WORLD ECONOMIC FORUM

COMMITTED TO IMPROVING THE STATE OF THE WORLD

Global Agenda Council on the Global Trade System

The Shifting Geography of Global Value Chains: Implications for Developing Countries and Trade Policy

World Economic Forum

REF 280512

Contents

Acronyms

AGOA	African Growth and Opportunity Act
ASEAN	Association of Southeast Asian Nations
BITs	Bilateral Investment Treaties
BPO	Business Process Outsourcing
EBA	Everything But Arms
ECB	European Central Bank
EU	European Union
FDI	Foreign Direct Investment
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GE	General Electric
GSP	Generalized System of Preferences
IC	Integrated Circuit
ICT	Information and Communications Technology
IMF	International Monetary Fund
IPR	Intellectual Property Rights
ITO	Information Technology Outsourcing
JETRO	Japan External Trade Organization
KPO	Knowledge Process Outsourcing
LDCs	Least Developed Countries
LPI	Logistics Performance Index
MFA	Multifibre Arrangement
MFN	Most Favoured Nation
MITI	Ministry of International Trade and Industry (of Japan)
MNC	Multinational Corporation
NIEs	Newly Industrialized Economies
OECD	Organisation for Economic Co-operation and Development
OEM	Original Equipment Manufacturers
PRC	People's Republic of China
PTAs	Preferential Trade Agreements
QCC	Quality Control Circles
R&D	Research & Development
RTAs	Regional Trade Agreements
SME	Small and Medium Enterprises
TPP	Trans-Pacific Partnership
UK	United Kingdom
US	United States
WTO	World Trade Organization

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Summary and Recommendations

Peter Draper, Uri Dadush, Gary Hufbauer, James Bacchus, and Robert Lawrence[1]

Introduction

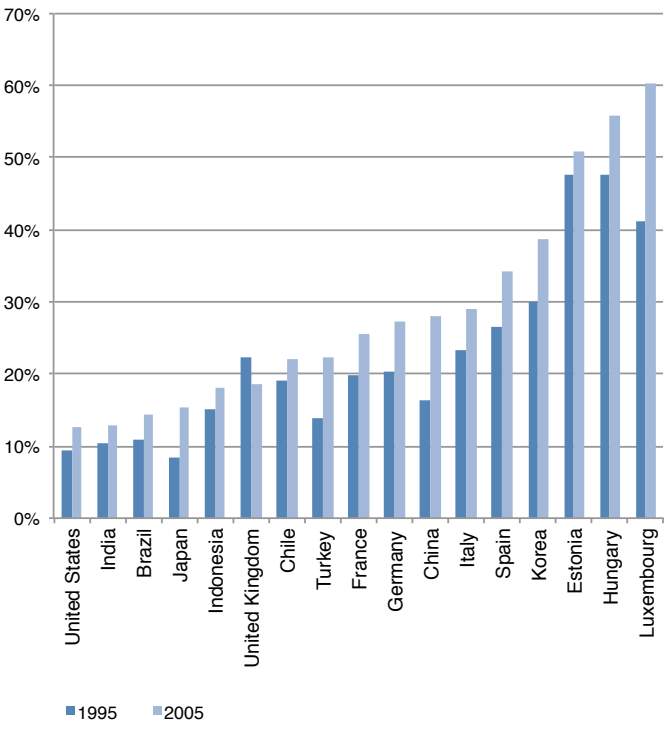
Two broad, contradictory trends are at work in the global economy. First, economic globalization through multinational corporation (MNC) production networks continues apace. This promotes global economic convergence and integration. The global value chains they operate have become the world economy's backbone and central nervous system.

However, the second trend pertaining to economic crisis policy responses is one of divergence. Associated with this is the ever-present threat of a destructive spiral of protectionism and consequent disintegration. That would have serious consequences for the global economy, particularly the most vulnerable and trade-dependent states. This highlights the critical role the World Trade Organization (WTO) has played in stemming the tide of protectionism. Unfortunately, WTO member states remain unable to conclude the Doha Development Round, throwing the WTO's continued centrality to the global trading system into sharp relief. Fortunately, the resilience and increased interdependence of the global economy also played a key role in containing protectionism: governments quickly realized the futility of discriminatory stimuli and the cost of raising barriers on intermediate goods on which whole segments of domestic industries depend. [2]

The increasing importance of global production chains is reflected in the rising trade in intermediate inputs, which now represent more than half of the goods imported by OECD economies and close to three-fourths of the imports of large developing economies, such as China and Brazil.[3] Imported inputs also account for a significant chunk of exports, blurring the line between exports and imports as well as between domestic products and imports. As part of global production chains, products at different stages of value added may be imported and re-exported multiple times, increasing the size of reported exports and imports relative to global and national value added. In advanced countries, this effect is reinforced by the fact that imports can contain a significant portion of inputs – including intellectual property, brand-development, etc. – originally sourced at home; in developing countries, imports of components and machines are crucial vehicles for absorption of technologies.

According to OECD estimates, imported intermediate input content accounts for about one-quarter of OECD economies' exports, and the European Central Bank (ECB) estimates that such imports accounted for about 44 percent of EU exports (or 20 percent for imports from outside of the EU) in 2000, ranging from about 35 percent in Italy to about 59 percent in the Netherlands.[4] In the United States, imported intermediate input content in exports reached about 10 percent in 2005. Among emerging economies, imported content's share in exports is particularly high in China - about 30 percent, or twice that for India and Brazil.

Import content of Exports (%)



Source: OECD Input-Output Database

With globalization, the use of imported intermediates for exports has been growing. According to the OECD, all but one of its 34 member countries increased the import content of its exports over 1995–2005. The increase was particularly marked in small countries like Luxemburg and Israel, which saw increases of about 20 percentage points, compared to 3–8 percentage point increases in large countries, such as the United States, Japan, and Germany. This is in keeping with the general trend of import content accounting for a larger share of exports in smaller economies.

But fundamental changes to global value chains are afoot. In the next decade the underlying cost structures driving value chain location could change dramatically. At least five drivers are evident:

1. Energy and associated transportation costs are likely to continue rising as the cost of fossil fuels increases and policy measures targeted at carbon emissions intensify. The fracas over airlines associated with the EU's emissions trading scheme is an early harbinger of the kinds of issues that may arise. Related to these pressures is the danger of growing trade protectionism. Collectively these cost pressures promote reductions in the 'length' of value chains.
2. Similarly, as new players from emerging markets secure access to various resources for input into production processes, so competition will increase and prices of those resources are likely to rise. Export restrictions designed to secure domestic supplies of key industrial inputs, if not properly regulated through the WTO, are also likely to intensify placing further upward pressure on prices.
3. China is at the centre of global value chains in manufacturing, particularly in labour-intensive sectors. But as China continues to shift its growth model away from reliance on exports towards domestic consumption, so wage costs are likely to rise sharply and the currency should continue its appreciation. Other domestic costs, such as land, are also rising. Hence the 'China cost' is likely to continue mounting. By contrast, Chinese productivity growth is amazing, and the western provinces have hundreds of millions of workers eager to join the 'new China', so some caution is appropriate in predicting sharp changes.
4. Information technology costs are likely to be driven lower through intense technological competition. Information technology promotes just-in-time and flexible production processes, critical elements of value chain operations, and enables coordination of dispersed activities. This opens up opportunities for countries wishing to grab a slice of the value chains action.
5. Southern markets will continue to grow in relative importance, while growth in Europe is likely to remain structurally repressed for the foreseeable future. This is likely to drive value chain reorientation and relocation, potentially in unpredictable ways.

Therefore the geography of value chain location is likely to shift, potentially fundamentally, within the next decade. This has major implications for those countries that have specialised in value chain niches, and for developing countries looking to secure new niches. This will play out differently in different contexts: developed countries are increasingly concerned about retaining jobs; some developing countries are looking to retain their existing value chain niches while others are looking to plug into them.

These dynamics will drive unilateral trade policy responses centered on promoting competitiveness, efficiency, and attractiveness to value chain investments. Related to this, the international rules governing value chain operations need to be revisited with a view to updating them so that the new emerging context can evolve optimally. Those rules apply at two levels: the regional level through preferential trade agreements (PTAs), and the multilateral level under the WTO.

Consequently our Council decided to consider these matters in more detail; this report contains our efforts. In the next section we summarise the main contributions; then we provide some overall recommendations.

Summary

Jean-Pierre Lehmann reviews the main historical shifts in industrial location beginning with the industrial revolution in Britain; subsequently incorporating Western Europe, particularly Germany; and later the United States (US), which developed 'American management' based on 'scientific' techniques. An alternative tradition based on a different 'scientific management' paradigm developed in the Soviet Union, but ultimately failed owing to the many shortcomings of command economics. Subsequently Japan perfected its 'compete out/protect in' model centered on giant *keiretsu* rather than value chain dispersion through arms length relationships. South Korean *chaebol* then adopted the Japanese 'compete out/protect in' model, with the significant exception being their ongoing sourcing of parts and components from outside the *chaebol*, particularly from Japan. Taiwan, by contrast, developed its industrial structure from the bottom up on the basis of small and medium enterprises supplying parts and components to large corporate OEM manufacturers from Europe and the US as the 'process trade' expanded into East Asia. As labour costs in South Korea and Taiwan rose so they too shifted production within the region and China became the latest and most significant beneficiary.

Richard Baldwin unpacks the dynamics underpinning the emergence of global value chains in recent decades. What he calls the 'first great unbundling' took place in the nineteenth century as steam power drove innovations in shipping and railroads thereby radically lowering transportation costs. That enabled the spatial separation of production and consumption, while scale economies and comparative advantage promoted the unbundling process. Thus goods were made in one country and shipped to consumers in another. Accordingly, economic policies and trade rules were designed on the basis of national perspectives, in a world of 'selling' goods.

The first unbundling required on-site coordination of production and distribution. The 1980s information and communications technology (ICT) revolution promoted decentralization of information flows and therefore the 'second great unbundling', whereby production stages were dispersed to geographically distinct locations thereby harnessing comparative advantage and scale economies. This process gave rise to '21st century trade', or the trade-investment nexus. That nexus encompasses trade in parts and components; international investment in production facilities and associated material and non-material inputs; and strong demand for a range of services to coordinate dispersed production processes. This enabled firms to combine their high technology with foreign workers.

China typifies these forces par excellence. Lehmann notes that China's success in global value chains is rooted in the ICT revolution, which greatly promoted production dispersion and undercut tight vertical control as exercised by Japan's industrial *keiretsu*, while simultaneously a global market emerged for the first time as the communist bloc collapsed and developing countries pursued unilateral trade liberalization. He argues that China's success resembled the Taiwanese model rather than Japan's; with a key difference being its embrace of foreign direct investment (FDI) in order to pursue 'compressed development' at a rapid pace.

However, he reminds us that nothing is pre-ordained. Japanese manufacturing bestrode the globe in the 1980s, as had the Europeans and the US previously, before relative decline set in (excepting Germany). In this light he notes several challenges ahead for China. First, external market dynamism is repressed in the wake of the global financial crisis – a major problem for China's export-led model. Second, the docile rural-sourced labour force that fuelled the initial wave of industrialization is giving way to a younger urban labour force with higher expectations. Third, there is great desire in the leadership to promote more value addition in China and thus to alter the terms of the 'compressed development' model. These pressures are captured in the 12th Five Year Plan, the outcome of which remains to be seen.

Sherry Stephenson focuses on the services dimension of global value chains. She demonstrates that services are the "enablers" and provide the link at each point of the manufacturing value chain without which they could not function. These commercial services have been the fastest growing component of services trade; they are collectively constituted by a variety of critical activities including communications services, insurance and financial services, computer and information services and business services, among others. More open services markets allow for more efficient or higher quality distribution and logistics services, thus enabling greater participation in global value chains and world trade. Similarly, better functioning infrastructure services, such as transport, reduce the average times needed to import and export thereby reducing costs while promoting efficiency and reliability. Furthermore, a key objective for MNCs is to shift from manufacture and assembly into design, innovation, R&D, logistics, marketing and branding. Hence intangible things are becoming increasingly important in global value chains.

Stephenson notes further that services themselves are being unbundled and traded as 'tasks'. The archetypal examples are back-office and data processing services, but other services such as banking and research are also being unbundled, with the various tasks traded across national borders. Developing countries wishing to capture a share of services value chains may find it easier to capture one or more tasks in the services value chain, rather than attempt to compete along the entire spectrum.

As with manufacturing value chains, Stephenson notes that the key challenge for MNCs is to move up the services value chain. This requires strong human capital and electronic infrastructure. It also requires open trade and investment policies to promote competitive neutrality in the provision of such services. Regulatory simplicity and efficiency, key components of a good governance paradigm, are essential, as well as open markets for cross-border trade and investment flows. And regulatory modal neutrality, allowing MNCs to switch freely between modes of supplying services and to combine them when necessary in response to price and cost incentives is a key enabler. All this needs to be underpinned by quality institutions, which in turn affect the regulatory environment.

In the first company case study Karan Bhatia shows that a giant manufacturing MNC also depends on services inputs. He describes General Electric's global web of research centres, through which 'globally integrated innovation' is pursued in a 24-hour production cycle made possible through advanced ICT linkages. General Electric also has to provide maintenance and other services to its huge global network.

He focuses on an important question: what do big manufacturing multinational corporations (MNCs) look for when taking their locational decisions? He notes that such investment decisions are not taken lightly, especially in a technology-intensive company such as General Electric. Rather, they tend to be significant resource commitments that are not easily abandoned. In other words, firms like General Electric make a long-term forecast of location conditions before locating a facility, and once the location decision is made, it's not easily changed. Bhatia notes that these decisions are not based simply on cheap labour costs, otherwise firms would be flocking to Haiti and Congo, which they patently are not. Rather, productivity is the key labour issue. Furthermore, he identifies four key decision criteria. First, the potential of the local market; or as he puts it 'the business case is simply more compelling when the country at issue represents a large or potentially large market.' Second, the availability of suitable human resources. For a technology-intensive company productivity is more important than labour cost, and for design-intensive activities access to the best possible knowledge is critical. Third, availability of physical infrastructure. Fourth, and most crucial, strong legal and policy environments that embed the rule of law.

Absent these conditions, Bhatia argues that MNCs will be reluctant to fully commit to the market in question. He notes that an emerging challenge is the trend towards promoting technology transfer through policy intervention in value chain location decisions, such as 'buy local' or 'indigenous innovation' policies as a precondition for access to procurement markets. He argues that MNCs will be reluctant to commit to these markets, particularly if the four enabling preconditions or elements of them are not satisfied. By contrast, or perhaps partly because of this trend, he points out that US MNCs are increasingly 'on-shoring' their investments back into the US since the country satisfies the four conditions.

Salim Ismail considers a very different case: the labour-intensive apparel industry, with reference to sub-Saharan Africa. Clothing is one of the most traded commodities worldwide, and is particularly sensitive to government policies governing trade and exchange rates. Nonetheless, he identifies potential opportunities for African countries to plug into niches in the global value chains that characterise this intensely competitive industry, particularly labour-intensive garment manufacturing. In order to do so he argues that such countries need to harness the abundant pool of young, semi-skilled labour available at comparatively low wages; develop existing comparative advantages in the production of high quality cotton with favourable fibre characteristics; and tap into the huge potential reservoir of renewable energy resources available on the sub-continent to power energy-intensive textiles production cycles.

Will they do so? He identifies several conditions that need to be satisfied. A key barrier is that markets remain fragmented, and have inhibited the development of competitive clothing and upstream textiles. It follows that regional integration focused on reducing transactions costs is a key imperative; in other words PTAs matter. More importantly, domestic governance reforms aimed at establishing quality public institutions that will deliver sustained economic, social, and environmental performance, thereby boosting investor confidence, are critical. These will take African countries beyond their current reliance on access to preferential trade schemes offered by developed countries, into sustainable competitiveness.

