The Changing Economic Relations between China and Korea: Patterns, Trends and Policy Implications

Françoise NICOLAS

(French Institute of International Relations, Paris, and Paris-Est University, Marne-la-Vallée)

Abstract

The economic rise of China and its integration into the globalization process is undoubtedly one of the most important developments of the past decades. The objective of the paper is to examine the changing nature and structure of the Korea-China trade and investment linkages, and to highlight the implications for the definition of Korea’s economic policies vis-à-vis China, as well as vis-à-vis the rest of East Asia. The prospects for government-led regional economic integration are examined from this perspective.

The paper starts by providing a comprehensive description of China’s new role in the regional supply chain and the resulting change in the trade and FDI flows between China and Korea. It highlights the persistently high degree of complementarity prevailing between the two economies and the nature of their respective participation in regional production networks.

The next section examines the impact of the China–Korea trade and investment linkages described earlier on Korea’s regional economic policy. It suggests that while one of the main criticisms against floating rates is that exchange-rate volatility inhibits trade, this criticism is less relevant for trade among countries like Korea and China which share extensive production networks and are integrated in a triangular trade pattern with the Western markets. Regarding trade, the development of tight regional production networks suggests that the case for traditional free trade areas is rather weak, while deep and far-reaching agreements may be desirable. In the wake of the current crisis, the shift in bilateral economic relations away from complementarity and towards rising rivalry may, however, substantially affect the game being played by the two countries.

JEL Classification: F11, F13, F14, F15, F31

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Contact : Françoise NICOLAS : French Institute of International Relations, 27 rue de la Procession, 75740 Paris Cedex 15, France
Phone : +33 (0)1 40 61 60 13 // e-mail: nicolas@ifri.org
1. Introduction

The economic rise of China and its integration into the globalization process is undoubtedly one of the most important developments of the past decades. The resulting change in the global balance of economic activities has far-reaching implications for the world as a whole and for neighboring emerging economies in particular, with Korea as a case in point. Since the two countries established diplomatic relations in 1992, trade and investment linkages have substantially developed and the two economies have become increasingly interdependent. However, the tight economic linkages are primarily private sector-led rather than the result of government-driven initiatives.

The objective of the paper is to examine the nature and structure of the Korea- China trade and investment linkages, and to highlight the implications for the definition of Korea’s economic policies vis-à-vis China, as well as vis-à-vis the rest of East Asia. The prospects for further government-led regional economic integration will be examined from this perspective. In addition, the paper looks at how the changes induced by the current global financial crisis may impact Korea – China relations and the stakes of further cooperation.

The paper starts by providing a comprehensive description of China’s new role in the regional supply chain and the resulting change in the trade and FDI flows between China and Korea. The next section examines the impact of the China – Korea trade and investment linkages described earlier on Korea’s economic policies with an emphasis being placed in particular on trade and exchange rate policies.

2. Korea – China economic relations: from complementarity to rivalry

Rising interdependence

-Dynamic bilateral trade

Following the implementation of its open-door policy in the late 1970s, China is getting increasingly integrated in the world trade networks and it is now the world’s fourth largest trading nation. The country’s exports and imports have surged since the early 1990s, with the US, Japan and the EU (in that order) as major destinations, and with Japan, the EU and emerging East Asia as major suppliers of imports.
China ranks particularly high among emerging Asia’s trading partners, but while it imports a lot from the rest of the region, from industrial and emerging economies alike, it does not export much to neighboring emerging Asian economies. Over the period 1990-2006, the share of East Asia as a destination for Chinese exports has decreased from 67 to 38.9 percent and the Newly Industrializing Economies (NIEs) are the major losers. At the same time East Asia’s share as a source of imports has risen from 55.4 to 58.1 percent of total Chinese imports. As a result, China runs a trade deficit with the region as a whole and in particular vis-à-vis Korea.

With the exception of Hong Kong, Korea has undoubtedly benefited more from the opening up of the Chinese economy than any other East Asian economy. China’s trade with Korea has soared since the two countries resumed diplomatic relations in the early 1990s but the real takeoff in bilateral trade took place in early 2000s as can be seen on Figure 1.

