Intraregional trade in East Asia is increasingly characterized by “production sharing”, defined as the decoupling of previously integrated goods into their constituent parts, components and accessories (PCAs) which in turn are distributed across countries on the basis of comparative advantage. Other terms sometimes used in the international economic literature to describe this phenomenon include “intra-product specialization”, “international product fragmentation”, “delocalization”, “disintegration of production”, “Heckscher-Ohlin (HO) plus production fragmentation”, “slicing the value chain” and “super-specialization”. The international business literature has used terms such as “global commodity chains” or “fragmentation of value chains” to describe this phenomenon. This sort of cross-border multi-staged production process has in turn been facilitated immensely by major improvements in transportation, coordination and information communication technologies (ICTs).

While production sharing has been used extensively in commodity trade (consumer goods like garments, footwear, toys, handicrafts) for decades, it is now being applied more intensively to trade in airliners, computers, semiconductors, automobiles, and many other products. This said, there are some important distinctions between “old” or “buyer-driven”
production sharing and “new” or “producer-driven” production sharing (see Table 1).

Table 2 reveals that growth of PCA trade involving developing economies has outpaced growth in manufactured trade in general and aggregate trade as well. Thus, PCA exports involving developing economies rose from 13.2 percent of total exports in 1981-90 to 18.5 percent in 1990-2000. The share of developing economies in global PCA exports increased from a mere 4 percent in 1981 to 21 percent in 2000. As noted by the World Bank, developing economies’ involvement in global production networks has offered them the opportunity to raise their share of the world’s fastest-growing export products (transistors and semiconductors, computers, and computer and office machine parts) from 2.4 percent in 1980 (about the same as the share of those products in global exports) to 16.3 percent by 1998 (almost 7 percentage points higher than the share of such products in global exports).

Nonetheless, trade of PCAs involving developing economies is highly concentrated, far more than total trade or manufactured goods trade in general (Figure 1). According to the World Bank, nine of the top ten developing economies are from East Asia (except Brazil). South Asia, Sub-Saharan Africa, and the Middle East and North Africa together account for only 2 percent of developing economies’ PCA exports (and two-thirds of that involves just two countries, India and South Africa), compared with 11 percent of developing economies’ total manufactured exports.

To a large extent this concentration of PCA trade in a handful of countries in East Asia is not altogether surprising, being a reflection of the concentration of export-oriented foreign direct investment (FDI) in core
countries. After all, production sharing has been facilitated immensely by the expansion of the global operations of transnational corporations (TNCs) and consequent FDI. According to the UNCTAD\textsuperscript{7}, global markets increasingly involve competition between production systems that are organized by TNCs. As it notes:

While retaining their core competencies, TNCs are setting up international production systems on the basis of corporate strategies that seek to obtain the optimal configuration of their production process by spreading production to locations that offer significant advantages in production costs and access to third markets (p.141).

This is not to suggest that cross-border production sharing always requires TNCs. In cases where there are no obvious benefits from “internationalization”, outsourcing could also be conducted at “arm’s-length” between independent actors, i.e. separation of ownership. TNCs play a major role in production sharing involving semiconductors, automobiles and the like, while arms-length transactions are more common in the case of textiles and footwear and related products (see Table 1 again).

The importance of production sharing is that by reducing the costs of production of a product it makes the entire set of countries that participates in the integrated production system more attractive as export markets and investment destinations -- a win-win arrangement for all participants. Lower income developing economies are not only able to gain a comparative advantage in lower-end light industries, but also in the lower-end production stage of higher-tier industries. Middle and higher income developing country are able to graduate to higher ends of the value-added chain, i.e. more advanced stages of the Original Equipment Manufacturing (OEM) and eventually into Original Design Manufacturing (ODM). Countries could also
move horizontally, e.g. improve product quality and serve higher value added market segments. This so-called Original Brand Manufacturing (OBM) essentially involves moving from selling under a foreign label to developing and selling under their own label, hence allowing them to capture brand name rents. Hong Kong has done this effectively in the case of apparels, with many labels being produced by Hong Kong brands. Other economies in the Asia-Pacific region are developing their own “brand names” in computers and electronics.

On the plus side, the splitting of goods into finer sub-parts which are then outsourced is a means of including more countries in the production network (i.e. multiplication of supplier networks). On the minus side, in view of the footloose nature of such production, there are well-founded concerns that small variations in costs could lead to large swings in comparative advantage thus necessitating large and sudden domestic adjustments. Jagdish Bhagwati\(^8\) refers to this phenomenon as “kaleidoscope” or “knife-edge” comparative advantage. Countries therefore need to be ever aware of their relative costs competitiveness in the short run as well as ensure constant industrial upgrading over time so as to remain important cogs in the larger regional or global production system. As the UNCTAD notes\(^9\):

In locational decision-making…production costs are always evaluated relative to the efficiency and productivity of a location. This point is often overlooked in discussions of comparative costs, but it is particularly crucial in that a major focus of TNCs geographic allocation of value-chain activities is to achieve systemic efficiencies across their entire international production systems. A given location, therefore, is judged by how cost-efficiently it performs a given function in coordination with functions located elsewhere, and not merely in isolation (pp.124-5).
Production sharing is not limited to trade in goods as TNCs have fragmented and dispersed various services functions worldwide to take advantage of marginal differences in costs, resources, logistics and markets. In the Asia-Pacific region, Singapore and India have benefited significantly as many TNCs have used the former as a regional headquarter (RHQ) given the city state's excellent infrastructural quality, political stability, low tax regime and strategic location; while they are increasingly using the latter for their backroom and related operations in view of the ready availability of excellent, low cost, high quality skilled labour.