Uri Dadush draws four broad macroeconomic implications from the growth of global value chains, represented by the growing share of intermediate inputs in world trade. First, the importance of bilateral trade balances is greatly exaggerated since they do not reflect value added. This has major political implications. For example, he notes that some estimates place China's trade surplus with the US between 20 to 40 percent lower than official measurements, whereas Japan and South Korea's balances with the US may be understated since China is a key plank in their companies' processing trade. Similarly, in her contribution on services trade Sherry Stephenson notes that services are not adequately captured in official trade statistics, with one recent estimate reckoning that services account for around 40 percent of world trade on a value added basis rather than the currently estimated 22 -26 percent. Trade economists are in broad agreement on the need to incorporate better measures of services trade into trade statistics, despite the fact that this is a complex and resource-intensive undertaking. The recent agreement between the WTO and the OECD to publish trade statistics on a value-added basis is a highly positive development and will be a big step toward allowing the importance of services to be better understood and appreciated in the future.

Secondly, Dadush argues that the importance of exports as a driver of demand is over-estimated, while the importance of trade as a source of economic efficiency is under-estimated. Essentially, policy makers fail to recognise that exports depend on imported inputs, whereas exported inputs feed into others' imports. Furthermore, imports are a critical channel through which developing countries absorb technology.

Thirdly, trade has become more volatile and a larger source of external shocks, largely owing to the fact that durables goods trade has grown rapidly and demand for durable goods fluctuates more than that for other tradeables (goods or services). Furthermore, since countries are increasingly specialised in certain manufacturing niches so external shocks are more rapidly transmitted through trade in durable goods. The answer to this danger, however, lies not in less trade, but in building better safeguards against financial instability and fostering more trade cooperation at the multilateral level. And the flipside of increased external vulnerability is reduced vulnerability to domestic shocks.

Fourth, notwithstanding these negative implications the cost of protection is now higher than generally understood, and rising, especially for smaller economies where the share of intermediate imports in exports is large and developing countries for which tariffs remain higher. This underscores the growing importance of trade facilitation in its broadest sense in order to reduce transactions costs associated with intermediate trade, and thereby plug countries into global value chains more effectively.

Implications for developing countries and trade rules

It is clear that governments' need to recognise that exports are only part of the development story. It is important for policy makers to develop better measures of trade flows net of intermediate imports, and more generally develop a better appreciation of how the economy fits into global production chains. A failure to do so can lead to inaccurate policy conclusions about the importance of bilateral trade imbalances, to significant underestimates of the cost of protection, and to a failure to appreciate the importance of bilateral or regional trading relationships. Generally, the existence of large and growing trade in intermediates, which is associated with foreign direct investment and the globalization of production, greatly raises the stakes for countries to have open and predictable trade and investment regimes, including efficient logistics. If they don't adopt this perspective then 'old' policy approaches can have serious consequences. For example, trade remedies often backfire by frustrating the efficiencies occasioned by intermediate trade, disrupting supply chains, and costing domestic jobs when the aim of applying trade remedies is to save them.

This is inherently a unilateral perspective. The developments described here present challenges for industrial policies and require new thinking. While it may be attractive to some policy makers and domestic constituents to promote import replacement or restrict exports for industrial policy reasons, such policies will inhibit both trade in intermediates and inward investment into value chain niches. For example, they point to the serious inaccuracies that occur when products and trade balances are classified as "high-tech" or "technologically intensive" with a view to drawing implications for industrial policies or indicating technological prowess. For example the United States is said to have large deficits in "advanced – technology" products with many developing countries, especially China. Yet the failure to appreciate that US imported products that are attributed to developing countries may actually contain large amounts of value added elsewhere – indeed in the United States -- leads to seriously erroneous conclusions. More generally, the chains pose difficulties for industrial policies since industries have become more fragmented and unbundling suggests that they are not necessarily appropriate units for policy analysis. And the greater the number of times products cross borders in the course of their manufacture, the more significant trade facilitation policies become. If only twenty percent of the value of the final product is produced in a country a five percent trade cost is the equivalent of a twenty five percent tax on that activity.

However, an open trade regime is not enough on its own to benefit from insertion into global value chains. Countries need to invest in horizontal policy measures, notably education, infrastructure, and technology transfer in order to enhance access to global value chains and the long-term benefits they offer. Domestic governance and institutional reform are also essential preconditions, particularly in developing countries. MNCs pay close attention to these 'softer' issues when taking long-term decisions about where to locate key aspects of their global value chains.

Currently the rules that govern global value chains are based on the first unbundling, or the notion that firms in one nation sell things to customers in another nation. Hence the rules framework concerns product-trade rather than process-trade. As such they do not account for a range of policies and barriers that do not inhibit selling things per se, but do hinder moving things. This problem afflicts the WTO in particular, which has struggled to advance beyond its traditional focus on market access barriers to trade in goods. The global nature of today's production chains; the intermingling they imply of exports of services, goods, movement of capital and of specialized workers; and the essential role played in them by efficient trade logistics, all point to the increased importance of comprehensive multilateral disciplines to facilitate the operation of such chains. The WTO's contribution potentially spans services, intellectual property, trade facilitation, and tariffs on imported inputs. Furthermore, trade and investment are two sides of the same economic coin; trade rules cannot work without investment rules - and vice versa.

Unfortunately our global trade rules fall considerably short of the 21st century, and our global investment rules are, alas, nearly non-existent. Furthermore, value chains evolved historically as southern export platforms to service northern markets, but now we are seeing shifts in southern locations and increasing targeting of other southern markets. Yet the Doha round is largely predicated on a north-south negotiating dynamic. As value chain relocation takes hold, driven by emerging market growth, so the new dynamics need to be reflected in how the WTO conducts its business. This argues for concluding the outstanding agreement on Trade Facilitation at the WTO as soon as possible, so that some of the logistical barriers to the operation of global value chains can be removed and the costs lowered. Despite the stasis in the Doha Round, a positive outcome on a Trade Facilitation Agreement would go very much in the right direction to facilitate the 21st century paradigm of world trade.

These issues raise an obvious question: how can WTO rules be advanced in the absence of a conclusive multilateral trade round? In our council's perspective the key to this is for the WTO's membership to pursue plurilateral, or small group, negotiations under the auspices of the WTO.[5] The politics of this approach are challenging, but the systemic implications of continued stasis in the WTO are arguably worse.

Two further implications relate to services trade and investment. First, trade rules should be updated to promote modal neutrality in services trade and investment. Specifically, modes 1 (cross-border trade) and 3 (cross-border investment) should be open and therefore facilitate modal switching. Second, regulators need to promote regulatory coherence across borders so as not to establish bottlenecks in the value chain creation process. This could be done through the adoption of general or sector-specific principles, or both.

Given these problems with updating WTO rules, trade rules have advanced faster in PTAs or related vehicles such as bilateral investment treaties. Production chains are even more intense at the regional level, and regional agreements can more easily deal with the complexity they imply – pointing to regional negotiations as an important complement to multilateral disciplines. Nonetheless, PTAs could add to transactions costs in the absence of multilateral disciplines advancing in the WTO. Furthermore, PTA rules are based on an antiquated understanding of where goods are 'from' - hence the Byzantine networks of 'rules of origin'. But goods are now 'from' everywhere - because of global value chains. In a world of supply chains, the least developed countries (LDCs) have increased opportunities to enter into processing activities, potentially on a large scale, but this implies their adding relatively small amounts of value-added to any particular product. Under these circumstances, rules of origin which require thirty or forty percent of local value-addition or an extensive array of local production processes, for example yarn-forward rules for clothing, may well preclude underdeveloped countries from taking advantage of such opportunities. This would mean that such assembly operations would not qualify under many rules of origin for preferential treatment. This demonstrates the need for rules such as those developed in the African Growth and Opportunities Act (AGOA) that allow much greater use of imported inputs by LDCs.

Therefore new approaches to negotiating PTAs, with a view to making them more compatible with actual global value chain operations and ultimately WTO disciplines, are also required. At the very least it suggests an approach rooted in reducing transactions costs, not raising new barriers to trade. A key question is how these 'bottom-up' changes could be incorporated into the WTO's architecture. This is a subject our council has also previously considered, and the interested reader is referred to our recommendations in this regard.[6]

China and the Global Supply Chain in Historical Perspective

Jean-Pierre Lehmann[7]

The farther backward you can look, the farther forward you are likely to see.

Reality is dynamic; nor static. There is a tendency however to look at contemporary reality as a snapshot, without understanding that reality is a clip on a film reel. What has taken place in the past counts and can elucidate what might happen in the future - as Winston Churchill pointed out. With all the focus on China's current status as epicentre of the global supply chain and global manufacturing power and the many issues arising regarding its prospects, looking backward to understand the present and provide possible insights for the future is what this essay aims to do.

Rise of Western Industrialism

First came the British industrial revolution. Man, capital and machine were integrated into totally innovative manners which constituted, as the name implies, revolutionary alterations in production. It profoundly and, until recently, seemingly irreversibly transformed the comparative wealth of nations. In 1820 China's estimated share of world GDP (at PPP) was 33%, India's 20% and the entire "West" (Europe + North America) just over 20%. 130 years later (1950), China was reduced to 4% and India 3%, while the West (with less than 20% of world population) captured a commanding 55% of world output (Angus Maddison). The cottage industries and artisanship of China and India, which for centuries had dominated world output and exports of manufacturers, especially textiles and porcelains, were obliterated. In the meantime, industrialisation spread to other parts of north-western Europe, including Germany, but also to Japan in the late 19th century; both emerged as formidable "late-developers".

More than a century later in Europe among the four major nations (Britain, France, Italy and Germany) only Germany remains a formidable industrial power. The French economist Michel Albert attributed Germany's strength to having evolved a robust and original form of capitalism. He defined it as "Rhine capitalism", which he saw as fundamentally more stable that the "Anglo-Saxon" model (Albert). Close ties between industry and finance as well as close coordination between labour and management, an incomparably strong medium-sized enterprise sector (*Mittelstand*), a deep engineering base and an education system well geared to the needs of industry. Germany is the only Western country that has a trade surplus in manufactured goods with China.

In the early 20th century the US became the world's biggest manufacturing power; a position it held until recently over-taken by a "re-emerging China". What the British had started, the Americans continued with energetic zest. The American manufacturing revolution tends to be primarily associated with Ford's Model T plant. A key landmark in the history of production was the publication in 1911 of Frederick Taylor's *Principles of Scientific Management*, based on intensive time-and-motion studies to achieve optimal division (and remuneration) of labour. This was brilliantly caricatured 25 years later in Charlie Chaplin's film *Modern Times*.

In the course of the ensuing decades "scientific" was the buzzword! In 1914 Alfred Sloan, long-time Chairman and CEO of General Motors, reckoned to be the pioneering modern corporation, founded the Sloan School of Management at MIT. The learning and application of scientific management, including and perhaps especially, statistics, pervaded leading American manufacturing corporations as business schools proliferated. This led to the age when American multinationals spread across the world and especially across the Atlantic, setting up local assembly or manufacturing capabilities in Europe. One of the most popular best-selling books in Europe in the 1960s was written by a French thought-leader, Jean-Jacques Servan-Schreiber, entitled Le *Défi Américain* (The American Challenge). Among other things it contrasted American scientific management with the amateurishness of Europeans. For European firms it was a "shape-up or ship-out" situation. A few shaped up, especially in Germany, Sweden and Switzerland, while many shipped out to oblivion. Throughout the benchmark was "American management".

The Soviet Production System

While the American challenge extended across Western Europe, in Eastern Europe, specifically in the Soviet Union, huge efforts were put into economic reconstruction and production. Industry was and had to be according to Marxist doctrine the "base" of the economy and hence society; the base determined superstructure. It is easy to forget that in the two decades or so following World War II the Soviet industrial model posed a real challenge.

The Communists also emphasised and embraced "scientific management". Indeed it appeared (to many at the time, not just in communist countries) that by definition there had to be a greater degree of scientific dynamics and efficiency in a central command and control economy than in leaving it to the vagaries of the market and entrepreneurs. The most famous figure in the Soviet canon of production was Alexey Grigoryevich Stakhanov, prominent especially in the 1930s. Workers who exceeded their targets became "Stakhanovites".

The Soviet production machine ultimately ran out of steam, and eventually collapsed. It had three major failings: first top-down central planning which stifled innovation across the economy; second, rigid control of prices dictated from Moscow, with no regard for the market forces of supply and demand; third, an almost exclusive emphasis on production quantity of standard units at the expense of quality, variety, cost and profits.

Japan's Economic "Miracle"

In the course of the 1950s the Japanese industrial phoenix rose from its ashes and by 1967 Japan surpassed Germany in aggregate GDP, making it the third largest global economy after the US and the Soviet Union, rising to second position when the Soviet Union and its Potemkin economy collapsed, a position which it retained until 2010.

Before Japan's post war boom the world economy was divided between trading nations and non-trading, or protectionist, nations; between (relatively) open economies and closed economies. In the post WWII decades, countries from the First World were in the open category, countries in the Second World were definitely in the closed category, as indeed were most Third World countries, which all practiced import substitution industrial policies. Government-industry relations typically followed either one of two systems – albeit with some shades of difference – whereby in market economies the government was the referee and in central command economies the government was the captain.

Japan's Ministry of International Trade and Industry (MITI) came up with an alternative, very innovative and initially also very successful system: the government as "coach". This has been described as "compete out/protect in". (Yergin and Stanislaw). Through the assistance of government, MITI and JETRO (Japan External Trade Organisation), and in cooperation with Japan's then formidable general trading companies (*sogo shosha*), such as Mitsui, Mitsubishi, Sumitomo, C. Itoh, etc, the rising quality and cost-competitiveness of Japanese industrial products mushroomed in international markets.

Just as Japan was effectively closed to imports of manufactured products, with imports consisting primarily of energy and raw materials to feed its industrial needs, "Japan, Inc" also strongly resisted inward foreign direct investment. Foreign multinationals are by-and-large conspicuous by their absence in the Japanese industrial panorama.

Japanese industry (with a few exceptions, notably in aerospace), therefore, was characterised not by its participation in global supply chains but as vertically integrated industrial powerhouses. Japan remains the only country outside the West that has its own prominent internationally recognised national players in virtually all sectors of industrial production. "Learning from Japan" became a great growth industry among business schools, consultancies, publications, forums, and so forth. Kaizen (continuous improvement), the Toyota (Lean) Production System, the proliferation in Japan of QCC (quality control circles) featured in the canon of Japanese industrial learning.

A major advantage attributed to Japan was its industrial organisation and specifically the keiretsu system. Keiretsu are quite complex, but to simplify in essence there are three types, one so-called horizontal keiretsu and two vertical. The horizontal keiretsu are descended from the pre-war zaibatsu (financial clans) centred around major banks, eg the Mitsubishi, Mitsui, Fuyo, etc, keiretsu. All of these groups have prominent corporations in all major fields of industrial production – steel, heavy industry, electronics, automotive, machine tool, etc. Virtually all large Japanese companies "belong" to a *keiretsu*; exceptions are relatively recent start-up companies such as Sony and Honda.

The two forms of vertical *keiretsu* are in distribution and in production/procurement. Distribution *keiretsu* are mainly national whereby retailers are committed to selling a range of products of a particular brand and not products from a range of brands. Though this was mainly national, it did contribute to the trade friction between foreign and Japanese producers as the system was seen as constituting non-tariff barriers.