[<Figure 1 “Korea’s Trade with China”> about here]

The bilateral trade between China and Korea amounted to close to 190 billion US$ in 2008 (compared to 17 billion in 1995). Korean exports to China rose to close to 107 billion US$ in 2008, while Korean imports from China reached 83 US$ billions. Korea is nowadays the second source of imports for China, behind Japan but ahead of the US. From the Korean perspective, China now ranks first among the country’s export markets, ahead of the US. Korea is the East Asian country with the largest pro-China export bias (Haddad 2007). This tight connection with fast-rising China has undoubtedly helped Korea’s recovery after the 1997-98 financial crisis and has certainly contributed to the country’s persistently strong growth record over the past few years.¹ The flip-side of this increasingly tight economic relationship is first that Korea is now more dependent on the fate of the Chinese economy and second that the risk of friction is higher than in the past. In particular, China’s chronic trade deficit with Korea has fuelled complaints in the former country, leading to the imposition of anti-dumping measures and causing festering in the relations between the two countries.²

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¹ According to some estimates, exports to China accounted for about 40 percent of Korea’s export growth over the past few years.
- Korean FDI in China

Another important form of interaction between the two economies is foreign direct investment. FDI into China tends to be dominated by Asian investors\(^3\), and Korea plays an increasing role in this respect. No fewer than 20 000 Korean companies are reported to be operating in China in 2008. If Hong Kong is excluded, Korea now ranks as the second individual investor in China, on the heels of Japan, but far ahead of the US, as shown in Table 2.

\[<\text{Table 1}>\]

**Korean exports by destination, 1992 – 2008**

(\% share)

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>USA</td>
<td>23.6</td>
<td>USA</td>
<td>21.8</td>
</tr>
<tr>
<td>Japan</td>
<td>15.1</td>
<td>Japan</td>
<td>11.9</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>7.7</td>
<td>China</td>
<td>10.7</td>
</tr>
<tr>
<td>Singapore</td>
<td>4.2</td>
<td>Hong Kong</td>
<td>6.2</td>
</tr>
<tr>
<td>Germany</td>
<td>3.8</td>
<td>Taiwan</td>
<td>4.7</td>
</tr>
<tr>
<td>China</td>
<td>3.5</td>
<td>Singapore</td>
<td>3.3</td>
</tr>
<tr>
<td>Top6</td>
<td>57.9</td>
<td>58.6</td>
<td>50.6</td>
</tr>
</tbody>
</table>

Source: KITA

- Korean FDI in China

Another important form of interaction between the two economies is foreign direct investment. FDI into China tends to be dominated by Asian investors\(^3\), and Korea plays an increasing role in this respect. No fewer than 20 000 Korean companies are reported to be operating in China in 2008. If Hong Kong is excluded, Korea now ranks as the second individual investor in China, on the heels of Japan, but far ahead of the US, as shown in Table 2.

\[<\text{Table 2}>\]

**FDI into China by source country, 1983-2007**

(in percent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>58.7</td>
<td>45.1</td>
<td>32.8</td>
</tr>
<tr>
<td>Taiwan</td>
<td>0.0</td>
<td>7.6</td>
<td>3.5</td>
</tr>
<tr>
<td>Singapore</td>
<td>1.2</td>
<td>5.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Japan</td>
<td>13.4</td>
<td>7.8</td>
<td>7.8</td>
</tr>
</tbody>
</table>

\(^2\) Out of the 151 AD actions initiated by China since January 1995, 27 targeted Korea (compared to 28 for Japan and 22 for the US). Similarly, out of the 108 anti-dumping actions initiated by Korea, 23 targeted China (14 Japan, and 13 the US).

\(^3\) The importance of (mainly Asian) FDI inflows to China may be inflated to some extent by “round tripping”, that is Chinese companies moving funds out of China to Hong Kong or other tax heavens and returning to China as FDI to take advantage of preferential tax treatment (Chia Siow Yue 2004). On the other hand, however, FDI originating in the Virgin Islands can be expected to be to a large extent of Taiwanese origin.
Korea

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Acceptance</th>
<th>Number of New Overseas Enterprises</th>
<th>Accepted Amount</th>
<th>Number of Remittance</th>
<th>Invested Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>0.0</td>
<td>3.6</td>
<td>73.1</td>
<td>69.1</td>
<td>58.2</td>
</tr>
<tr>
<td>United States</td>
<td>11.1</td>
<td>8.8</td>
<td>4.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virgin Islands</td>
<td>0.0</td>
<td>5.7</td>
<td>16.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sub-total

Source: China Statistical Yearbook, various issues.
Note: Data for realized FDI.

