled, primarily because of growth that occurred in East Asia. In 2007–8, exports within value chains accounted for fully 60 percent of East Asia's manufacturing trade, in comparison with a world average of 51 percent (Athukorala forthcoming: Table 4). The incorporation of China into global value chains has been a major factor in the transformation of international trade: in 2000–2008, China accounted for two-thirds of the world's processing exports (followed by Mexico with slightly under one-fifth) (WTO and IDE-JETRO 2011, p. 21). Although typically more difficult to measure, trade in services has become an increasingly significant dimension in the development of value chains.

The significance of value chains had long been recognized by economic geographers and theorists of international business. Increasingly, the economics profession has acknowledged that the contemporary structure of international production and trade bears little resemblance to traditional theories of international trade. In turn, the major multilateral economic institutions have become interested in value chains and their implications for policies on trade and development. Global value

chains have, in the words of the WTO's Director-General Pascal Lamy, produced "a new paradigm where products are nowadays 'Made in the World'" (World Trade Organization 2012b: 4). If, indeed, there is a new paradigm, what are the implications for how we conceive of international trade—and what policy implications for the G20 flow from this reconceptualization?

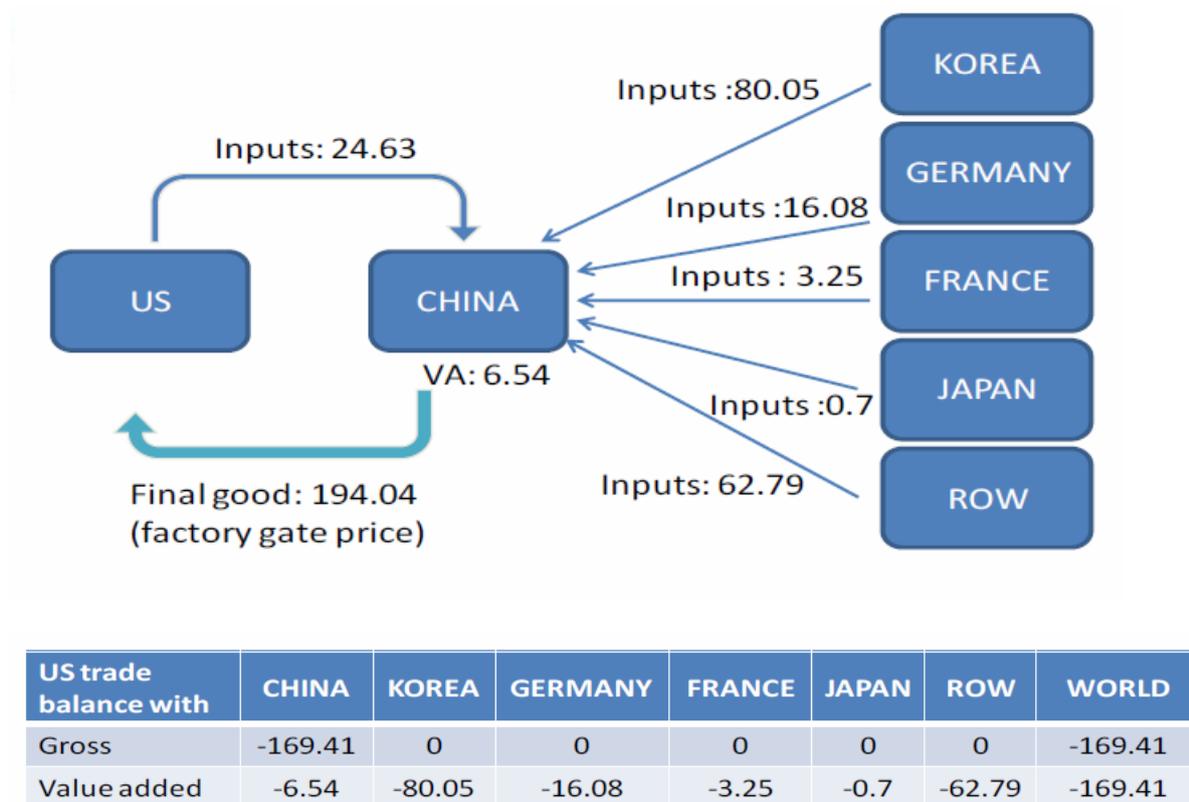
"Made in the World": Implications for Global Imbalances

At the Pittsburgh summit, leaders of the G20 agreed to work together to ensure a lasting recovery from the global financial crisis and to establish the foundations for strong and sustainable growth in the medium term. The *Framework for Strong, Sustained and Balanced Growth* launched at Pittsburgh is the centrepiece of the Group's approach. Through the *Mutual Assessment Process*, the G20 aims to establish growth objectives for the global economy, the policies needed to reach them and (with support from the IMF) mechanisms for assessing progress towards the agreed goals. At the Paris meeting of G20 finance ministers in February 2011, agreement was reached on the indicators that would be monitored as part of the Mutual Assessment Process. One of the indicators that figured prominently was external imbalances 'composed of the trade balance and net investment income flows and transfers' (in addition to various indicators of domestic balances such as public debt and fiscal deficits, and private savings and debt).