The other, and for a while recognised as truly formidable, keiretsu was in corporate relations with suppliers and sub-contractors. For the most part (some exceptions) parts and component suppliers "belonged" (not necessarily financially, but in relational terms) to a specific vertical industrial keiretsu. These relations were very strong and vital to Japanese industry's devastating competitiveness. The supply-chain was tightly controlled and highly localised. When Japanese firms in the automotive industry, for example, were forced to invest in the US because of trade friction and the rising Yen, they took their keiretsu suppliers with them.

The NIEs – Korean and Taiwanese divergent paths

Variously known as the "four little dragons", or the "four tigers", the Newly Industrialised Economies (NIEs), Hong Kong, Singapore, South Korea and Taiwan are quite different. They do of course have some things in common: they are all located in East Asia, they all invested highly in education and they were all what the World Bank termed "outward-looking" economies (World Bank). They have all been remarkably successful; they are the only economies to have risen from Third World to First World thereby having escaped the "middle income trap". Singapore today has a higher GDP per capita ($50,700) than its former colonial overlord the UK ($39,600).

The NIEs also played a dramatically important role in the "re-emergence" of China: as a source of foreign investment, technology and management – which remains the case to this day – and also less tangibly but nonetheless critically by "demonstration effect".

From the perspective of the GSC, the Korean and Taiwanese paths considerably diverged.

Korea's economy is much more based on the Japanese model in certain respects – though not in others. Japanese and Korean government-industry relations are comparable. Korea like Japan put great emphasis on industry. Korea's industrial structure, like Japan's, became dominated by the emergence of large conglomerates, known as *chaebol*, which are derived from and written in the same characters as the pre-war Japanese *zaibatsu* (財閥). Thus Samsung, which today is mainly known in international markets for its smart phones, in fact is also engaged in shipbuilding, heavy engineering, consumer electronics, semi-conductors, financial services, retail, construction, chemicals, apparel, medical services, etc. It was briefly also in automotive, but withdrew. There have been some disappearances among *chaebol*, especially following the Asian Financial Crisis of 1997/98 and some attempts have been made at reform, but whatever may happen in the future, there can be no denying that the *chaebol* have played a fundamental role.

Where Korea strongly diverges with Japan (and Taiwan) is at the parts and components manufacturing level. There is no equivalent in Korea to the Japanese vertical industrial *keiretsu*. Big Korean producers source their parts and components elsewhere and in fact mainly in Japan. Thus while Korean companies, Samsung especially, may be formidably and successfully competing with Japanese manufacturers of finished goods in global markets, they do rely heavily on Japanese suppliers. The *tsunami* that devastated Japan in March 2011 had a huge impact on Korea's supply chain. The absence of a strong SME sector is a Korean weakness.

Taiwan is different. In contrast to Korea where big firms predominate and SMEs are weak, in Taiwan big globally known firms and brands are very few – Acer is an exception – while the SME sector prevails. Taiwan is somewhat of a hidden industrial powerhouse. Like the other East Asian "compete out/protect in" East Asian economies, Taiwan resisted imports but emphatically not inward foreign direct investment.

In contrast to Japanese and Korean big brand corporations such as Toshiba, Hitachi, Samsung or LG, for the most part Taiwanese companies focused on supplying large European and American companies on an OEM (original equipment manufacturing) basis. Philips, Thomson, Ericson, Siemens, Pitney-Bowes, Xerox, GE, IBM, Texas Instruments were among the very many corporations that sourced in Taiwan. While in the 1980s trade friction was mainly between the US and Japan, in fact on a *per capita* basis Taiwan's trade surplus with the US was significantly higher than Japan's.

Taiwanese companies became the indispensable suppliers and partners of large corporate manufacturers. However Taiwan's labour rates were rising. When reforms began being implemented in the People's Republic of China (PRC) Taiwanese companies were, following in Hong Kong's foot-steps, early-movers and established numerous manufacturing facilities. In the 1980s the supply chain operated directly between Taiwanese OEMs and their American and European partners. Starting in the 1990s and well into this century Taiwanese capital, technology and management were transferred to the PRC from where they continued to supply their Western partners.

Japan's Sun Sets as China's Sun Rises – A Lesson in Predictions

By the late 1980s the consensus among many consultancies, research institutes and think tanks was that the Japanese economy would surpass the American economy in aggregate GDP by 2004. The view from a number of leading American authorities was that while the US may have won the cold war, it was losing the cold peace (Garten, Prestowitz, Thurrow).

What happened? To put it in figurative terms, three black swans came paddling into Tokyo harbour in the late 80s/early 90s, for which, by definition of a black swan (Taleb), the Japanese were totally unprepared. These were: the internet, the rapid rise of China, and globalisation.

Japanese industrial competitiveness succeeded brilliantly over time in moving up the higher value added chain, for example as measured by cost per unit of weight. Thus in the 50s and early 60s the Japanese were formidable actors in the "tonne age" – steel, ship-building, petro-chemicals, construction, cement, textiles – corresponding to the decades of economic reconstruction; from the mid-60s as both domestic and global consumer demand increased exponentially and domestic labour costs rose, Japanese corporations moved effectively and aggressively into the "kilo age" – automobiles, cameras, cars, consumer electronics, office equipment; with the oil crises in the mid and late 1970s, Japanese industry then moved with devastating effect into the "gram age" – semiconductors, robotics, precision instruments, liquid crystal displays. By the 1980s Japanese industry held the Oscar for miniaturisation.

But Japan failed to move from the gram age to the "vacuum age" – notably the IT revolution, reckoned to have taken off with the launch of the world-wide-web in 1989, the same year as the fall of the Berlin Wall. The fact is that whereas Japanese corporations dominated the "gram age", they are conspicuous by their absence in the "vacuum age".

Modern history is a narrative of Japan's rise and China's decline. Japan underestimated the potential competitive power of China in very much the same way that the West underestimated the rising competitive power of Japan. In both cases there was an element of stereotyping.

Japan has not been a prominent actor in the globalisation revolution. It is still the world's third biggest economic power and still commands leadership in a number of leading industrial sectors. It still has some dauntingly internationally competitive corporations. It still constitutes a vital component in the GSC, as was recently demonstrated by the impact on industries worldwide of disruptions caused in Japanese production, especially, but not exclusively, in automobiles and automotive parts and components by the tsunami. But Japan as a country and Japanese corporations have not succeeded in capitalising on the opportunities of globalisation. Japan remains very much the outlier in respect to inward direct investment. On global markets Japanese companies have not intensified their presence so much due to a number of factors, including significant linguistic handicaps, as well as the very Japanese nature of Japanese "multinationals". There are very few foreign senior executives in Japanese companies, not just from the West, but even less so from Asia.

Made in China

In a very short period of time the PRC has become the world's biggest exporter, surpassing Germany, Japan and the US. The PRC has a huge trade surplus in manufactured goods. This has generated considerable trade tensions and no doubt will continue to do so. (As with Japan in the 1980s, China stands accused of having an undervalued exchange rate.) In reality however and though exact figures are difficult to obtain, it is estimated that somewhere close to 70% of China's exports are generated by foreign firms. When the "bra-war" broke out between the PRC and the EU in 2005 following the abolition of the MFA (multi-fibre agreement), in fact most of the garments and textiles reaching Europe from China were from Taiwanese and Hong Kong firms established in China. When in 2009 US President Barack Obama imposed an extra tariff of up to 35% on the imports of "Chinese" tyres, in fact the companies concerned were European (eg Michelin), Japanese (eg Bridgestone) or American (eg Goodyear), manufacturing in China.

A good deal of the "Made in China" narrative is contained in the evolution of the GSC. There was an intensive convergence of forces. The China story would have been very different had there not been simultaneously the IT revolution and the global market revolution. The IT revolution has been the technological underpinning of the rapid evolution of the management of the GSC. In contrast to the Japanese keiretsu system where production is tightly vertically controlled, with the internet the GSC becomes highly fragmented and globalised. Even with IT, the GSC would not be able to function in a non-globalised world. The global market revolution involving not only the collapse of communism but also the quite radical trade liberalisation measures undertaken by most countries of the erstwhile third and second worlds, along with the establishment of the World Trade Organisation (WTO) in 1995, have combined to generate a global market for the first time since the early 20th century. In the 21st century version of globalisation the GSC has changed the rules of the game.

When China "embraced" globalisation in the late 1970s initially this consisted mainly of opening up the country to foreign manufacturing investment. In some respects China's strategy resembles Taiwan's rather than Japan's or South Korea's. Both Japan and South Korea resisted foreign investment in order to nurture their infant industries and to develop their own national champions. This is a feature of what has been termed "late development" to allow for catch-up prospects. China initiated a new process that has been referred to as "compressed development" (Whittaker, et al) the objective of which is to catch-up on a much shorter time horizon. For that a country does not have the time to nurture its infant industries or own brands as a first step, but must do everything in dynamic sync. China is the only major global economic power that has very few of its own industrial players (finance is different) visible in global markets. Lenovo and Haier are the exceptions that prove the rule. (Also there are exceptions in certain new fields: for example, out of the top ten solar cell manufacturers seven are Chinese; the other three Taiwanese.)

China succeeded brilliantly in its inward FDI strategy. Over the course of the last 15 years it has often had first place or second place only to the US in respect to FDI inflows and, in spite of its late entry, ranks among the top ten in FDI stock. Through these inward investments China was able to gain technology, management skills and access to global markets.

Three other critical factors boosted China's increasingly dominant position in the GSC. First, initially China benefited from a large mass of cheap labour as immigrant workers streamed in their millions to industrial job opportunities in the newly created production zones. Second, until the 2008 recession there was simultaneously: high global growth, the rapid rise of a new "middle class" in many emerging economies, and hence a quite ravenous demand for Chinese goods. These all account in good part for China's double-digit growth. Third, China invested heavily in developing infrastructure.

What must be made clear is that while China plays a predominant visible role in global trade of global manufactured goods, in reality it is part of a highly integrated and sophisticated intra-Asian patchwork of production and specialisation (JETRO-WTO). Prior to China's reception of huge amounts of FDI in the 1990s, Japanese, Korean, Taiwanese and Western investments had poured into a number of the ASEAN countries, especially Malaysia and Thailand. Penang in Malaysia emerged as the global IC (integrated circuit) hub, while Thailand focuses especially on automotive components. Other ASEAN countries also became included in the regional production process.

Thus while the label "Made in China" has become globally ubiquitous, in fact in many cases it is not accurate and instead should read "Finally Assembled in China". The most "revealing" story is that of the iPad, iPhone and iPod, all having been assembled by Foxconn for Apple in its factories in Shenzhen, but in fact involving at least some fifteen other companies and manufacturing locations. As a general rule of thumb it can be said that the higher the technology in the product, the lower has been China's proportional value added. Hence in the production, for example, of Christmas decorations, China's value added is 100% or close; in sophisticated high-tech products it may often be 10% or less.

China is able to continue producing "cheap" goods for two reasons. One is because of the low value of the currency. The other is the vast range of levels of economic development within the country. Thus when Korean or Taiwanese labour rates went up, in order to have access to cheaper labour they had to go find it in lower income countries in Asia and elsewhere. When labour rates in the coastal provinces of China go up, as they are, industry can move in-land to access much cheaper workers. As things currently stand, China can compete with Bangladesh and with Silicon Valley as well as with everywhere in between.

The consequences for China of this period of high growth have been immense. Some 400 million persons are said to have been lifted out of poverty. There is the rise of a middle income class estimated at about 350 million currently, according to some projections projected to reach one billion in the next two decades. China has accumulated over 3 trillion dollars of foreign exchange reserves. It has become not only the world's shop-floor but also the world's banker. China is incomparably more open not only economically, but also socially, culturally and intellectually than it was under Mao. China's embrace of globalisation has been an astonishing success. The role of the GSC has been vital as a locomotive in this process.

Times, however, are changing and China is at a crucial juncture. Changes are both external and internal with the two clearly inter-related.

On the external front, the crisis has had an impact. Low/no growth in the US and the EU has obviously dented demand for Chinese exports. Though there have bumpy rides along the way of China's rise from 1978 to 2008, on balance the external environment has been benign. China acceded to the WTO in 2001, which has clearly helped in providing a viable institutional global legal framework. It is held to be something of a miracle that the crisis did not result in outright protectionism. There are, however, underlying tensions. The failure to conclude the Doha Round demonstrates that all is not well in Geneva. The global trade environment is somewhat of a powder keg; many possible fuses could set off the fire, notably US-China trade frictions. Trade friction can be expected to continue; whether it degenerates into trade conflict remains to be seen.

Though China was able to survive the crisis not only intact but with stellar growth, there are clearly economic frailties and social tensions. The drops in demand in China's biggest export markets led to corporate failures and massive lay-offs. Significantly, the immigrant workers of today are not as docile and easily pacified as they were yesterday. In the early stage of industrial reform most immigrant workers came straight from impoverished conditions in the rural areas. Though factory working and living conditions were very harsh, by and large workers were if not satisfied at least resigned in the knowledge that factory work was better than slaving away in rice paddies (Harney). For the current generation things are different. They come from more pampered backgrounds, especially as they are virtually all single children reflecting the one-child policy instituted in China in 1978. Though China has experienced many cases of social conflict, in the tens-of-thousands, in recent decades these were mainly in rural areas – arising from corruption, forced evictions, pollution; in the last few years they have spread to urban industrial areas. There have been a growing number of strikes. And there have been clear distress signals that things are not well, most notably the spate of suicides at Foxconn factories in 2010.

In addition to these issues of social unrest concern has been expressed by some leading Chinese intellectuals that it is somewhat humiliating for China to be still engaged in "Third World" production – toys, Christmas decorations, low quality textiles and garments, etc – when it should have graduated up the value added chain. Furthermore, they are more than aware that the actual value-added in the production in China of high value-added goods is somewhat small and negligible. A commonly heard refrain is that for every $1 of exports, China's contribution and retention amount to 6 cents.

The Chinese leadership is acutely conscious of these issues, challenges and pressures. These are reflected in the 12th 5 year plan (2011-2015). A key goal is to achieve greater social harmony and inclusiveness, reflecting dramatically rising inequality in China. The plan also emphasises the goal of shifting the economy from investment-export driven to domestic-consumption driven. To bring China more into high-tech/high-value production, great efforts will be extended in education and research as well as by selecting emerging strategic industries. The vision is for China to become a high-tech economy in an environmentally clean and harmonious society.

Will it succeed? That could well be the question of the coming decades. Quite a few countries have achieved catch-up through fast and high growth over a period of time, but hardly any have escaped the "middle-income" trap (Spence; 2010, 2011). Singapore and Hong Kong are city-states not encumbered by a rural hinterland. South Korea and Taiwan have a compact (48.8 million and 23 million respectively) and relatively homogenous population, whereas China is huge and highly varied especially in respect to economic conditions. It faces many demographic challenges: among them, rapidly rising urbanisation, with the country just having more urban than rural dwellers, and fast aging.

The last thirty years of China's economic, social and cultural development have been absolutely fascinating to watch. Whatever happens one can guarantee that the next thirty years will be equally fascinating. One thing one should be careful about is making forecasts on the basis of extrapolations. Predictions that China will become this or that over the next twenty years should be treated with scepticism. Certainly, however, the narrative of the GSC in China as it has developed over the last decades is coming not necessarily to an end, but certainly to a new volume.

What next for the GSC?

The contemporary nature of the GSC developed in conjunction with three key breakpoints: the Chinese embrace of globalisation; the internet revolution; the emergence of a (relatively) open global market. It remains to be seen which direction China will take in the next decade though it is safe to assume it will remain active in the GSC but at a higher level of value added. The IT revolution would seem to be accelerating rather than decelerating, hence in principle more opportunities should open up for different conceptions and applications of the GSC. The one caveat may be the parallel development of various forms of cyber-attacks and issues arising related to cyber security. Hacking could become a far more dangerous threat to the GSC. The greatest doubts however arise from the sustainability of the "open" global market economy. The proliferation of FTAs with their complex rules-of-origin, discriminatory barriers and high transaction costs constitute an obvious threat, if not properly squared with the WTO. Things could get worse: outright protectionism.