Similarly, from Korea’s perspective, China looms large as an investment destination. It now ranks first, ahead of more traditional destinations such as the US in particular. Korean firms are attracted both by China’s low labor costs and by favorable treatment granted in designated export-processing zones. Korean investments in China are still primarily efficiency-seeking rather than market-seeking.

Table 3

Korea’s outward direct investment, top-10 destinations

(cumulated flows as of end-2008, in US$ thousand)

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Acceptance</th>
<th>Number of New Overseas Enterprises</th>
<th>Accepted Amount</th>
<th>Number of Remittance</th>
<th>Invested Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>88 007</td>
<td>43 238</td>
<td>176 159 148</td>
<td>145 615</td>
<td>116 323 933</td>
</tr>
<tr>
<td>China</td>
<td>37 816</td>
<td>19 355</td>
<td>38 266 755</td>
<td>69 981</td>
<td>26 464 826</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>16 716</td>
<td>9 135</td>
<td>31 697 962</td>
<td>22 578</td>
<td>25 521 500</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>2 880</td>
<td>1 162</td>
<td>10 375 557</td>
<td>3 475</td>
<td>7 486 482</td>
</tr>
<tr>
<td>Vietnam</td>
<td>3 875</td>
<td>1 728</td>
<td>9 742 139</td>
<td>9 797</td>
<td>4 867 616</td>
</tr>
<tr>
<td>Netherlands</td>
<td>270</td>
<td>109</td>
<td>4 459 379</td>
<td>321</td>
<td>3 686 159</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2 834</td>
<td>1 132</td>
<td>6 204 613</td>
<td>4 370</td>
<td>3 340 792</td>
</tr>
<tr>
<td>Bermuda</td>
<td>72</td>
<td>20</td>
<td>3 483 440</td>
<td>309</td>
<td>3 102 045</td>
</tr>
<tr>
<td>Singapore</td>
<td>924</td>
<td>358</td>
<td>3 489 225</td>
<td>1 063</td>
<td>2 536 617</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>518</td>
<td>220</td>
<td>3 365 590</td>
<td>594</td>
<td>2 483 767</td>
</tr>
</tbody>
</table>

4 China overtook the US as Korea’s preferred destination for outward investment in 2003.
5 In this respect they differ from FDI from the US and the EU which tend to target the large Chinese market.
Korea FDI into China came in different waves, the first predates the establishment of diplomatic relations and was thus quite limited. A first expansion period stretches from 1992 to the outbreak of the financial crisis in 1997.\(^6\) In the wake of this period of turbulence, Korean FDI slowed down but it picked up again quickly to gain further momentum in response to China’s accession to the WTO in 2001.\(^7\)

In the case of China, the trade-FDI nexus is particularly tight for two major reasons. First, foreign-invested enterprises (FIEs) tend to be more export-oriented than Chinese firms. It is usually reported that FIEs account for about 60 per cent of China’s exports. As a result, FDI inflows tend to be positively correlated with Chinese exports. Secondly, FIEs also tend to be much more dependent on imported inputs so that FDI inflows are also positively correlated with China’s imports from neighboring economies. As shown in a number of analyses, the share of domestic value-added is much lower in the production of wholly foreign-owned firms operating in China (and to a lesser extent in that of joint venture firms) than in the production of domestic firms, be they state-owned firms collectively-owned firms or private firms. According to the latest estimates by Koopman, Wang and Wei (2008), the share of domestic value-added is 27.8 per cent in the former case, and between 70 and 82 per cent for the latter.

The complementarity between trade and investment is confirmed in the Sino Korean relation. As explained by Park (2007), “Regardless of the type of investment, Korean investments in China have created intra-firm trade. Labor-intensive companies that expanded into China to export finished goods to the United States, to third party nations, or back to Korea, tend to rely on their parent companies or other Korean firms for intermediate goods. Since the target of third country trade is the same as the export market for Korean goods, this type of trade replaces traditional exports, and may even lead to increases in imports as these finished goods are imported back into Korea. However, the export of parts and components to China is

\[^6\] Over this period Korean investment in China made up over 50% of Korea’s total foreign investments in terms of cases.
\[^7\] The resurgence, which was probably in anticipation of China’s accession to the WTO, dates back to the year 2000 with a rise of more than 75 percent compared to the previous year.
resulting in export expansion. Generally exports of parts and intermediate goods by parent companies are expected to be greater than increases in imports of finished goods from China.”