Trade imbalances have been the indicator that since the demise of the gold standard in the 1920s has attracted the most attention from politicians and the media, even though a focus on trade balances, particularly those between pairs of countries, makes little sense from the perspective of economics. Data on the balance of trade are convenient, however, in that they are relatively easily calculated and are seemingly intuitively plausible gauges of whether or not countries are behaving responsibly in their international economic relations. The advent of global value chains, though, has significantly complicated the calculations of trade imbalances.

The most vivid demonstration of the new complexities of international trade balances has come through work that has focused on the geographical distribution of value added in several of Apple's flagship products. Although these are ostensibly 'Made in China'—and for balance of trade purposes, their full value is classed as a 'Chinese' export—only a very small portion of the total value of the product is actually added within China. For one iPhone4 assembled in China (by the Taiwanese company Foxconn) and sold in the US, trade data would indicate a Chinese export valued at \$194.04. Slightly over \$24 of this figure consists of components sourced from the US: one iPhone4 consequently would contribute \$169.41 to the bilateral US trade deficit with China. However, all of the components for the phone are actually sourced from elsewhere: China's value added consists only of the labour used in the assembly, a total of only \$6.54. When measured on a value-added basis, most of the cost of the iPhone4 import is attributed to other countries, notably Korea (Samsung supplies the display and memory chips for the phone).

Figure One: Geographical Sources of Value Added for an iPhone4 (in \$US)



Source: OECD (2011)

Xing and Detert (2011: Table Two) estimate that imports of iPhones alone contributed to close to \$2 billion to the recorded US trade deficit with China. If these imports had been measured in value added terms, however, the figure would be less than \$75 million. The iPhone example is but one dimension of the complications that the spread of global value chains have caused for measuring trade imbalances: again focusing on what is currently the most politically sensitive imbalance, that between China and the United States, the WTO estimated that the overall US trade deficit in China would have been cut by more than 40 percent in 2008 if it had been measured in value-added terms rather than by conventional national trade statistics (World Trade Organization/IDE-JETRO 2012: Figure 9 p. 104). But it is not just the US-China trade balance that looks remarkably different when measured in value-added terms: the substantial trade deficit that Korea runs with Japan largely disappears when trade is measured in value-added.

One important implication of the growth of value chains therefore is that new measures of international trade are required if sound policies are to be adopted both to identify and to rectify global imbalances—a need recognized by the WTO and OECD in their joint project to produce a database on Trade in Value Added (www.oecd.org/trade/valueadded). Value chains also constrain the effectiveness of policy instruments traditionally used to address trade imbalances: with final products being assembled from components sourced from many countries, a change in a bilateral exchange rate, for instance, may have unpredictable effects because it will only weigh on the domestic content of a country’s exports but will also affect the cost of imported components. Data on value-added also have the advantage of avoiding the current problem of double-counting that

occurs when components cross borders before assembly into a final product (which leads, for instance, to a substantial over-statement of the overall significance of intra-regional trade in East Asia). Furthermore, measuring trade in value-added provides a far more accurate indication of the contribution that services make to international trade.

Trade Policy Implications of the Growing Importance of Global Value Chains

Value chains have been at the heart of the conventional wisdom that economic integration in the Asia-Pacific has been 'market-driven'. At one level, such arguments are correct—the Asia-Pacific, of course, lacks the supranational regional institutions of Europe. On the other hand, the role of governments in facilitating the growth of value chains should not be overlooked. Their contribution over the last three decades has taken many forms: the establishment of export-processing zones that permitted duty-free import of components for assembly into products that were subsequently exported, zones that were the basis for the early footholds that many countries in the region including China gained in these networks; similar but non-geographically specific provisions through duty-drawback arrangements; the unilateral lowering of tariffs (important throughout the region from the mid-1980s onwards); and government commitments in regional and global trading agreements, not least the 1996 Information Technology Agreement (ITA) that freed up a substantial part of trade in the region's single most important export sector. Specific tariff provisions on the part of countries importing assembled products in some instances have encouraged outsourcing of a number of processes and the import of specific inputs, e.g., the US 'yarn forward' rule, which requires the use of US materials if the product is to benefit from US tariff concessions.