The sustainability issue will also be critical. There is increasing pressure for local production as a means of reducing transport-related heavy environmental footprints. With the disruptions caused by the tsunami in Japan and the floods in Thailand questions also are arising about the viability of global supply chains in light of environmental disasters; with expectations that conditions could continue to seriously deteriorate owing to climate change.

In light of social, economic and industrial developments in China, including rapidly rising wages, expectations are that possibly as many as 100 million jobs will be transferred from China to other developing countries, especially to poorer ones in South Asia and Africa. It is also expected that this force will provide a fillip to the development prospects of the countries concerned.

It is in order to introduce a cautionary tale. After Mexico joined NAFTA in 1994 and before China acceded to the WTO, foreign investors poured into the country, especially along the maquiladora, to benefit from low labour costs and privileged access to the American market. Mexico was for a few years the world's biggest producer of television sets. After China joined the WTO and obtained most-favoured nation (MFN) treatment in the US, the same foreign investors departed in droves. The *maquiladora* looked like a bombed out site as factories closed and masses of workers were laid off.

While the Mexican economy had opened up, Mexico failed to learn the lessons of East Asian development (Lehmann) and invest in education, infrastructure and technology transfer. The workers had not learned new skills that would lead them to going up the value chain. These were literally screw-driver operations. By no means is it clear that joining the GSC per se provides an advantage. It is an opportunity, but it must be properly exploited.

The same point can be made by asking the question why, of the two Asian giants, China is a significant player in the GSC and India is not. India undoubtedly possesses very high skills; it has become the venue for advanced R&D of many foreign as well as Indian high-tech companies. The social and employment impact of these activities are however limited. To grow and develop there has to be a solid mid-level capability and education. In India the IITs (Indian Institutes of Technology) are second to none in brainpower, while most primary and secondary education is lamentable. An elite without a strong base has limitations. The other main contrast is between China's quite developed and India's quite underdeveloped infrastructure.

While China costs are clearly going up and there are more and more enterprises moving investments to lower wage countries, such as Bangladesh, an also significant number of investors say they will remain in China since even there labour rates are only one among many considerations and that they do not expect to get the same level of skills or quality of infrastructure they find in China.

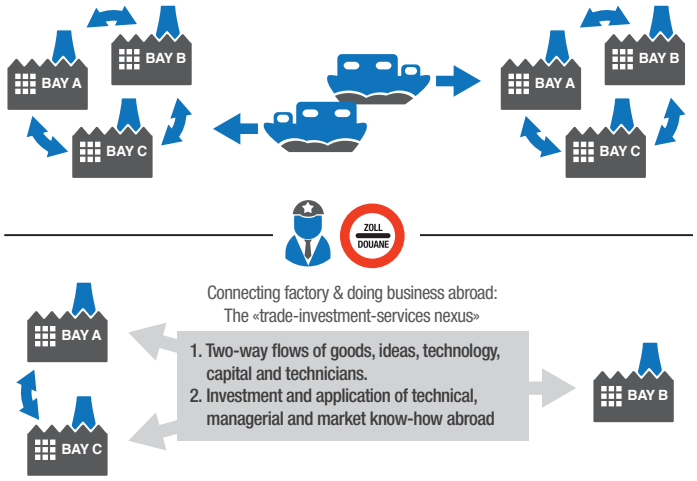
To generate greater genuine prosperity, the China GSC narrative highlights the fundamental and inescapable importance of learning.

Global Manufacturing Value Chains and Trade Rules

Richard Baldwin

Globalisation is often viewed as driven by the gradual lowering of natural and manmade trade costs. This is a serious misunderstanding. Globalisation made a giant leap when advances in transportation technology slashed shipping costs; it made another when ICT decimated coordination costs. The implications of the two leaps can be dramatically different; understanding why requires a bit of background.

Figure 1: Schematic illustration of 20th century trade (top panel) and 21st century trade (bottom panel)



Source: Baldwin (2011).

When clippers and stagecoaches were high-tech, few items could be profitability shipped internationally. Each village had to make most of what it consumed. In short, production and consumption where geographically bundled. Steam power changed this by radically lowering transport costs. With railroads and steamships, the spatial separation of production and consumption was feasible and once feasible, scale economies and comparative advantage made it inevitable. This was globalisation's first great unbundling.

The trade implications of the first unbundling are illustrated in the top panel of Figure 1. Goods are made in one nation, put on ocean cargo ships and sold to customers in another nation. Most current economic policies are designed with this view of globalisation and trade in mind, including most national economic policies – social policy, education policy, trade policy, etc. – as well as the WTO's trade rules and practices.

The first unbundling, however, created a paradox – even as production dispersed internationally, it clustered locally – that is, within factories and industrial districts. The local-clustering-versus-global-dispersion paradox is resolved with three points: i) cheap transport favoured large-scale production, ii) such production tends to be very complex, and iii) extreme proximity (within walking distance) lowers the cost of coordinating the complexity. To see this, think of a stylised factory with the production bays as schematically illustrated in the top panel of Figure 1. Coordinating the manufacturing process demands continuous, two-way flows among the bays of things, people, training, investment, and information (double-headed arrows). Productivity-enhancing changes keep the process in flux, so the flows never die down.

Some of proximity's cost-savings are related to communications. As telecommunications became cheaper, more reliable, and more widespread from the mid-1980s, the 'coordination glue' began to loosen, especially between high-wage and low-wage nations. Telecommunication advances united with vast strides in computing power, transmission capacities, and software to create the ICT revolution. It thus became increasingly economical to unbundle the factories spatially, and once feasible, scale economies and comparative advantage made separation inevitable.

This was globalisation's second unbundling; production stages previously performed in close proximity were dispersed geographically. Timing of the second unbundling has not been definitively identified, but I work from the hypothesis that it unfolded from about 1985 to the mid-to-late 1990s.

Transformation of trade and industry

The second unbundling transformed trade for a very simple reason. The two-way flows of things, people, training, investment, and information now took place across borders rather than just within factors (and thus within borders). This gave rise to what might be called '21st century trade' – the heart of which is the 'trade-investment-services' nexus (Baldwin 2011). Specifically, the nexus reflects the intertwining of: i) trade in parts and components, ii) international movement of investment in production facilities, training, technology, and long-term business relationships, and iii) demand for services to coordinate the dispersed production, especially infrastructure services such as telecoms, internet, express parcel delivery, air cargo, trade-related finance, customs clearance, etc.

The most radical change in terms of outcomes was the way the second unbundling made it easy for firms to combine their high technology with foreign workers. The first examples came in 1985 across the US-Mexico border and within East Asia. This created an important distinction – what might be called 20th versus 21st century trade. 20th century trade is the selling of goods made in factories in one nation to customers in another. 21st century trade involves continuous, two-way flows of things, people, training, investment, and information that used to take place within factories and offices in one country.

This had deep implications for a wide range of policy questions. In particular, it should have been incorporated into WTO trade rules.

Implications for trade policy and businesses' interests in the world trade system

Before the second unbundling the trade system was – as far as business was concerned – primarily about *selling things* that were made in one nation into other nations' markets. The business agenda, which was closely reflected in the actual GATT/WTO agenda, focused on barriers to selling goods internationally – things like tariffs, quotas, and policies that directly offset these (e.g. subsidies). This is exactly the logic behind the Doha Round's agenda where barriers *selling things* (NAMA and Agriculture) dominate the negotiations.

Of course, 20th century trade is still with us, and is important in some goods and for some nations, but the most dynamic aspect of trade today is the development of global value chains. This means that business has come to rely on the trade system when *making things* (international value chains). As a result, business cares about a much broader range of policies and barriers – many of which are not typically considered to be trade issues since they didn't hinder *selling things* internationally. Examples of today's 'trade barriers' range from unreliable electricity supplies and unobtainable short-term business visas, to capital restrictions and anticompetitive behaviour of state-owned enterprises. The agenda of the Trans-Pacific Partnership (TPP) – which enjoys strong support by US business – fully reflects these new realities.[8]

Because the WTO was otherwise occupied (with the lead up to Doha, 1995 to 2001, and then Doha 2001 to present), global trade rules did not evolve along with the transformation of trade. Business was trying to do 21st century trade with 20th century trade rules. As both advanced and developing countries welcomed the growth of the trade-investment-services nexus, *rules developed outside the WTO*; mostly in regional trade agreements and unilateral liberalisation by developing nations (domestic pro-business reforms, unilateral tariff cuts, etc). For example, part of the investment angle was underpinned by a whole world of Bilateral Investment Treaties (BITs) that sprung up outside the WTO; BITS have their own legal principles, their own 'court', negotiating agendas, etc.

This is why business has lost interest in Doha but is highly engaged in bilateral trade negotiations that included these so-called next generation issues. In a nutshell, business cares about 21st century trade while the WTO is talking about 20th century trade rules. This suggests that getting the WTO more into the 21st century rule-making direction could both invigorate businesses' interests in the organisation and create new negotiating space to help with the closure of the Doha Round.

Services and Global Value Chains

Sherry Stephenson[9]

Services are a critical but often overlooked part of the growing global value chain phenomenon. They play a key role in the on-going transformation of international trade and investment patterns through enabling the development of value chains in goods and through the creation of value chains in their own right. Advances in telecommunications and information technology have made global value chains in goods possible by allowing for the segmentation of production into units that can be dispersed geographically and yet be connected. Services inputs provide the "link" or the "glue" at each point of the value chain, without which it could not happen (e.g. transport, telecoms, logistics, distribution, marketing, design, R&D, etc.)

Services as "Enablers" of Value Chains in Goods

In a typical example of our integrated world of trade in tasks, the production of the Texas Instruments' high-speed telecommunications chip TCM9055 benefits from substantial value-added input by services (in bold) into the value chain as it undergoes the following steps:

1. Information technology experts: Design quality improvement strategies for digital phone equipment (Ericsson: Sweden)
2. Designers create blueprints for the chip (France)
3. Subsidiary firm produces prototypes (Japan)
4. Production takes place in various locations (worldwide)
5. Engineers: Fix problems remotely through
6. Telecommunications System (Taiwan)
7. Firms package the finished chips (Southeast Asia)
8. Chips implanted into Ericsson phone switches (U.S., Mexico, Australia)
9. Transport/ insurance: Chips are shipped to global outlets.
10. Distribution: Chips are distributed to sellers worldwide.[10]

The above value chain is an interesting illustration of the lack of geographical boundaries in the production of a small-sized, but high value-added product in which services play a crucial role. Design, information technology, engineering, R&D, telecommunication and transport/ insurance services are supplied from firms and experts located in different countries, "enabling" the final chip to be realized through complementing and enhancing the actual manufacturing steps. The traditional goods value chain both starts and ends with a series of pure services activities.

The automotive industry is one that has become linked into the worldwide value chain. Little known, however, is that the input of services provides closer to thirty percent of the value of the finished car. Activities and components that go into the production of the typical American car are the following (services in bold):

1. R&D for advanced technology (Japan – 17.5%)
2. Design (3% (estimate))
3. Assembly (Korea – 30%)
4. Assembly (US – 37%)
5. Supply of minor parts (Taiwan – 4%)
6. Advertising and marketing (UK – 2.5%)
7. Data processing (Ireland and Barbados – 2%)
8. Transport and insurance (4% (estimate))[11]

The popular iPod is a striking example of a product whose output depends upon a dense network of intertwined goods and services tasks along a value chain. While the iPod's components are assembled in China, the Japanese company Toshiba supplies the hard drive, the American company Broadcom (with facilities in Taiwan) produces the video/multimedia processor chip and other suppliers in East Asia produce the display screen, the processors and the battery.[12] Services inputs are supplied all along the value chain.

The enabling services in global value chains are those that have grown the fastest in world services trade. This is the category of "other commercial services", which have increased in importance from 40 percent to 53 percent of total services trade over the 15 years from 1995 to 2010. These "other commercial services" support the creation of value chains in both goods and services and include a variety of key enabling services such as communications, insurance, finance, computer and information services, and other business services. In fact, business and ICT services have been the single fastest growing component of world trade over the past years.[13]

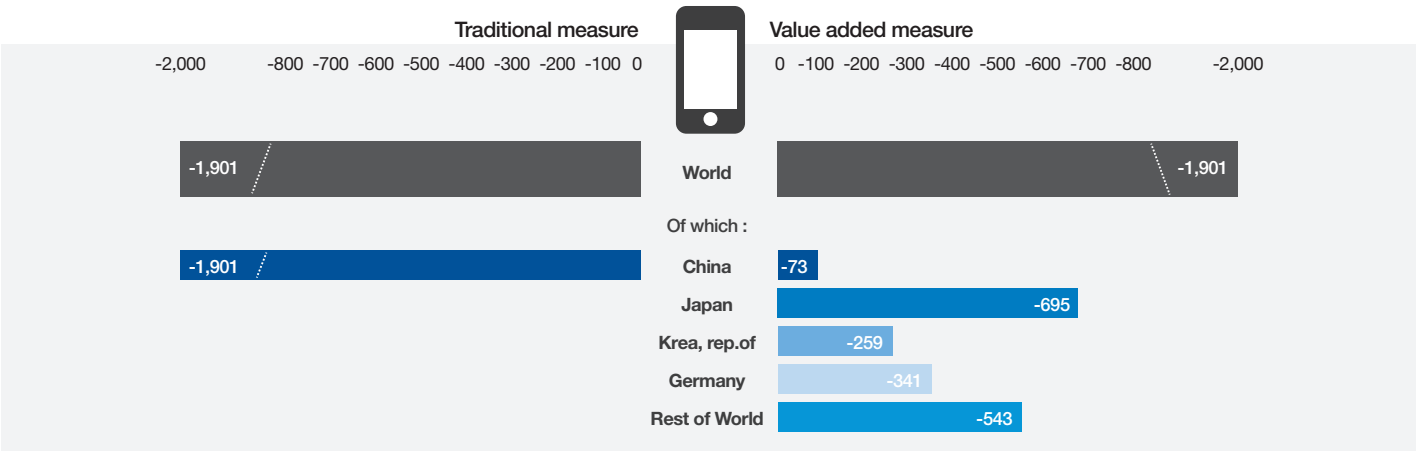
Services Value Added and World Trade Flows

The failure to account for the intermediate value-added steps in the final output of a product leads to a distorted picture of world trade. As shown in the chart below, by the traditional measure of the value of the final product, the US trade balance in iPhones shows a deficit of $1.9 billion with China in 2009. But when the value-added components are taken into account, all but $73.5 million of the trade balance in iPhones is represented by other countries in the value chain, namely Japan, Germany, Korea and others. China's contribution accounts for less than 4 percent of the final U.S. iPhone trade deficit on a value-added basis.[14] This well-known example illustrates how different the picture of world trade would be if the value of intermediate inputs – including of course services - were to be accounted for at each step of the production process. The share of imported inputs in total inputs in goods producing sectors in the United States, for example, has risen dramatically, from around 6 percent in 1970 to over 20 percent in 2005 (OECD Input-Output matrices).

Disaggregating services value added from the value of final goods products would contribute to a better appreciation of the importance of services in world trade. According to WTO statistical experts, services may account for around 40 percent of world trade on a value-added basis, almost double what is presently attributed to them in official statistical publications (for cross-border flows).[15] For many transformed manufactures, the highest value-added may actually be contributed by services inputs.

There is thus an urgent need for a new way of looking at and measuring world trade on a value-added basis. WTO and OECD experts, and other statisticians, are working on this conceptual challenge at present for goods and have come to a recent agreement to develop and publish trade statistics on a value-added basis in the future. This is a welcome announcement and should allow the importance of services and its contribution to manufacturing activities and to international trade to be better understood in general terms. But the need is emerging in a similar vein to measure trade in services more accurately through breaking down services trade itself into "trade in tasks" or "embodied" services. This will be even more challenging to do than for trade in goods, given the lack of bilateral and disaggregated services trade data. But it is a necessary objective for the future, as final services exports are also being fragmented into value chains on a global basis.