These characteristics have obvious implications for the composition and nature of trade flows as will be seen below.

- Composition of trade: the rise of intra-industry trade in electronics products

The composition of bilateral trade has substantially changed over the past fifteen years. While Korea used to export textile products to China in the 1990s, it now primarily exports electronic products, refined petroleum products and a few chemical products. Similarly, Korean imports from China have shifted away from clothing and primary products in the 1990s to electronic products such as computers, semi-conductors or telecommunication appliances.

It is now a well-documented fact that the rise in East Asia intra-regional trade since the early 1990s has been largely driven by rapidly growing trade in parts, components and intermediate products that is a reflection of greater vertical specialization and the dispersion of production processes across borders. The bulk of China’s imports from neighboring East Asia is indeed made of parts, components, and raw materials and this holds particularly true for Korea. During the 1997-2002 period, parts and intermediate goods accounted for 69 to 76 percent of Korea’s exports of manufactured goods to China (Lee 2003).

Today, Korea’s exports to China tend to be dominated by parts and components and by capital goods: the former accounted for 36 per cent of the total in 2006 (up from less than 5 per cent in 1992) and the latter for 16.7 per cent (up from 7.3 per cent). In parallel, the share of semi-finished dropped from 84 per cent in 1992 to 43.3 per cent in 2006. When considered in greater details, Korean exports are increasingly concentrated in electronics products. Among those, of particular note are intermediate goods, comprising active components (SITC 776), as well as parts for electronic data processing and office equipment (759), and parts for telecom related devices (764). These three categories of intermediate goods accounted for 15 per cent of Korea’s total exports in 2000 and 19 per cent in 2008. In addition, electrical machinery and apparatus (778) and television receivers (761) also loom large among major export products.
<Table 4>

Top 10 Korean Export products to China
(3-digit SITC)

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<tbody>
<tr>
<td>676</td>
<td></td>
<td>776</td>
<td>871</td>
</tr>
<tr>
<td>673</td>
<td></td>
<td>334</td>
<td>764</td>
</tr>
<tr>
<td>571</td>
<td></td>
<td>511</td>
<td>334</td>
</tr>
<tr>
<td>611</td>
<td></td>
<td>611</td>
<td>776</td>
</tr>
<tr>
<td>653</td>
<td>764</td>
<td></td>
<td>511</td>
</tr>
<tr>
<td>674</td>
<td></td>
<td>513</td>
<td>778</td>
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<tr>
<td>266</td>
<td></td>
<td>657</td>
<td>513</td>
</tr>
<tr>
<td>511</td>
<td></td>
<td>571</td>
<td>759</td>
</tr>
<tr>
<td>641</td>
<td>759</td>
<td></td>
<td>761</td>
</tr>
<tr>
<td>334</td>
<td>759</td>
<td></td>
<td>772</td>
</tr>
</tbody>
</table>

Source: KITA

Note: SITC codes 871 (Optical instruments and apparatus, n.e.s.), 764 (parts for telecom related devices), 334 (Petroleum oils and oils obtained from bituminous minerals, other than crude), 776 (transistors, integrated circuits, etc.), 511 (Hydrocarbons, n.e.s. and their halogenated sulphonated, nitrated or nitrosated derivative), 778 (Electrical machinery and apparatus, n.e.s.), 513 (Carboxylic acids and derivatives thereof), 759 (parts suitable for electronic data processing and office equipment), 761 (television receivers), 772 (switches, relays, fuses, etc.).

China’s electronic imports from Korea have shifted from consumer electronics to electronic components, telecommunication equipment and more recently computer equipment. Although China is no longer a net importer of electronics products, it is still a net importer of electronics components. China primarily sources its components from its neighboring countries, in particular Korea with regards to telecom equipment parts (Gangnes and van Asche 2008).

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In contrast, ASEAN countries tend to export active components and Japan passive components.
Korean main import products from China have also changed substantially. The share of primary goods (primarily agricultural products: maize (044), fish (034)) decreased sharply from 37.1 per cent in 1992 to 6.3 per cent in 2006. The share of final goods increased from 12.6 per cent to 36.2 per cent, but parts and components and capital goods are the import goods with the most rapid growth. (KIEP 2006, p. 77). While they were dominated by light industry goods in the 1990s, Korean imports from China are now heavily concentrated in IT industry and electronic goods, but of a different kind than those exported by Korea. (KIEP 2006, p. 74).