Two extremes on the spectrum of policies are evident in responses to the rapid growth in the role of value chains. One is to suggest that the success of value chains is testimony to the effectiveness of current policies—whether unilateral measures by governments or global treaties such as the ITA: nothing more needs to be done. The other extreme is a stark reiteration of the 'Washington Consensus' agenda of the 1980s: if countries want to gain the full benefits of participation in global value chains then they should simply liberalize their trade and investment policies and take the state out of the economy as far as possible. Neither of these extremes is particularly helpful.

While it is the case that export-processing zones and similar arrangements have facilitated the participation of developing economies in value chains, the potential gains to the local economy are constrained when participation in networks is confined to geographical enclaves. Better to make the duty-free import of components consistent across the whole economy. And while it is the case that nominal tariffs have fallen dramatically in many developing countries, tariffs can still be significant impediments. The effect of residual tariffs is magnified in a world in which components cross borders, sometimes on multiple occasions (final assemblers, for instance, may pay tariffs on their imported inputs and then face tariffs on the full value of their exports including these inputs). And while the Information Technology Agreement has frequently been hailed as the single most significant trade liberalization measure since the WTO came into existence, the sector has developed substantially in the fifteen years since the ITA was signed so that the agreement's coverage of products in this sector is increasingly incomplete. A strong case can be made for a substantially revised ITA (Lee-Makiyama 2011).

In other words, much can still be done through traditional trade policy agendas to facilitate the operations of global value chains. But efficiency within global value chains also depends heavily on

non-tariff barriers that impede the movement of components and goods across borders. Among the most important of these are efficient customs procedures and processing; and standards setting and certification procedures. Here substantial potential exists for mutual recognition or harmonization of product standards. These are the so-called '21st Century' trade issues that are figuring prominently in current negotiations such as those for the Trans-Pacific Partnership.

Global Value Chains and Investment

The proliferation of global value chains has come at a time of unprecedented levels of foreign direct investment. The relationship between the two is not as straightforward as might appear from a superficial reading, however. Significant numbers of global value chains are associated with little or no foreign direct investment. This characteristic is particularly evident in what are often referred to as 'buyer-driven' chains that dominate the textile and apparel industry, for instance. Here the principal contribution of the lead firms to their suppliers is to provide the specifications to which goods are produced (and of course the marketing channels through which the final products are sold). Even in more technologically-intensive sectors such as automobiles, the principal contribution of the lead firms in a value chain may be to provide blueprints and often technical assistance to their suppliers, sometimes seconding their engineers to work at their suppliers' manufacturing plants. No equity relationship is involved.

Other value chains may include foreign direct investment relationships but not those linking the home country of the lead firm and the countries doing the assembly. In the athletic footwear industry, for instance, the investment in Southeast Asia where plants manufacture for leading international brands such as Nike came not from the US company but from Korean and Taiwanese manufacturers. In electronics, much of the foreign direct investment—whether for Apple or for other mobile phone brands such as Nokia—again comes not from the lead firm but from electronic contract manufacturers based outside of Europe and North America. Outside of the industry relatively few people are aware of the scale of these companies: HonHai, whose Foxconn subsidiary assembles most of Apple's products in China, has grown into the world's 60th largest company (by revenue), with total sales in 2011 of over US\$90 billion, more than 50 percent above those of Apple, its principal customer. Although HonHai alone accounts for almost half of the total revenue of contract manufacturers, the industry features other large players including the Singapore-based Flextronics, ranked 334 on the Fortune Global 500, with 2011 sales of US\$29 billion.

There is little to suggest that global value chains are currently inhibited by the lack of a global treaty on foreign direct investment. Countries in East Asia have signed on to multiple bilateral investment treaties (BITs) (many more the preferential trade agreements they have joined, agreements that have attracted far more attention). In 2011, East Asian countries were parties to 577 BITs: China alone was a signatory to 128 (Ravenhill 2013). And many of the recent bilateral trade agreements also contain chapters on investment. While the effectiveness of some of these instruments is indeed debatable, the wisdom of attempting to negotiate a global treaty on foreign direct investment is also questionable. Each of the attempts to negotiate a global investment treaty—beginning with the International Trade Organization in the immediate post-war period through the OECD's Multilateral Agreement on Investment in the second half of the 1990s—foundered on conflicts over the balance between the rights and responsibilities of foreign investors. In the current era where developing countries are more effective actors in global negotiations than ever before, agreement seems

unlikely. And a global agreement is likely to face concerted opposition from civil society groups—the days have long since passed when Nike could claim that it had no responsibility for the labour conditions under which its shoes were produced because these were controlled by independent subcontractors.

Value Chains and the Development Agenda

A country's effective participation in value chains requires more than a simple liberalization of its trade and investment regimes. Two issues are particularly noteworthy here. The first is that the countries that have been the focal point for value chains are ones that have good infrastructure that permits the easy movement of components and final goods within countries and across national boundaries. The answer to the question of why iPhones are manufactured in China rather than Indonesia lies in part in the latter's poor quality infrastructure, reflected in the time to ship a container from the local port to the US West Coast being nearly double for Indonesia. The second issue is that the gains to local economies will be limited unless they are able to move up the value chain.