2009 US trade balance in iPhone (in millions of IS$)



Source: Meng and miroudot (2011).

Services, Logistics Performance, Trade and Value Chains

Competitiveness in global value chains in goods is critically dependent upon efficient services inputs. The "Logistics Performance Index (LPI)" constructed by The World Bank, gives us one measure of this efficiency. The LPI ranks countries according to their logistics performance in activities such as transport, warehousing, border clearance and payment systems (the latter two being very information-technology dependent). It is striking that the overwhelming majority of countries which perform best in logistics are also those which rank highest in their shares of world trade (the case of 40 of the top 50).

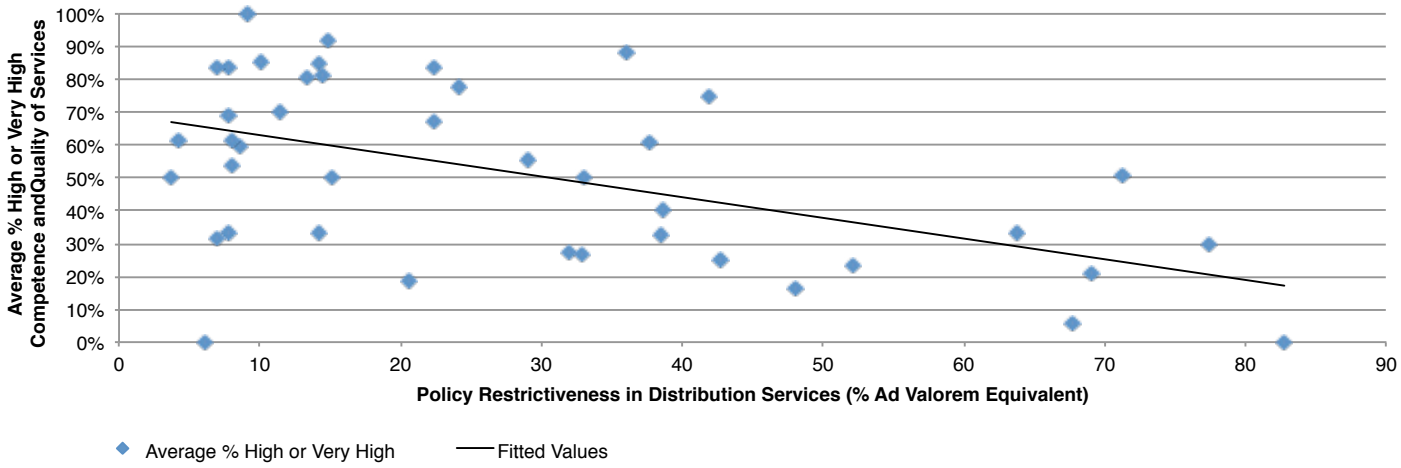
It is further to be expected that countries with higher LPIs would also be those that have invested in reforms to create more efficient infrastructure service sectors (e.g. transport, telecommunications, distribution, etc.). The chart below shows an inverse relationship between the quality of services and the policy restrictiveness of distribution services (measured as the difference between the cost of services at the border and their price within the domestic market), taken as a proxy for a measure of logistics efficiency. The data indicate clearly that more open services markets allow for more efficient or higher quality distribution/ logistics services, thus enabling a greater participation in world trade and contributing to the creation of global value chains.

Better functioning backbone or infrastructure services – distribution and others - reduce the average times needed to import and export goods, thus improving reliability and predictability as well as the cost-efficiency of trade flows. This efficiency contributes to the creation of value chains for goods. Going one step further, there also appears to be a correlation between better logistical performance, more efficient services and enhanced participation of a country in world trade.

Although production and logistics are usually thought of as discrete activities, the distinction between them has become increasingly blurred. It is now possible to perform a whole range of value adding services in large distribution centres.[16] If an increasing number of such large centers contribute to add value to final products, presumably logistics costs will rise as a share of value-added, although it is impossible to measure this at present.

An interesting supplement to examining the relationship between the LPI, the quality of services and a country's participation in world trade is to look at the DHL Global Connectedness Index, which tries to measure the depth and breadth of a country's integration with the rest of the world based on 10 different types of flows.[17] The patterns of connectedness show that a diverse and surprising range of countries rank high on the connectedness list, not just developed countries. Yet 13 of those that appear in the top 50 in the LPI are not among those most globally connected, while 13 countries that are among the top 50 in the trade pillar of the DHL Global Connectedness Index are not among those in the LPI.[18] This suggests that many countries that are already quite interconnected in the world economy could enhance their participation in world trade even further through reducing their logistics costs. The study actually concludes that levels of global connectedness are still quite limited in general; all countries have substantial room to further integrate into the global economy, with substantial potential benefits. Improved logistics performance should allow countries to also fit into operations of global value chains more easily, particularly for those that are shown in the DHL Index to be already relatively well connected to the global economy.

Figure 1: Schematic illustration of 20th century trade (top panel) and 21st century trade (bottom panel)



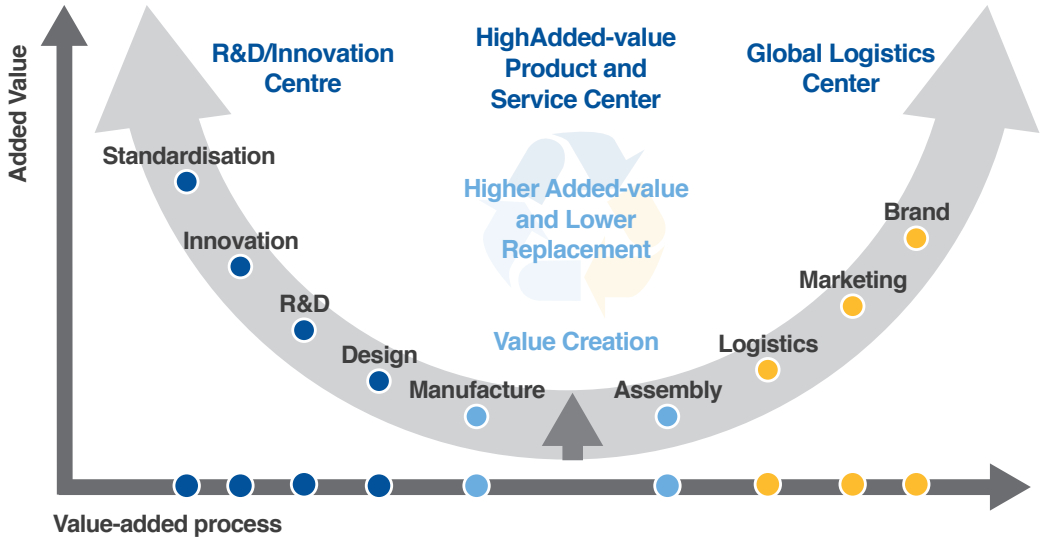
Note: The restrictiveness of services policy is expressed in an analogous manner to the ad valorem tariff in goods markets. Distribution is used as a proxy for the logistics sector because detailed data on logistics policies are not available.

Source: World Bank. Connecting to Compete 2010 : Trade Logistics in the Global Economy "*The Logistics Performance Index and Its Indicators*"

Shifting to a High Value-added, Globally Integrated Services Economy

In the development of global value chains, some observers have depicted this process not as a linear one, but rather as a "Smiley Face" where the center of value creation in the manufacture or assembly of a product is flanked on either side by higher value-added services activities. The objective of the firm is to shift from manufacture and assembly into design, innovation, R&D, logistics, marketing and brand. Such a model has been put forward by ACER Computer's CEO Stan Chih who stated: "Hollowing out of tangible things is not critical; hollowing out of intangible things is really critical".[19]

"Smiley Face": conceptual model of the shift to a high value added, globally integrated, services economy



Source : Business Week International online extra, May 16, 2005, Stan Shih on Taiwan and China

The Creation of Services Value Chains

In a way similar to that of goods, services are being disaggregated and traded as separate "tasks", thus creating value chains on their own. This is enabled by knowledge-intensive services industries where value can be "captured" and "stored" so that production of these services can be separated from consumption and scaled up, creating higher added value final services. Cross-border digital trade then enables these services to be used anywhere in the world, thus allowing for the development of services value chains in their own right.

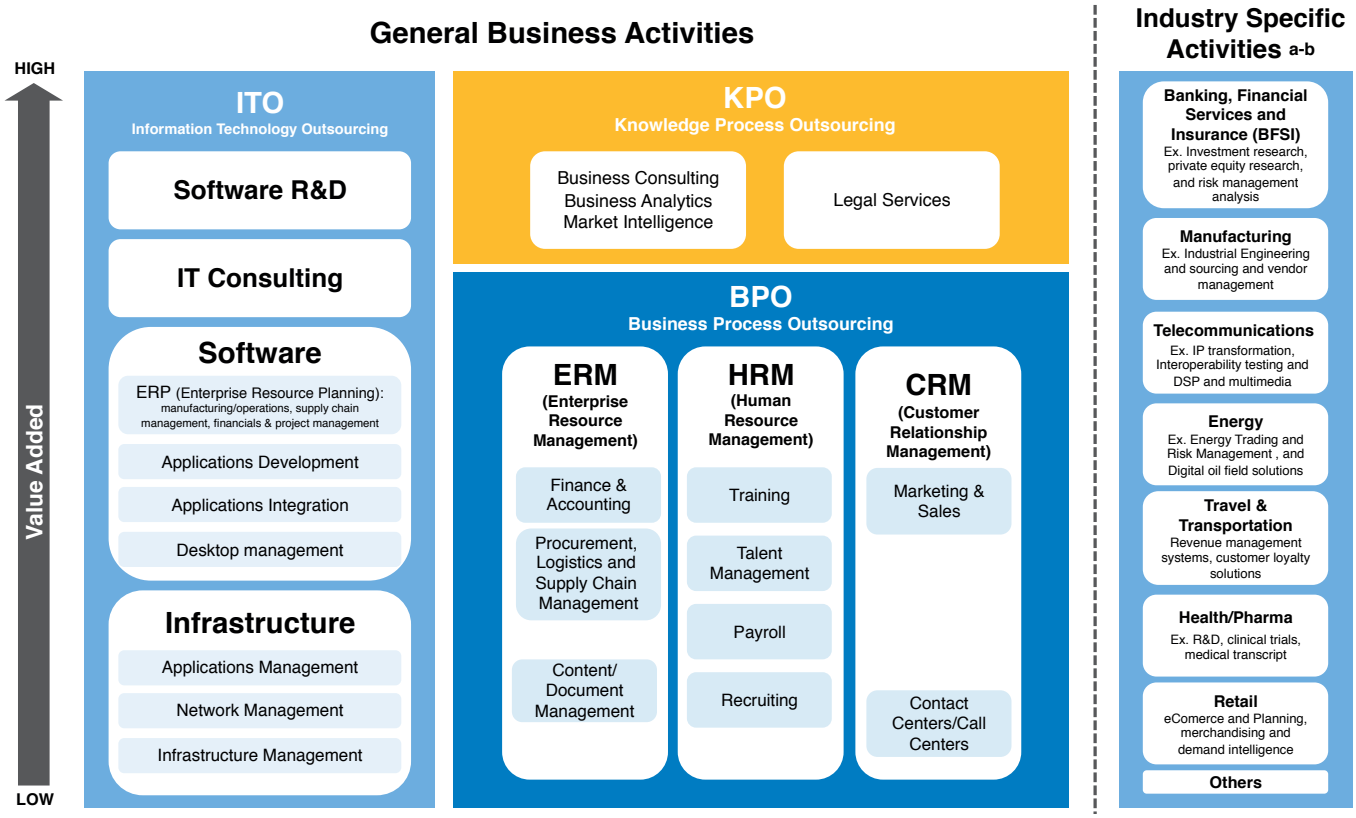
Services value chains are similar in concept to goods value chains but may differ somewhat in the way they function. Though they are less well understood and very little documented at present, it does seem that globalization is bringing about a similar transformation in services as in manufacturing. In new business models, firms are outsourcing not only the assembly of goods but also many services-related tasks. Outsourcing of these non-core functions by services firms may not be possible for all services and thus it might be more accurate to think of services being "nested" in wider services "networks".

In a services value chain, any activity or cluster of activities can either become a core competence or be outsourced from the parent firm. Many of these activities (for example business back-office and data processing services) can also be off-shored in locations abroad, leading to new competitive opportunities for specialization and for the participation of emerging suppliers in these tasks. As in the case of goods, the objective of services firms is to engage in increasingly higher value-adding "tasks", namely design, R&D, innovation – or logistics and marketing/ brand development.

A visual example of the design of a services value chain for the "offshore services industry" has been developed by Gary Gereffi, Head of the Center on Globalization, Governance and Competitiveness at Duke University, as illustrated in the chart below. "Offshore services industry", which includes information technology outsourcing (ITO), knowledge process outsourcing (KPO) and business process outsourcing (BPO), has seen a dramatic increase in demand over the last two decades, most of which is coming from the U.S., Canada, the EU and some Asia -Pacific countries, particularly Japan. Firms from supplying countries tend to specialize in different parts of these services value chain processes. The amalgamation of all or some of these activities makes up the value of the final service product. The proximity to the central node activity would indicate a higher value-added component. For example, software R&D adds more value than network management in the ITO value chain. Likewise, finance and accounting add more value than document management in the BPO services value chain. And business consulting adds more value than market intelligence in the KPO services value chain. The competitive challenge for firms is of course to move up the value chain or to cover a larger number of related activities in the services value chain.

Although there has been little research to date on services value chains, services experts believe that such chains are being created in a variety of service sectors, including banking, tourism and possibly also education and health services, as well as IT and business processing services.

Offshore Services Value Chain



Source: Gary Gereffi (2010). Center on Globalization, Governance & Competitiveness at Duke University.
The study can be found at: http://www.cggc.duke.edu/pdfs/CGGC-CORFO_The_Offshore_Services_Global_Value_Chain_March_1_2010.pdf.

Important Factors for the Creation of Services Value Chains

Several factors are important for the creation of services supply chains or "nodes". There seems to be a strong correlation between human capital and services exports as well as a strong correlation between electronic infrastructure (as measured by internet penetration) and services exports.

Human resource inputs have been shown in various case studies of services exporters to be overwhelmingly important for the decisions of IT firms on where to outsource services work, and at what level of value-added. Factors including access to numbers of trained people, the quality of training and the associated wage structures are determinant in these decisions. Creation of a positive human resource environment and a critical mass of skilled personnel can be shaped by national government policies that emphasize education and skills training. Efficient electronic infrastructure depends upon a pro-competitive policy in the telecom sector.[23]

To allow services to be the enablers of global value chain creation and operation, open trade and investment policies are critical.[24] Regulatory simplicity and efficiency are also important determinants of services competitiveness and the ability of a country to capture services "tasks" in the value chain. This can particularly be important for the ability of small and medium-sized enterprises (SMEs) to be able to insert themselves in a piece of the de-fragmented services output. As most services firms are "multi-modal" and provide services through several modes of supply, their operations flourish best in a regulatory environment of modal neutrality that allows them to switch freely between modes and to combine them when necessary for cost purposes. Lastly, the quality of institutions is also an important factor in the development of services value chains as it affects the quality and effectiveness of the regulatory environment.

Implications of the Growth of Services Value Chains

The growth of services value chains has several implications for the global economy and also for the WTO framework of rules on services in the GATS.