\textbf{Table 5}

\begin{center}
\begin{tabular}{|l|l|l|}
\hline
\textbf{Top Ten Korean Import Products from China}  \\
\textbf{(SITC 3-digit)} & & \\
\hline
1992 & 2000 & 2008 \\
\hline
044 & 776 & 673 \\
653 & 321 & 776 \\
654 & 044 & 778 \\
333 & 764 & 764 \\
661 & 759 & 676 \\
321 & 752 & 321 \\
651 & 671 & 752 \\
652 & 841 & 772 \\
081 & 778 & 684 \\
334 & 034 & 759 \\
\hline
\end{tabular}
\end{center}

Source: KITA

The presence of electronic products and parts (776, 764, 778, 772, 759) as export as well as import products points to a rise in intra-industry trade between the two economies. According to Park (2007), “in 2006, inter-industry trade (one-way) between Korea and China accounted for only 35.9% of the total, with intra-industry trade taking up the remaining 64%.” When diplomatic relations were established between the two nations in 1992, inter-industry trade accounted for 87.1% of total trade, but fell to 35.9% in 2006. Intra-industry trade rose from 12.9% to 64.0% in 2006, reflecting a significant structural change in the trade between the two nations. Another important feature is that within intra-industry trade, vertical intra-industry trade increased more rapidly than horizontal intra-industry trade. The percentage of
VIIT in 1992 only amounted to 9.3%, but rose to 21.5% in 1995 and over 40% in 2004. In contrast, HIIT rose from 3.6% in 1992 to 13.9% in 2001, but fell after 2003 to 9.6% in 2006. The predominance of VIIT over HIIT is characteristic of production-sharing prevailing in East Asia.

- Korea, China and the triangular trade

The pattern of China’s trade, with most exports directed to industrial economies (in the form of final goods) and imports (of parts and components) originating to a large extent from emerging Asia, reflects the existence of a pattern of triangular trade. This has been described as the “Asian integrated circuit” in which China plays a key role as an assembling and export platform. According to Rumbaugh and Blancher (2004) about half of China’s imports are for processing and re-exporting.  

China imports large quantities of parts, components and intermediate goods from other Asian countries for assembling and processing and exports finished products to industrial countries. China’s exports are thus heavily import-intensive, with a substantial share of these imports originating from neighboring Asian economies, in particular from Korea. As a result, China runs a trade deficit with East Asia (with Korea as a case in point) and a trade surplus with the industrial world, while overall its trade is basically balanced.

The existence of such an indirect trading relation is confirmed by Figure 4 which shows the very tight correlation between the change in Korea’s exports to China and that of China’s exports to the US.

[[Figure 4 about here]]

The close correlation between the fluctuations in Chinese exports to the US and in Korean exports to China further supports the hypothesis that China is being used as an export-processing zone by a number of Korean producers. At the aggregate level, Chinese exports and Korean exports appear to be quite closely correlated, suggesting that they may be subject

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9 In this respect, the pattern of China’s imports from Asia differs substantially from the country’s imports from the rest of the world.

10 Generally speaking, processing trade involves imports of raw materials and components which the Chinese party commits to process into finished goods and export in the quantities and within the time limits specified in the application approved by the government. As long as these export commitments are adhered to, the processing company enjoys special customs duty and VAT exemptions.

11 According to Ng and Yeats (2003), ASEAN has played only a minor role in the expansion of intra-regional trade in East Asia.
to common shocks but also that their productive structures are complementary.\textsuperscript{12} The complementarity assumption is further supported by the observed rise in the complementarity index among Northeast Asian economies, in particular between Korea’s exports and China’s imports (Sang-yirl Nam 2004).

\textit{China as a competitor in third markets: less competitive pressure than meets the eye}

On the basis of previous observations, overall, neighboring economies can be said to have largely benefited from sustained China’s growth and from its integration in regional production networks, with Korea as a case in point. Yet, the flip side of the coin is that the boom in China’s exports to third markets may constitute a threat for neighboring East Asian economies, which tend to compete in the same categories of production. The fear is that Chinese exports may crowd out ASEAN and NIE’s exports to the US and the EU in particular.

A number of factors suggest, however, first that the competition from China has been vastly exaggerated and second that this competition, when it exists, should not necessarily be deemed negative.