In this context, it is important to remember that the origins of the 'fragmentation' of production into value chains lay in the capacity of lead companies to choose to focus on those areas of activity where they could derive the most profits. Consider again the iPhone example. Apple's profit on the iPhone is variously estimated to be between 58 and 64 percent of the retail price. Roughly ten percent of the profits go to components suppliers in Japan, Korea and Taiwan. The value added in China is less than one percent of the product's retail price. And, while this lack of local contribution to the overall value of China's exports is extreme, it is symptomatic of a broader problem: less than one-fifth of the value of China's 'processing exports' is estimated to originate domestically, and less than one half of the value of total exports (Koopman et al. 2010). Not surprisingly, China's leaders have expressed their determination to move from 'assembled' in China to 'designed and manufactured' in China. Frustrations with being stuck in the low-value-added activities in value chains have the potential to cause a trade policy backlash in developing economies.

The World Bank has increasingly warned countries in the region—including China—that they risk becoming stuck in a 'middle income trap' where they are unable to compete with more technologically advanced countries and simultaneously are under pressure from lower labour cost economies. To escape this trap, countries need to move up the value chain, which *inter alia*, will require effective policies to strengthen innovation, enhance skills, and upgrade the capabilities of domestic suppliers. If the G20's approach to value chains is to retain the support of developing economy members then an agenda on trade facilitation will need to be accompanied by one that assists economies in upgrading their local capabilities.

Conclusion

Global value chains have dramatically transformed international trade. For the G20, a number of implications follow. The first is that in addressing global imbalances through the Mutual Assessment Process, the G20 needs to eschew conventional measures of trade imbalances and focus on data that accurately reflect where the value of final products is actually created. Second, even though the various measures that governments have put into effect to facilitate the free movement of components have substantially reduced the significance of tariffs as impediments to the operation of

value chains, the exceptions are still of sufficient significance that the traditional trade policy agenda of liberalizing border barriers is still relevant. Third, behind the border barriers take on increasing importance both because of the fall in tariffs and because the need to produce regionally or globally will be facilitated by mutual recognition or harmonization of standards. Fourth, the relationship between value chains and foreign direct investment is substantially more complex than is sometimes presented: little evidence exists that the absence of a global treaty on foreign investment is a significant impediment to the operation of value chains. Finally, while many developing economies are benefiting from participating in value chains through increases in employment and exports (and sometimes through inward foreign direct investment), the profits generated within value chains are distributed in a markedly uneven manner. Such disparities fuel nationalist sentiments in developing economies. Efforts by industrialized economies to promote trade liberalization and facilitation within the G20 will need to be linked to an agenda that contributes towards the improvement of infrastructure and towards the upgrading of the capabilities of local firms if they are to gain sustained support from the G20's lower income economies.

REFERENCES

Athukorala, Prema-chandra (forthcoming) "Global Production Sharing and Trade Patterns in East Asia." Oxford Handbook of the Pacific Rim Economies ed. Nirvika Singh. Oxford: Oxford University Press.

Koopman, Robert, et al. (2010) "Give Credit Where Credit Is Due: Tracing Value Added in Global Production Chains". Cambridge, Mass.: National Bureau of Economic Research, Working Paper 16426, September <http://www.nber.org/papers/w16426.pdf>.

Lee-Makiyama, Hosuk (2011) "Future-Proofing World Trade in Technology: Turning the WTO IT Agreement (ITA) into the International Digital Economy Agreement (Idea)". Brussels: European Centre for International Political Economy, ECIPE Working Paper 04/2011,

Organisation for Economic Cooperation and Development (2007) "Moving up the (Global) Value Chain". Paris: Organisation for Economic Cooperation and Development, Policy Brief, July

Organisation for Economic Cooperation and Development (2011) "Global Value Chains: Preliminary Evidence and Policy Issues". Paris: Organisation for Economic Cooperation and Development, 19 May <http://www.oecd.org/dataoecd/18/43/47945400.pdf>.

Ravenhill, John (2013) "Resource Insecurity and International Institutions in the Asia-Pacific Region." The Pacific Review 26, 1: 39-64.

World Trade Organization/IDE-JETRO (2012) "Trade Patterns and Global Value Chains in East Asia: From Trade in Goods to Trade in Tasks". Geneva: WTO, http://www.wto.org/english/res_e/booksp_e/stat_tradeptat_globvalchains_e.pdf.

Xing, Yuqing, and Neal Detert (2011) "How the iPhone Widens the United States Trade Deficit with the People's Republic of China". Tokyo: Asian Development Bank Institute, ADBI Working Paper 257, May