The growing significance of production sharing emphasizes the need for governments seeking export-oriented FDI “to go beyond trade and FDI policies and assess their locational advantages in the international production system context”. It is in this sense that regional integration efforts that lower the costs of cross-border transactions can be an especially attractive tool to promote trade, FDI and technological progress. Indeed, it is not surprising that Japanese and other businesses have been among the most enthusiastic proponents of the ASEAN Free Trade Area (AFTA) and ASEAN Investment Area (AIA).

To be sure, such regional trade agreements (RTAs) are clearly second-best solutions, multilateral trade liberalization being first best. Given the second best nature of RTAs, neither theory nor empirics is able to offer definitive insight into whether there are any net benefits from a country being a member of such trade alliances. Nonetheless, it is almost certain that a country that is not a participant in any of the new RTAs will be adversely impacted due to trade and investment diversion and possible adverse
movements in their terms of trade. Thus, there is a strong case for joining RTAs for “defensive reasons”. In other words, “RTAs are like street gangs: you may not like them, but if they are in your neighbourhood, it is safer to be in one”\textsuperscript{11}. It is therefore imperative that developing economies that are hitherto not part of the new regionalism look to consciously establish such linkages with other high-income countries. For such liberalizing economies, “open” RTAs with higher income liberal trade partners may strengthen the hand of exporters and other pro-trade forces, and thus the political support for further liberalization. At the very least, such RTAs should be geared towards trade facilitating measures such as streamlining and standardizing customs procedures and providing timely and relevant information on cross-border trade and investment opportunities.
Table 1
Main Characteristics of Producer-driven versus Buyer-driven Production Sharing

<table>
<thead>
<tr>
<th></th>
<th>Producer-driven Production Sharing</th>
<th>Buyer-driven Production Sharing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drivers</td>
<td>Industrial capital</td>
<td>Commercial capital</td>
</tr>
<tr>
<td>Core competencies</td>
<td>R&amp;D, production</td>
<td>Design, marketing</td>
</tr>
<tr>
<td>Barriers to entry</td>
<td>Economies of scale</td>
<td>Economies of Scope</td>
</tr>
<tr>
<td>Economic sectors</td>
<td>Consumer durables, intermediate goods, capital</td>
<td>Consumer non-durables</td>
</tr>
<tr>
<td></td>
<td>goods</td>
<td></td>
</tr>
<tr>
<td>Typical industries</td>
<td>Automobiles, computers, aircraft, semiconductors</td>
<td>Apparel, footwear, toys</td>
</tr>
<tr>
<td>Ownership of Manufacturing</td>
<td>TNCs</td>
<td>Local firms, predominantly in developing</td>
</tr>
<tr>
<td>firms</td>
<td></td>
<td>economies</td>
</tr>
<tr>
<td>Main network lines</td>
<td>Investments-based</td>
<td>Trade-based</td>
</tr>
<tr>
<td>Predominant structure</td>
<td>Vertical</td>
<td>Horizontal</td>
</tr>
</tbody>
</table>


Table 2
Growth of Exports of Parts, Components and Accessories (PCAs) Involving Developing Economies, 1981-2000
(average annual percentage change in US dollars)

<table>
<thead>
<tr>
<th>Type of export</th>
<th>1981-90</th>
<th>1990-2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufactured exports</td>
<td>10.6</td>
<td>7.2</td>
</tr>
<tr>
<td>PCA exports</td>
<td>12.1</td>
<td>9.6</td>
</tr>
<tr>
<td>Memo:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share of PCA in total</td>
<td>13.2</td>
<td>18.5</td>
</tr>
<tr>
<td>exports</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1
Developing Countries’ Share of Global Parts, Components and Accessories (PCAs),
1981 and 2000
(as a percent of total trade)

Percent share of PCA trade, 1981

- High income countries (96%)
- Developing East Asia (3%)
- Other developing countries (1%)

Percent share of PCA trade, 2000

- High income countries (79%)
- Developing East Asia (7%)
- Other developing countries (14%)

Endnotes


4 In line with the increasing significance of production sharing, there is a growing body of analytical literature on the subject. See the collection of papers in S. Arndt and H. Kierzkowski (eds.) (2003). Fragmentation: New Production Patterns in the World Economy, New York: Oxford University Press


6 ibid.


9 UNCTAD (2002), op. cit.

10 Quoted in UNCTAD (2002), op. cit.