There are a number of reasons for qualifying the Chinese success story and the extent of the competition it imposes on its neighbors. As explained earlier, China is still primarily an assembly platform using imported components from neighboring economies. As a result, China’s stellar export performances very much depend on the dynamism of its component suppliers.

Prima facie China’s export profile appears to be becoming more similar to Korea’s. The relatively high similarity indices observed for China and Korea tend to suggest that the two countries are indeed increasingly in competition. Since the US is one of the primary export destinations for all Asian economies, focusing on this market seems particularly relevant.

\textsuperscript{12} As a result of this complementarity, the rise in exports to China may more than offset the market share losses in third markets. See Ahearne et al. (2003) or Eichengreen et al. (2004) for further evidence on this point. While the former fail to find a statistically significant impact of Chinese exports on East Asian exports, thus concluding that there is no evidence that increases in China’s exports reduce the exports of other emerging economies, the latter show, through the use of a gravity model, that the rise in China’s exports – and imports – positively affects the exports of its high-income neighbors but negatively affects the exports of less developed countries in the region.
Export similarity indices\textsuperscript{13} suggest that while countries such as Indonesia and Thailand tend to compete head to head with China in the US market, such is neither the case for more advanced ASEAN economies (such as Malaysia and Singapore) nor (but to a lesser extent) for Korea. In the former cases, the ESI exceeds 55, while the index hovers between 30 and 40 in the latter cases. In the case of Korea, the similarity index has been following a downward trend over the period 1990-98 (when it reached a low of 44) before picking up again over the past few years.\textsuperscript{14} As a result, the picture is far from being clear-cut in the case of Korea. However, given the rising importance of intra-industry trade highlighted earlier, traditional similarity indices probably mask the reality.

First, as rightly stressed by Lall and Albaladejo (2003), similarity in specialization and export patterns only shows the potential for competition but it does not prove that competition actually exists. In the case of China and other Asian economies higher similarity does not necessarily imply that the latter are losing market share to China. In particular it is also possible that countries specialize in differentiated versions of comparable products or that they complement each other by contributing at different stages of an integrated production system.

Moreover, while China clearly displaced Korea (and Taiwan) as the major supplier of footwear to the US market, the competition is not as obvious in other sectors such as electronics. China’s export performance in electronics may prima facie suggest that it is competing head to head with Korea for instance, but a look at more finely disaggregated data shows that China and Korea have comparative advantages in different sub-sectors. The evolution in the US market shares shows that China has been displacing Korea in consumer electronics and to a lesser extent in computer equipment\textsuperscript{15}, while Korea is still largely

\textsuperscript{13} We refer here to the Finger-Kreinin index of similarity according to which the similarity of the export structures of two countries $a$ and $b$ is defined by:

$$\text{SIMFK}(a, b) = \sum_{i=1}^{n} (\text{Minimum } [s_{ia}, s_{ib}])$$

Where $s_{ia}$ is the share of product $i$ in the exports of country $a$ and $s_{ib}$ is the share of product $i$ in the exports of country $b$. The index selects the lower of the two values and sums all the values obtained for each of the products. An index of 100 indicates perfect similarity between the two economies, and an index of 0 represents no overlap at all in the branch structure of the two countries. It is calculated on the basis of the CHELEM data base (71 product categories).

\textsuperscript{14} As could be expected, the similarity index between China and Korea based on the two countries’ total exports is slightly higher, hovering between 51 and 55 %.

\textsuperscript{15} Actually, China’s US market share gains in labor-intensive products should not come as a surprise and should not necessarily be deemed to be negative. It is a simple reflection of the shift in comparative advantages as described in the flying geese pattern of economic development.
dominant in electronic components, together with Malaysia. Interestingly enough, both China and Korea have increased their market shares in the telecommunication equipment sector.