For developing countries, it may be easier and less costly to capture one or more of the "tasks" of a services value chain than to try and compete along the entire line of service activities. This may also allow SMEs in developing countries to participate more readily in international trade as they are not required to have a cost advantage in a final product and can choose only one "task" along the value chain. Given the factors that are important in the creation of services value chains, an obvious conclusion is that if developing countries focus policies on education and creating human capital (as many East Asian economies have done), it may be possible to leap-frog up the development ladder and bypass the traditional stages of manufacturing in order to integrate into the world economy.

With respect to the world trading system, the development of services value chains has implications for structuring the rules of the world trading system. The two most important are to ensure modal neutrality and regulatory coherence in trade rules:

1. Modal neutrality: For service providers, modes of supply should be open, especially modes 1 and 3 (cross-border trade and investment) so that they can choose which of the avenues for producing and exporting their service activity along the value chain is the most cost efficient. Binding agreements in these areas at the multilateral level ideally, or at the regional level in RTAs would foster a more efficient and faster-growing world economy.
2. Regulatory coherence: For the regulatory environment, a critical examination of how to achieve greater regulatory efficiency by trading partners will be necessary so that regulations do not impose themselves as bottlenecks in the value chain creation process. Agreements on regulatory coherence, either through the adoption of general principles or sector-specific principles or preferably a combination of both, would be essential in this regard.

As in the case of goods, the development of global services value chains is making much of the current trading rules for services (WTO GATS and services chapters in RTAs) irrelevant, as these rules are designed for application to services that are exported as final activities from national firms or service suppliers. The present normative framework for trade does not take into account the phenomenon of multiple suppliers and multiple locations for goods and services activities. These normative structures will need to be re-examined and modernized. This is an agenda for the 21st century and could usefully be a focus of the WEF Global Trade Agenda Council.

Case-study 1: General Electric Corporation – Advanced Manufacturing in Perspective

Karan Bhatia[25]

For better or worse, modern multinational corporations (MNCs) have become synonymous with cost-driven global value chains. Indeed, if certain media and politicians (at least in the United States) are to be believed, MNCs are largely controlled by sourcing wizards, combing the world for the lowest-cost inputs (most importantly, labor) and willing to quickly abandon one jurisdiction for another to capture a marginal price differential. The reality, however, is far more complex and nuanced.

When structuring value chains, most global companies make significant investments and commitments that are not easily abandoned. This makes decisions about how we operate, what countries we operate in, and who we partner with complex and critically important – and in many cases, based on factors other than hourly labor cost. In this paper, I address: (1) how MNCs like GE manufacture, service our customers, and innovate globally; (2) key factors shaping value-chain decisions; and (3) two interesting recent value chain phenomena – the relocation of **production** in certain instances back to the United States and, simultaneously, the increasing trend to locate **innovation** in emerging markets.

Manufacturing, Servicing and Innovating Globally

Like many MNCS – particularly those manufacturing complex industrial products – GE has elaborate global supply chains underpinning its manufacturing. Everything we produce – from aircraft engines to healthcare diagnostic equipment, locomotives to water treatment solutions, heavy-duty gas turbines to household appliances – are the products of elaborate, carefully integrated networks of suppliers and sub-suppliers. All are carefully selected and subject to a rigorous common code of conduct, yet thousands of miles and many time zones may separate these suppliers.

The servicing of GE products has a similarly broad global footprint. With customers depending on GE to service products key to critical infrastructure, GE has a network of service shops across the globe and personnel in more than 100 countries to address client needs.

Less well appreciated is how GE innovates products globally. The days in which MNCs conduct all their research and product development in a single home market have ended. Today, GE innovates largely through a web of "Global Research Centers" located in Bangalore, Munich, Shanghai, Niskayuna (New York), and – starting in 2012 – Rio de Janeiro.

Globally integrated innovation

Source: © 2011, General Electric Company

These innovation centers – staffed by some of the world's leading engineers, scientists, mathematicians and other experts – are at the heart of GE's value proposition, creating leading edge technology to solve the world's energy, transportation, healthcare and water challenges. While each does have certain areas of expertise, they place a premium on "globally integrated innovation" – with one lab often handing a project off to another at the end of its workday, enabling a 24 hour-a-day cycle of global innovation and benefitting from collaboration among innovators from different countries and backgrounds. Indeed, this model of globally integrated innovation has become so deeply engrained that today no new product is innovated solely in one country.

Key Factors Shaping Value Chain Decisions

As noted above, GE's value chain decisions – i.e., where to source, service and innovate – are influenced by an array of factors. To be sure, labor cost is one factor. But it is not the only factor nor, I would submit, the most important. Rather, each of the following four key criteria may be more influential in value-chain decisions:

- Local market potential. The reality is that size matters when it comes to decisions of where to base manufacturing, service or innovation. The business case to make such investments is simply more compelling when the country at issue represents a large or potentially large market. Absent local production, service capacity and innovation in such countries, one may not be competitive in meeting the needs of big local customers. Local presence will often enhance commercial opportunities in other ways, as well – by growing one's brand-recognition, for example. It bears noting that where the customers are governments, or state-owned, or state-affiliated enterprises, such investments may also be required – *de jure* or *de facto* – for local political reasons.
- Human resources. For advanced manufacturing companies like GE, productivity generally trumps hourly labor cost. For example, GE maintains aircraft engine service facilities in such comparatively high cost jurisdictions as the UK and Singapore. These facilities continue to deliver significant business value to our aviation enterprise and belie the view that production must drift to lower wage jurisdictions. (This does not, however, mean that lower-cost jurisdictions cannot be quite productive. Last year, for example, GE opened a $100 million production facility in Haiphong, Vietnam, to manufacture wind turbine generators; the facility has already become one of the most productive in the world.) We look closely at the human capital that each country offers, and whether it can meet our needs. This is particularly true with respect to our Global Research Centers, which need to draw on a highly skilled talent base of PhD scientists and engineers. The extraordinary talent base in India, China, Brazil and Germany clearly helped drive our decisions to base innovation centers there.
- Physical infrastructure. To be competitive, a country seeking to attract high-end manufacturing, services and innovation must have the physical infrastructure – reliable power, transportation, telecommunications – to enable the facility to connect into finely-timed, global production processes. Physical infrastructure is often a key differentiator among markets that may otherwise have similar strengths (e.g., India vs. China).
- Legal and policy environments. The legal and policy environment is perhaps the most fundamental determinant of value chain decisions. Weak rule of law – including high levels of corruption, poor labor or environmental standards, or weak IPR – may either exclude some countries from the value chain altogether or subject them to significant limitations (e.g., on the technology that would be transferred into the country). By contrast, policies that support manufacturing, services and innovation – investing in education and human capital, predictable and business-friendly regulatory environments, flexible labor policies – may help overcome deficiencies in other areas.

An increasingly significant challenge in value-chain decision-making is the growing array of government policies designed to force the transfer of technology (e.g., "Indigenous Innovation" policy) or production/services (e.g., local content or "buy national" policies) as a condition for access to government procurement or other markets. These policies – which are designed to leverage market access to obtain a greater share of the value chain – can certainly affect MNC value chain decision-making, particularly when the country has other appealing features. To be sure, these policies may ultimately prove futile or work to the detriment of the countries that impose them. Absent the core conditions necessary for manufacturing, services and innovation to succeed – the right human capital, physical infrastructure, and the legal and policy environments – MNCs will be reluctant to fully commit to these markets. While some may be willing to locate a limited portion of their value chain as a quid pro quo for market access, few will be willing to risk their long-term global competitiveness by transferring core innovation or production capabilities to jurisdictions that could not otherwise sustain them. These policies do, however, pose a serious challenge to the global trading system in the near-term, as they threaten to distort value-chain decisions and allocate resources among countries inefficiently.

"Right-sourcing" Production and Innovation

Two recent phenomena – the "onshoring" of certain production back to the United States, and the "localization" of innovation in emerging markets – affirm the foregoing analysis.

The onshoring (or "re-shoring") of certain production by American-headquartered MNCs has captured increasing attention. My company, together with a number of other prominent MNCs, have recently announced that manufacturing (in GE's case, of certain lines of household appliances) will be brought back to the United States or that new manufacturing – that might previously have been located abroad – would occur in the United States. While the media inevitably tend to view such value-chain decisions through a political lens (i.e., major US companies "investing in America") or simply as the result of increasingly competitive costs in the U.S., the reality is that they are very much informed by the criteria listed above. In GE's case, the decision to invest in the United States has been informed by our assessment of: the underlying long-term strength of the U.S. market; human capital (including rising levels of productivity and cost-efficiency in our US facilities); physical infrastructure that, although a concern, remains relatively capable; and a legal environment that remains among the world's strongest.

While GE has continued to grow its production base in the United States, it has also recognized that competitiveness in global markets – that account for 60% of total GE revenues – demands that we become a better local company in the 100+ countries in which we operate. In part, that means creating products and services that are well-suited to the needs of local customers. To that end, GE and other companies have increasingly sought to innovate new products closer to the markets in which they will ultimately be sold. To take just one example, in 2009, GE Healthcare introduced the "V-Scan" – a handheld ultrasound device, which is portable and available at a fraction of the cost of one of our larger ultrasound machines.

The device was conceived of in our Global Research Center in China by scientists seeking to address the challenges of meeting the healthcare needs of China's 800 million rural residents. It was subsequently developed by engineers there as well as Europe and the United States. Today, it is being marketed globally – and has appeal to rural health providers in both emerging and developed markets.

Again, the value-chain decision to innovate globally – and, in particular, in the major emerging markets --- has been informed by all the criteria listed above: these are large and growing markets with deep and broad need for the kinds of products that GE can provide; they have strong human resources with a deep base of scientists and engineers; and physical infrastructure is increasingly no longer a constraint to innovating in these markets. The legal and policy environments in emerging markets can vary and probably are the area with greatest room for improvement. In certain regards (e.g., incentives), the environment can be highly supportive; in other areas (e.g., rule-of-law and IPR protection) there is room for improvement. On the whole, however, the significant improvement in legal and policy environments in these countries in the past two decades have facilitated the dedication of innovation resources to these countries that would, in the past, have been inconceivable.

Case-study 2: Socota Group - Sub-Saharan Africa in the Global Apparel Value Chain

Salim Ismail[26]

Synthetic overview of the world market

The global apparel value chain has undergone fundamental shifts in production, organisation and location over the past two decades. Following four decades of international trade governed by quota restrictions in the major EU and US markets, the gradual WTO phase-out of the Multi-Fibre Agreement (MFA) in 2005 has given rise to phenomenal restructuring and geographical migration in clothing production and trade. Although complex tariff systems, government support in exporting countries and preferential trade arrangements still prevail, protectionist measures in importing nations have continued to decline and regulatory barriers to trade can be considered reasonably low.

Two pronounced trends in the evolving patterns of supply and demand in the global apparel value chain are the twin processes of global consolidation and supply chain rationalisation – trends that have been reinforced by the global economic downturn. Leading suppliers, both countries and firms, have steadily strengthened their positions while large global retailers and brand owners that dominate the buyer-driven production chain have increasingly come to demand greater sourcing capabilities, cost efficiency, shorter lead times and improved productivity from their network of suppliers strategically located around the world.[27]

Clothing is one of the world's most traded manufactured products. The potential to specialise and fragment production at numerous stages of the supply chain means that the industry is both trade intensive and extremely sensitive to government policies, exchange rates and trade regimes. Despite a severe contraction in 2009, global exports of finished products grew at an annual compound rate of 6 percent between 2000 and 2010.

The tables below provide an illustration of the sizeable shifts that have occurred over the past two decades with the migration in labour-intensive manufacturing toward low-cost Asian suppliers – not only China which has emerged as an export behemoth, increasing its share of world exports to 37 percent, but also Bangladesh, India, Vietnam and Indonesia. This relocation has largely occurred at the expense of developed country manufacturers, regional suppliers such as Mexico and Tunisia, and previously shielded low-income producers in sub-Saharan Africa (SSA) that have been squeezed out of the global trading system.[28]

Leading exporters of clothing, 2010
(Billion dollars and percentage)

	Value	Share in world exports			
	2010	1980	1990	2000	2010
China	130	4.0	8.9	18.3	36.9
EU (27)	99	-	-	28.5	28.1
extra-EU exports	22	-	-	6.6	6.3
Bangladesh	16	0.0	0.6	2.6	4.5
Turkey	13	0.3	3.1	3.3	3.6
India	11	1.7	2.3	3.0	3.2
Vietnam	11	-	-	0.9	3.1
Indonesia	7	0.2	1.5	2.4	1.9
United States	5	3.1	2.4	4.4	1.3
Mexico	4	0.0	0.5	4.4	1.2
Above 9	296				84.1

United States clothing imports by origin, 2010
(Million dollars and percentage)

	Value	Share	Annual % change 2005-2010
China	33495	40.9	10
Vietnam	6208	7.6	16
Indonesia	4769	5.8	9
Bangladesh	4154	5.1	10
Mexico	3783	4.6	-10
Above 5	52410	64.0	-

Source: World Trade Organization, International Trade Statistics 2011

The purpose of this brief is to demonstrate that within the flux of this intensely competitive global landscape there are unique opportunities to be seized by SSA countries that possess the capacities and resources to integrate global apparel value chains. To this end, a few notable dynamics occurring in the world market are worth highlighting:

1. Analysts are detecting mounting evidence that China's dominance of labour-intensive manufacturing exports may be peaking. Low-end clothing manufacturing is relocating to Bangladesh and Vietnam, for example, as China moves up the value chain. China will remain the dominant exporter for the foreseeable future but rising labour costs and an increased share of production channelled to meet domestic demand imply that Chinese suppliers will conceivably cede export (and import) opportunities.[29]
2. The vast bulk of world clothing exports are presently shipped to advanced economies that are now suffering from sluggish demand, with the EU, US and Japan accounting for a commanding 74 percent of world imports. Growth markets like India, Russia, Turkey, Brazil, Indonesia and China are developing strong consumer bases. Opportunities will arise in these economies as the demand for clothing rises at a faster rate than economic growth.
3. Narrow domestic markets have been constraints to the development of a competitive clothing manufacturing industry in SSA. The projected rise in discretionary income in SSA households over the next generation could provide an important incentive for added investment in local production coupled with greater upgrading possibilities in regional production networks.
4. Although lead firms are consolidating relationships with large Asian suppliers, they are also hedging their risks by diversifying part of their outsourcing activities to second-tier suppliers. While the shift in global sourcing towards extremely responsive 'full-package' capabilities presents serious challenges and entry barriers to local firms operating in low-income countries, it also offers the possibility of upgrading into higher margin activities as well as penetrating domestic and regional markets.

The long-term competitiveness of sub-Saharan Africa

The SSA clothing industry has struggled to adapt to the post-MFA environment dominated by intense Asian competition.[30] Existing preferential agreements such as the African Growth and Opportunity Act (AGOA) and Everything But Arms (EBA) special arrangements for Least Developed Countries (LDC) under the Generalised System of Preferences (GSP) provide a degree of import diversion and protection to suppliers based in LDC beneficiaries. The schemes are subject to more or less stringent rules of origin in the transformation process to finished goods. Yet African manufacturers have proven vulnerable to dominant global suppliers. SSA apparel exports account for less than 1 percent of world exports and have lost, on average, around 50 percent of their value compared to pre-MFA levels. SSA clothing manufacturers are also finding it increasingly difficult to compete with Asian (overwhelmingly Chinese) imports to the region. By way of illustration, domestic and regional producers are supplying a shrinking share of the South African market.