Also, as emphasized by Weiss and Shanwen (2003), China’s gains of market share in the US market must be assessed in association with the previous observations about the rise in intra-regional intra-industry trade. These gains are to some extent misleading because they are due to exports of some assembled parts and components originally produced in neighboring East Asian economies. This is particularly true in the electronics sector where China’s production and exports of information technology hardware (primarily computer equipment) are based on imports of high value-added parts and components originating from emerging Asia (Korea, but also Taiwan, Singapore, Malaysia or even the Philippines).\footnote{Electronic components account for more than 40 percent of Malaysia’s and the Philippine’s total exports to China, while it accounts for 32 percent of Singapore’s exports to China.}

In order to determine, whether China is really encroaching on Korea’s export markets, it is necessary to remove the effects of rising intra-industry trade from the trade balance performances. To that end, another similarity index needs to be calculated on the basis of net exports rather than on the basis of gross exports. This approach allows comparison of economies’ trade composition based on sectors in which they are exporting ‘value added’. Such calculations by the Department of Foreign Affairs and Trade of the Australian Government lead to results which differ widely from those obtained making use of the gross exports. The net exports of China and Korea do not appear to converge as much. In fact China’s net export profile is found to diverge from that of Korea (as well as of Taiwan) since the early 1990s, probably reflecting the latter’s shift out of labor-intensive industries such as clothing and footwear in which China is still heavily specialized. In this respect, the situation of Korea is clearly distinct from that of other countries in the region. Further evidence confirms this state of affairs: the gains in China’s market shares in electronics production can be shown to occur primarily at the expense of Japan and most NIEs, with the exception of South Korea (Gangnes and van Asche 2008). As a result Korea’s net exports of mobile phones, digital and video cameras, computers and computer parts continue to expand strongly in the face of China’s expansion in similar industries.

The rise in Chinese electronic exports to the US and to a lesser extent to the EU should not be interpreted as crowding out East Asian exports but simply as a redirection of such exports. As far as Korea is concerned, the drop in its exports of consumer electronic products to the US
can be shown to be offset by a rise in its exports of electronic components to China. As explained by Gangnes and van Assche (2008), Korea is found to be a particularly active upgrader in the electronics industry with a rapidly rising technology index in contrast to that of Taiwan, Japan, and Hong Kong. Korea still exhibits a much higher sophistication level than that of China.

Lastly, China’s gains in market share require a further qualification: the bulk of Chinese exports are due to firms relocating from neighboring economies losing market share. In other words, in addition to being import-intensive, China’s exports are mainly driven by Foreign Invested Enterprises (FIEs), most of which originates from Asia. Indeed, Asian firms rank high among the export-oriented foreign firms, while Western MNCs tend to seek to target the domestic market. This means that while a number of East Asian economies lose direct export competitiveness, their firms preserve and extend their competitive advantage and actually benefit the home country by promoting exports of intermediate products and related design and marketing activities and remitting dividends. This is certainly the case for Korean firms, whose drop in US market shares results to a large extent from the fragmentation of production and from their relocation in China. As a result, these firms now export from their Chinese production bases rather than from their home country’s production bases.

3. Policy Implications and prospects for change

Given the specific nature of the de facto integration observed between China and Korea, an interesting issue is to examine the policy implications as well as the impact on the prospects for de jure cooperation between the two economies.

Implications for Korea’s economic policies

It follows from the previous remarks that the rise of China can be deemed for the time being to be more a boon than a bane for most emerging Asian economies, with Korea as a case in point. As the fastest and the most steadily growing economy in the region (and even in the world), China has been an important export market and a major contributor to sustained growth in Korea. However, this has been possible because Korea managed to take the appropriate steps to reap the full benefits of its integration with China.

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17 This remark concurs with C-H Kwan’s observation that we need to distinguish between « made in China » and « made by Chinese » or « what China produces » and « what Chinese produce » (Kwan 2004). For a sobering assessment of the China’s miracle, see Gilboy (2004).
18 By way of illustration, Samsung now produces about 30 percent of its PCs in China.
Korea’s development strategy

Despite the economic rise of China, neighboring East Asian economies necessarily maintain comparative advantages in some areas but the problem is that the resulting specialization may not square with their objectives and lead to what may be perceived as a “downgrading” of their industrial base. In Korea, a widely shared concern is that there may be no supporting activities to fill the gap opened by activities leaving the country. The real challenge is thus to encourage the necessary adjustments that will help avoid such a development. The other aspect of the challenge is the speed at which adjustment is imposed. One cannot deny that the rise of China imposes a much quicker transition than would have been the case otherwise. The real challenge for a country like Korea is to manage to find niche markets and to be flexible enough to face swift changes in comparative advantages imposed by the rapid intensification of competition from China. A particularly strong pressure can be expected in labor-intensive sectors such as textiles and clothing, footwear, toys and plastic products. As explained earlier, Korea has succeeded so far in shifting from low-technology activities to higher technology and more sophisticated activities, in particular in the electronics sector.