The production segment of greatest relevance to job creation and poverty alleviation in low-income SSA countries is labour-intensive garment manufacturing. It is the fragment of the chain most suited to domestic circumstances, capital requirements are affordable, backward linkages allow for vertical integration into upstream activities, knowledge and skill intensities are variable, and it creates a springboard for the upgrading of capabilities into higher value and more diversified industrial and service activities. Given appropriate policy frameworks, SSA is endowed with three primary factors that combined could secure its long-term competitiveness and bolster its future status as an investment destination of choice in labour-intensive garment manufacturing:

1. SSA has an abundant pool of semi-skilled (young) labour available at comparatively low wages. Although wages are far from being the sole determinants of production location[31], they typically constitute a high fraction of the total manufacturing cost of an item of clothing. The International Labour Organisation estimates that minimum wages in China have risen annually by 12-13 percent over recent years. Chinese, and other suppliers such as Vietnam, in the low-end manufacturing segment operating within razor thin margins may struggle to remain competitive in the face of sustained wage inflation.

Many African countries hold a comparative advantage in the production of quality cotton with favourable fibre characteristics. Cotton is grown in large volumes although yields compare unfavourably with world averages. The opportunity lies in downstream linkages and the development of production networks that permit vertical integration of cotton-product value chains so that different stages of the transformation process (value-added processing into yarn and capital investment in the cotton-based textile industry for fabrics) are retained either locally or regionally. There is great potential for dynamic regional synergies that will have a multiplier effect in terms of rural development and industrial upgrading.[32]

2. Environmentally sustainable manufacturing practices are the future. There is a huge untapped reservoir of renewable sources of energy in SSA that could power a fairly energy-intensive production cycle (especially in textiles). Customers from developed and emerging economies are increasingly applying pressure towards responsible sourcing in terms of social compliance and environmental standards. This provides an opportunity to invest in a sustainable and transparent industrial base, ease current bottlenecks related to an unreliable and expensive power supply, and spur a winning strategy towards competing in the future – not only in niche markets but also in the wholesale production of textiles and clothing.

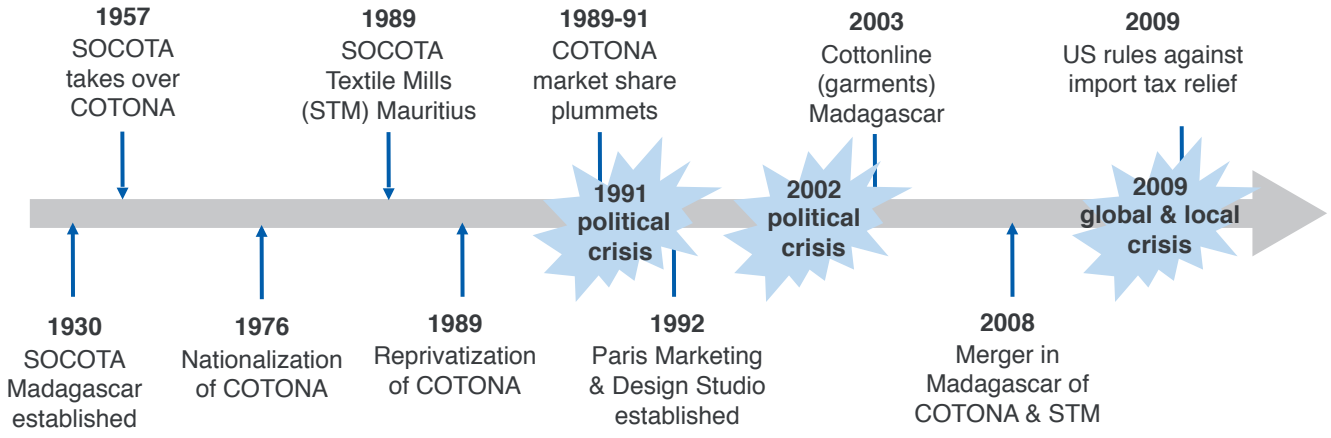
As indicated in the introductory overview, constricted and fragmented markets have inhibited the development of a competitive SSA clothing sector along with the upstream production of capital-intensive textile inputs (yarn and fabric mills). Prospects are set to change as the region embarks on a higher growth path with greater domestic market opportunities. Asian producers will provide stiff competition but there will be possibilities to reorganise regional value chains beyond export-oriented development and, in the process, set in motion upgrading capabilities into higher value activities that could reap significant rewards.

Company insight: Socota Madagascar

Socota Madagascar offers an example of a homegrown firm from an African LDC, employing several thousand workers, successfully delivering renowned global brands to international markets. Its rich and tumultuous history illustrates many issues regarding the constraints and opportunities that exist for SSA enterprises to participate in global apparel value chains.

Socota services a diversified network of global customers through a 'full package' textiles and clothing operation, including a dedicated fabric mill (Cotona), one of the largest clothing manufacturing plants in Madagascar, and a design and marketing studio in Paris that operates as the lynchpin of its value chain strategy. Whereas Socota previously ran a full vertical set-up from cotton fields to finished fabrics, it now sources its yarn abroad (a third of which is spun from East African cotton) and has continued to develop downstream capabilities. The company has shifted from fabric supplier to specialist of casual wear in mid-range fashion market segments. Its ability to create value and capture higher margins in a hyper-competitive industry has been based on a differentiation strategy in which innovative design, consistent quality, fast and reliable response and delivery times, and flexibility in response to market changes have been vital. This has been accomplished in a country repeatedly gripped by political uncertainty, substandard delivery of public services, weak infrastructure, and a business environment that can be considered disabling.[33] A few salient points can be drawn from Socota's ongoing growth experience.

1. Upgrading and downstream integration: in order to master the technological and managerial know-how of the new areas of business in which it invested, such as clothing manufacturing, Socota offered equity to first rank international joint venture partners. As a general principle, SSA needs to establish a business environment that retains committed foreign investors if upgrading and integration are to be achieved. Participation in administratively fragmented production networks is contingent on a legal framework that confers security, contract enforcement and protection from political exaction.
2. Sustained competitiveness: Socota has had to develop a flexible strategy with reduced exposure to political and single-country risk. When the 1990s liberalisation process opened the local market to low-priced imports, the company had no alternative but to redeploy its fabric production toward western markets.[34] This was facilitated by financial loans from multilateral development banks, and the establishment of the EPZ regime. Recently, the loss of duty-free access to the US market owing to Madagascar's suspension from AGOA forced Socota to redirect a third of its production. This was conducted by targeting the South African market, which Socota sees as a growth destination. A second proposition is that regulatory advantages such as quotas or preferences cannot be relied on as a long-term strategy over manufacturing and operational strengths.[35]
3. Corporate culture and human resource dynamics: a fundamental strand of Socota's growth and its ability to move into higher value operations has been the motivation of its workforce driven by a strong corporate culture. By treating labour as an asset rather than a mere cost, investing in technical and soft skill development, and nurturing talented personnel who adhere to responsible corporate principles, the management has succeeded in creating a virtuous system that has allowed Socota to branch into activities and products requiring greater staff retention, expertise, innovation capacities and knowledge intensity. This development of local human capital, committed not only to the long-term potential of the enterprise but also of the region, is insufficiently widespread in SSA.
4. Social and natural environment: the virtuous cycle of human capital formation and corporate development described above has been sustained through a rigorous convergence between the private and public interest. As one of Madagascar's oldest and largest private sector employers, Socota assumes the ethical responsibility of integrating its operations in its environment. Employees are provided with family healthcare for example. Production processes are equipped with wastewater treatment and recycling facilities – infrastructure and resource management issues in which SSA suffers from underinvestment. Finally, Socota has reduced its carbon footprint 60-fold by substituting from heavy fuel to biomass fired boilers (wood waste) while establishing in parallel a seedbed to replenish and better manage indigenous forest resources.[36] The design of this sustainable process relies on solid logistical capacities made possible by the very quality and commitment of local human resources.



Governance and investing in development at scale

The question to ask is whether Socota's success can inform the future migration of value-creating and employment-generating segments of the global apparel value chain to low-income SSA countries in light of the region's three factors of long-term competitiveness identified above. The short answer is that competition to attract large-scale investment and secure a favourable fraction of value-added will be severe but that the future division of labour in the global clothing industry is not preordained. Positive outcomes for SSA will depend in large part on governance reforms directed at the provision of quality public institutions that can deliver sustained economic, social and environmental performance.

Measuring governance is notoriously difficult and should be treated with caution. But many SSA countries score poorly on multiple dimensions, including political stability, government effectiveness, regulatory quality, accountability and corruption. SSA is presently at a disadvantage vis-à-vis Asian nations in terms of trade facilitation and infrastructure constraints that deter productive investment in a competitive global environment for long-term foreign capital. The competition for contracts with lead firms that are demanding ever-increasing capabilities, quality and cost arbitrage on the part of their suppliers is also intense. Trade preferences have a key role to play but they also have inherent limitations as illustrated positively in the case of Socota and negatively by widespread factory closures in vulnerable economies in the post-MFA international system.[37] SSA manufacturing firms have to build their competitiveness beyond tariff-discounted prices if they are to prosper in a consolidating global apparel value chain and compete with lean and efficient Asian networks.

For this to happen, policies that impact on the business environment require serious and urgent consideration on the part of domestic policy-makers and international stakeholders. Micro-level innovations and knowledge absorption that improve operations, strengthen networks and upgrade the capabilities of native firms call for an environment in which foreign investor, labour, producer and buyer relations can be sustained over the long-run. Entry and participation in fragmented production networks requires a climate of confidence. SSA will be one of the main beneficiaries of the shifts in global apparel value chains provided reforms targeted at boosting quality institutions are undertaken. This also calls for an approach to development on the part of international donors that works in the direction of creating a system of governance buttressed by adequate checks and balances. The opportunity for the geographical relocation of growth is unprecedented since the independence of most countries in Africa, and could offer genuine developmental synergies for African employment and poverty reduction.

Broader Implications of the Growing Trade in Intermediates

Uri Dadush[38]

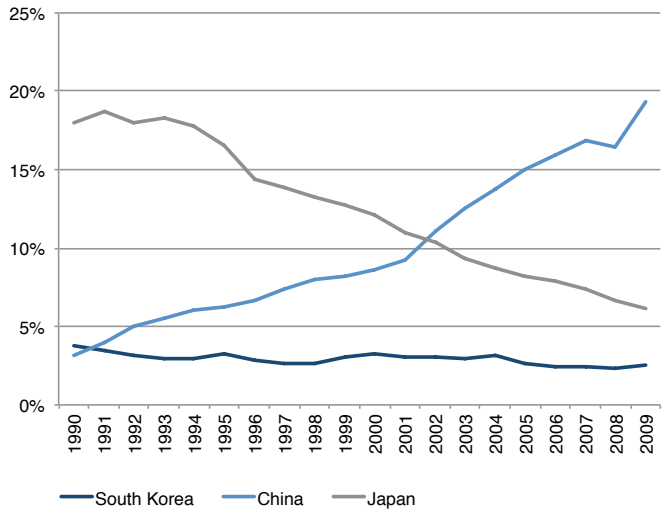
1. The Importance of Bilateral Trade Balances Is Exaggerated

Economists have long argued that overall—not bilateral—trade balances matter. Acting on bilateral imbalances without addressing the underlying causes of the total imbalance simply redistributes that imbalance across trading partners.

As the role of trade in intermediates[39] increases, bilateral trade balances are even less meaningful, as they fail to reflect value-added (e.g., the value of exports minus imported inputs). As World Trade Organization (WTO) Director General Pascal Lamy argued recently, many countries' exports — including those of China — are economically less significant than they look because they consist of imports that are subsequently re-exported and intermediates that are modestly reprocessed. In the case of an iPod Touch, for example, China adds only $4 to the value, but each one registers as a $150 entry in the U.S.–China bilateral deficit.[40]

Various studies find that China's surplus with the United States, for example, is 20–40 percent lower when estimated in value-added terms — reflecting the fact that only 20–35 percent of China's exports to the U.S. contain domestic value-added. Japan's and South Korea's balances with the United States, on the other hand, may be understated, as China relies on content imported from them to produce its exports. As they have exported more parts to China, Japan's and South Korea's share of U.S. imports has declined.

U.S. Bilateral Imports From (% of total imports)



Source: IMF Direction of Trade Statistics

2. The Importance of Exports as a Driver of Demand is Overestimated, while the Importance of Trade as a Source of Efficiency is Underestimated

Over the last several decades, world exports have grown at about twice the rate of world GDP on average. The increased trade in intermediate goods — commonly exported several times before they become part of a final product — helps account for this.[41] The sectors that have registered large export growth, such as machinery, are also the sectors that have the highest imported intermediate input content in their exports.

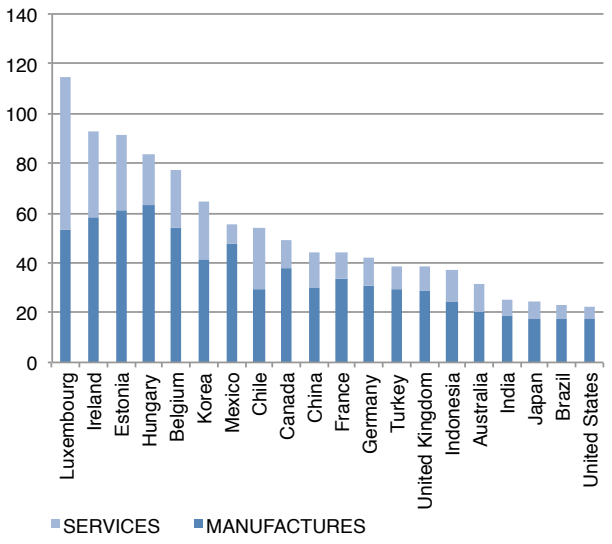
The growth of trade in intermediate goods also helps explain why exports account for an enormous share of GDP in a few mega-trade countries, such as Singapore and Hong Kong, which are sometimes called entrepôt (or re-export) economies.

Because policy makers fail to recognize that imported inputs feed into exports and exported inputs feed into imports, they often overestimate the importance of exports in driving short-term demand but underestimate the importance of trade and specialization as sources of increased efficiency in the longer term. Advanced countries, where very fine specialization and product differentiation characterizes much of value added, and exports are most intensive in innovation, are naturally drawn into trade of specific components and machines. Imports of specialized parts and machines, on the other hand, are an important channel through which developing countries absorb technology.

3. Trade Has Become More Volatile and a Larger Source of Shocks

Generally, intermediate imports appear to be more important for exports of manufactures than those of services, particularly in industries such as electronic and communications equipment, and electrical machinery and instruments. In the United States and Japan, the import content of manufactures' exports —nearly 20 percent — is four times that of services exports; in China, it is twice that of services exports. (See chart below)

Import Content of Exports by Industry (Mid 2000s, %)

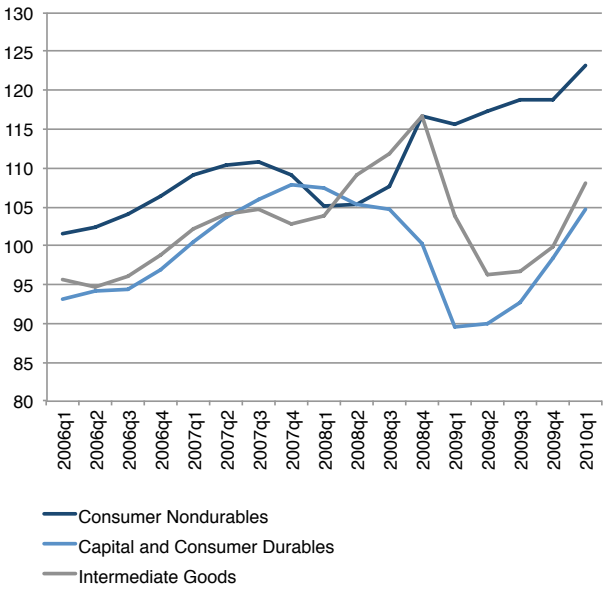


Source: OECD Input Output Database

At the same time, manufactures, especially durable goods, play a larger role in trade than in GDP. In the United States, for example, durables accounted for more than 60 percent of trade in goods in 2008, compared to 24 percent of GDP. But the demand for durable goods tends to fluctuate more than that for services. As a result, trade is more volatile than GDP, with the effect compounded by the fact that durable goods account for a high share of trade in components.

The recent Great Recession provided a dramatic illustration of this. Global exports declined by 14 percent in volume terms between the third quarter of 2008 and the first quarter of 2009, while world GDP fell by about 3 percent over the same period. Not surprisingly, trade in capital and durable goods was hit particularly hard; according to an International Monetary Fund (IMF) study, during the worst of the crisis, it fell about 10 times faster than trade in consumer non-durables as consumers postponed any purchases that could be delayed amid a global credit crunch and loss of confidence. In addition, due to countries' specializations in different stages of production, shocks in one country could lead to shocks in another country that manages a separate stage of production, magnifying the disruption.

Trade Volume Index (Q1 2008=100)



Source: IMF

Though such trade volatility does not necessarily translate into equivalent changes in domestic value-added, it is nonetheless highly disruptive. With trade in intermediates growing, economies are becoming more intertwined, implying greater vulnerability to shocks emanating from abroad. At the same time, increased reliance on foreign demand and supply is making economies less vulnerable to domestic shocks.

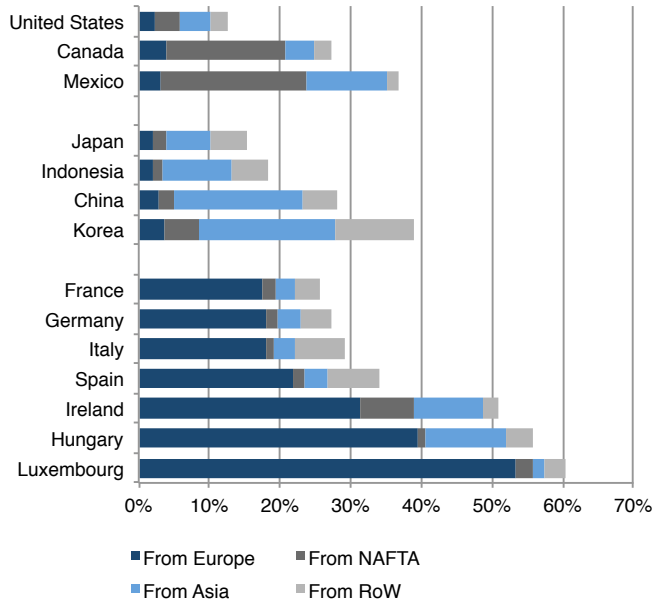
4. The Cost of Protection is Higher

Trade in intermediates means the cost of protectionism is higher than is generally understood, and rising. As economists have long known, the effective rate of protection — the tariff as a share of domestic value-added — is higher than the nominal tariff. Consider, for example, a T-shirt produced in the United States. Assume it trades at $10 and uses $5 worth of imported fabric. The domestic value-added is therefore $5. Now, if the United States imposes a tariff of 50 percent on T-shirts, the price of an imported T-shirt will rise to $15, giving domestic industry a 100 percent price advantage over importers.[42]

By the same token, levying a 50 percent tariff on the fabric imports would increase the costs for T-shirt exporters to $7.50—raising it by 50 percent of their value-added and effectively creating an export tax. Because imports increasingly feed into exports, an import tariff on parts and raw materials has a big impact on exports. Tariffs on intermediates that increase the costs of capital imports may also discourage inward-bound foreign direct investment and encourage outward-bound investment instead.[43]

The danger of higher protection is particularly pronounced for smaller economies where the share of intermediate imports in a country's overall exports is large. In addition, higher trade barriers may be particularly disruptive to intra-regional trade, as countries tend to import intermediate inputs from other countries in their region, partly reflecting production networks' high sensitivity to time constraints, trade, and transportation costs.[44] European Union countries tend to import intermediates from other EU members, NAFTA countries from other NAFTA partners, and Japan, China, Korea, and Indonesia from other countries in Asia (see chart below).

Import Content of Exports With Partner Countries



Source: OECD Input-Output Database

Inefficiency in logistics and customs is a type of trade barrier—one that is often more important than tariffs. Thus, the rise in trade in intermediates also underscores the importance of trade facilitation in fostering a country's involvement in global production networks. Studies have found that the costs of trade delays are higher in countries that trade more time-sensitive goods.[45] This is particularly true for intermediate imports of manufactures that have high time value because they depreciate quickly or have high inventory cost. While there is no simple correlation between the share of intermediate imports in a country's exports and the quality and efficiency of its logistics, several countries, such as Ireland and South Korea, that have high import content in their exports have among the highest scores in the World Bank's Logistic Performance Index.[46]

This contribution is based on articles by Shimelse Ali and Uri Dadush in Carnegie's International Economics Bulletin and in VoxEU

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Endnotes

1. Draper is Senior Research Fellow, South African Institute of International Affairs; Dadush is Senior Associate and Director, International Economics Program at the Carnegie Endowment for International Peace; Hufbauer is Senior Fellow, Peterson Institute for International Economics; Bacchus is Chair: Global Practice Group, Greenberg Traurig; Lawrence is Albert L. Williams Professor of Trade and Investment, Harvard Kennedy School.
2. Global Value Chains in A Post-crisis World: A Development Perspective (2010) Washington: The World Bank, PP10-11.
3. This paragraph and the next three are based on articles by Shimelse Ali and Uri Dadush in Carnegie's International Economics Bulletin and in VoxEU
4. This estimate is based on five European economies - Germany, Italy, the Netherlands, Austria, and Finland - which account for around 60 percent of Euro area GDP. See ECB (2005), "Competitiveness and the Export Performance of the Euro Area", ECB Occasional Paper, No. 3.
5. See the council's 2010 report on plurilaterals, available at http://www3.weforum.org/docs/GAC10/WEF_GAC_Trade_Paper_2009-10.pdf.
6. See the council's 2011 report on PTAs, available at http://www3.weforum.org/docs/GAC11/WEF_GAC_Trade_Paper_2011.pdf.
7. Jean-Pierre Lehmann is Emeritus Professor of International Political Economy at IMD, Lausanne, Switzerland, Founding Director of The Evian Group, and Senior Fellow at the Fung Global Institute, Hong Kong.
8. The Trans-Pacific Partnership (TPP) is a highly ambitious free trade agreement being negotiated by eight nations in the Asia-Pacific area (Australia, Brunei, New Zealand, Malaysia, Peru, Singapore, US, and Vietnam); Japan, Canada and Mexico are currently making efforts to join the negotiations. The TPP is addressing all the 20th century trade agreement issues (tariffs, etc.) as well as disciplines on intellectual property, investment guarantees, regulatory barriers, and labour and the environmental laws. It will also press forward with regulatory convergence, discipline of state-owned enterprises behaviour, and anti-counterfeiting rules. Some writers view this as the pathway to broader Asia-Pacific regional economic integration and a laboratory for trying ways of including 21st century trade barriers into the multilateral trade system.
9. Sherry Stephenson is Senior Advisor for Services Trade at the Organization of American States in Washington D.C.
10. Example is drawn from Peter Burrows (1995). "The Global Chip Payoff"
11. World Trade Organization, Annual Report 1998 (page 36), at: http://www.wto.org/english/res_e/booksp_e/anrep_e/anre98_e.pdf
12. Linden, G., Dedrick, J. and Kraemer, K.L. (2009). "Innovation and job creation in a global economy: the case of Apple's iPod", Irvine, CA: UC Irvine Personal Computing Industry Center.
13. US Bureau of Economic Analysis, from J. Francois 2011.
14. Meng, B. and Miroudot, S. (2011), "Towards measuring trade in value added and other indicators of global value chains: current OECD work using I/O tables", presentation held at the Global Forum on Trade Statistics, organized by Eurostat, UNSD and WTO, Geneva.Switzerland.
15. Ibid.
16. This point was usefully made by Alan McKinnon, chair of the WEF Logistics and Supply Chain Council who also indicated that some firms have renamed their distribution centres as 'fulfilment factories'.
17. The flows that are included in the calculation of the DHL Global Connectedness Index include: merchandise trade, services trade, foreign direct investment, portfolio equity investment, international telephone calls, international internet bandwidth, international trade in printed publications, international tourism, international education and international migration.See DHL Global Connectedness Index 2011 at http://www.dp-dhl.com/en/media_relations/specials/global_connectedness_index_2011.htm
18. Those countries that are among the top 50 in the Logistics Performance Index but are missing from the top 50 in the DHL Global Connectedness Index include the larger economies of :Argentina, Australia, Brazil, Canada, Japan, Mexico, Taiwan, Turkey and the United States, as well as Cyprus, Portugal, Latvia, and the Philippines.Whereas the 13 countries that are among the most globally connected according to the DHL Index but that are not among the top 50 in the LPI include primarily developing economies, namely:Cambodia, Cote d'Ivoire, Bulgaria, Ghana, Hungary, Jordan, Malta, Mauritius, Oman, Slovenia, Tunisia, Ukraine and Vietnam.
19. Discussed in a presentation by Jane Drake-Brockman, Head of the Australian Services Roundtable, to a trade conference organized by the PECC-ADBI in Tokyo, July 2010
20. See chapter 3 on "Trade, Investment and Supply Chains in Services" in the PECC-ADBI Report (2011) on Services Trade: Approaches for the 21st Century. www.pecc.org/component/eventlist/details/194-pecc-adbi-services-trade-new-approaches-for-the-21st-century.
21. Discussion and presentation by Gary Gereffi, Director of the Center on Globalization, Governance and Competitiveness at Duke University, to the annual meeting of the Latin America/Caribbean and Asia/Pacific Economics and Business Association in Washington D.C. ,31 January 2012.Also see www.cggc.duke.edu
22. Emerging economies-India, Philippines, Czech Republic and Chile- serve as the main providers of these three types of services off-shoring activities.India maintains its dominance in information technology outsourcing (ITO), while the Philippines is the leading provider for business process outsourcing (BPO) and the Czech Republic is a leading provider of Knowledge Process Outsourcing (KPO).
23. See chapters 1 and 2 in the recent World Bank volume edited by Arti Grover Goswami, Aaditya Mattoo and Sebastian Saez (2012) on Exporting Services: A Developing Country Perspective where these policies are discussed in detail.
24. This is discussed in the PECC-ADBI Report (2011) on Services Trade:Approaches for the 21st Century. www.pecc.org/component/eventlist/details/194-pecc-adbi-services-trade-new-approaches-for-the-21st-century.
25. Karan Bhatia serves Vice President & Senior Counsel, Global Government Affairs & Policy at General Electric.The views expressed herein, however, are solely his own.
26. Group Chairman and Chief Executive Officer, Group Socota.
27. A narrow set of global retailers, brand marketers, and brand manufacturers control a large share of international trade and hold considerable leverage over the value chain. In the process of managing leaner and more effective supply chains, they are increasingly shifting towards 'full-package' outsourcing arrangements whereby suppliers incorporate critical upstream and downstream activities such as fabric sourcing, logistics, inventory management, transportation and 'ready-for-sale' delivery.
28. The long history of restrictions, safeguards and preferential agreements has contributed to the fragmentation of the clothing supply chain. Location in SSA was incentivised by privileged access to major markets and low MFA quota saturation levels.
29. China's clothing market, in 2007, generated total sales of $93 billion with local consumers absorbing over 50% of domestic production. China is projected to add $315 billion to its domestic apparel demand by 2020.
30. Mauritius (and to a similar extent Madagascar) is the sole African nation to have successfully established itself in international markets while moving up the value chain from the mere assembly of imported inputs in processing zones. Beyond these Indian Ocean States, clothing exports essentially originate from a few economies, namely Lesotho, Kenya, South Africa and Swaziland.
31. China's success owes much to an industrial policy that laid emphasis on job creation through investment and export incentives.
32. SSA cotton is mostly exported in an unbeneficiated form to extra-regional textiles manufacturers and then procured as fabric for the local clothing industry. Regional groupings such as the Southern African Development Community (SADC) have a role to play in promoting the hard and soft infrastructure that permits vertical integration and competitive production networks.
33. Madagascar has had a disappointing development record, largely imputed to governance deficiencies. The Malagasy textiles and clothing industry has been going through a difficult period since the loss in 2009 of AGOA preferences in response to a constitutional crisis that resulted in the elected President fleeing the country into exile in South Africa. This has had serious implications, as Madagascar is dependent on garment exports and vulnerable to adverse shifts in trade patterns (Malagasy clothing exports account for 83 percent of the country's total merchandise exports). The OECD estimates that 40,000 formal sector jobs have been lost since the suspension of AGOA privileges. Malagasy exporters, including Socota, manufacture in the Zone Franche Malgache – an export processing zone (EPZ) regime established in 1990, which attracted substantial foreign investment throughout the ensuing decade. Prior to the crisis, 140,000 workers were employed under the regime and it was Madagascar's primary source of foreign earnings.
34. Although it is beyond the scope of this paper, the fraudulent import of used garments also had a detrimental impact on domestic market competition and local production capacity.
35. The AGOA experience suggests that a number of SSA countries (e.g. Lesotho and Swaziland) have had a vigorous, albeit fragile, supply response, especially since the introduction of a waiver easing the rules of origin in the transformation process from cotton to finished product. The consensus is that SSA will continue to need targeted and evolutionary preference schemes in major markets consistent with domestic resources, vertical integration strategies and international production networks.

36. Madagascar is host to some of the world's richest natural assets. It is recognised as a mega-diversity country with an extraordinary level of endemism that is at risk from human encroachment. There is a real challenge in generating a balanced manufacturing strategy that creates needed employment while conserving the island's unique natural heritage.

37. Exchange rates are also a consideration. The success of Asian economies in pursuing export-led growth via the management of undervalued currencies partly accounts for the poor manufacturing export performance of SSA.

38. Uri Dadush is a senior associate and the director of the International Economics Program at the Carnegie Endowment for International Peace.

39. Unless otherwise indicated, data on import content of exports is from OECD Input-Output database. It should be noted that estimates vary widely depending on the data, assumptions, and methodology used. For example, estimates of the share of Chinese exports accounted for by imported intermediates can vary from 45 percent to 65 percent. See CBO (2008), "The domestic value added of Chinese exports".

40. Kraemer, Kenneth, Greg Linden, and Jason Dedrick, "Capturing Value in Global Networks: Apple's iPad and iPhone."

41. A study by Hummels, Ishii, and Yi (2001) calculate vertical specialization for 10 OECD countries and 4 emerging countries and find that 30 percent of the increase in these countries' export is from growth in vertical specialization. See also Nordås, Hildegunn Kyvik (2003), "Fragmented Production: Regionalization of Trade?".

42. The Effective Rate of Protection (ERP) is given by (V* - V)/V, where V* is the domestic value added with a tariff on imports and V is the domestic value added under free trade.

43. In addition to the direct impact of higher costs on intermediate imports, which are needed for domestic firms to compete internationally, import barriers on such imports have an indirect effect on real wages of workers induced by the increase in the cost of capital. See H. Hopenhayn, P. Neumeyer (2002), "Economic Growth in Latin America and the Caribbean; Country Study for Argentina. The Role of Capital and Labor Reallocation in the Argentine Great Depression of the 1980s", Universidad Torcuato Di Tella.

44. Yi, Kei-Mu (2009), "The Collapse of Global trade: The Role of Vertical Specialization" in Baldwin and Evenett (eds.), The Collapse of Global Trade, Murky Protectionism, and the Crisis: Recommendations for the G20.

45. Hummels, David. "Time as a Trade Barrier", Mimeo, Purdue University, 2001.

46. Luxemburg and Ireland are among the top 11 countries in World Bank's Logistic Performance Index ranking of 155 countries

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