Enhancing competitiveness is key, as a way of reaching more sophisticated and higher value added sectors of activities, and of maximizing the opportunities offered by the regional fragmentation of production processes. Production sharing arrangements may already be in place, but they can certainly be further deepened and/or restructured. Rather than simply moving labor-intensive activities to China (and thereby triggering job losses in Korea), Korean firms should aim at making the best of China’s strengths (primarily in labor-intensive activities\textsuperscript{19}) while developing their own strengths based on an improvement of their technological capabilities. As a result, they can hope to become lead firms in their own right. There is however no point for them to try competing with Chinese firms in labor-intensive activities.

The case for a China – Korea FTA?

For the time being, the need for a FTA arrangement between China and Korea does not appear to be extremely pressing. A major reason is that most of bilateral trade is already conducted duty free as a result of processing arrangements and/or as a result of the

\textsuperscript{19} It must be stressed that China’s competitiveness in labor-intensive activities can be expected to last due to the large excess labor in rural areas, which hold down wage increases in the industrial sector (Kwan 2004). Yet, according to some authors, the trend may be reversed sooner rather than later as a result of recent policies aimed at reducing large regional income disparities in China.
Information Technology Products Agreement (ITA). As explained earlier, a substantial share of Korean exports to China and of Chinese exports to Korea is made up of electronic products which fall under the ITA which provides for participants to completely eliminate duties on IT products covered by the Agreement. By contrast, consumer products on which China imposes relatively high levels of tariff rates account for a negligible share. Also, very little Korean FDI in China results from tariff-jumping considerations for instance. For these various reasons, the elimination of tariffs between the two countries is unlikely to have a substantial impact on their bilateral trade, making the case for a China – Korea FTA relatively weak under the currently prevailing division of labor between the two countries.

Implications for exchange rate policy choice

The distinct nature of the relationship between China and Korea has also a direct impact on the choice of an exchange rate policy. Traditionally, when trade intensification leads to inter-industry specialization it is thought to exacerbate cyclical asymmetries thus enhancing the case for flexible exchange rates as a means of adjustment. In contrast, when the rise in trade gives rise to intra-industry specialization it fosters business cycle synchronization and thus makes the case for flexible exchange rates less compelling (and the case for fixed exchange rates more compelling). The former situation usually prevails with economies of different levels of development, while the latter is more common among economies of similar levels of development (as in the case of the EU15). East Asia’s experience with trade integration departs from Europe’s experience on two major counts. First, the rise in intraregional trade is associated with a strong outward orientation. Second, economic integration in East Asia is based on intensive vertical intra-industry (even intra-product) trade. This type of integration is in contrast to what can be observed within the EU15, where intra-industry trade primarily involves end-use products with varietal differences. As a result, the European experience with exchange rate coordination is of limited value.

20 The ITA was concluded by 29 participants at the Singapore Ministerial Conference in December 1996. The number of participants has grown to 70, representing about 97 per cent of world trade in information technology products.

21 The ITA is solely a tariff cutting mechanism. While the Declaration provides for the review of non-tariff barriers (NTBs), there are no binding commitments concerning NTBs. There are three basic principles that one must abide by to become an ITA participant: 1) all products listed in the Declaration must be covered, 2) all must be reduced to a zero tariff level, and 3) all other duties and charges (ODCs) must be bound at zero. There are no exceptions to product coverage, however for sensitive items, it is possible to have an extended implementation period. (From the WTO website).

22 Unless, of course, alternative adjustment instruments are available.
The specific position of China within the East Asian integrated circuit and the magnitude of processing in China’s total trade impose different constraints on the conduct of its exchange rate policy, compared to other countries in the region. An important point of note is the change in the sensitivity of trade flows to exchange rate fluctuations as a result of the existence of production-sharing between countries such as China and Korea. As explained by Arndt (2004), “if China exports goods made with imported components, then a revaluation of its currency raises the foreign-currency price of its exports, but it also reduces the home-currency prices of its component imports and thus the home-currency cost of its exports. The latter’s effect on the foreign-currency price of its exports runs counter to the effect of the appreciation, reducing the overall effect and thus the sensitivity of both exports and imports to exchange-rate changes.” Of course, this holds true only if the Chinese currency appreciates both vis-à-vis the currencies of its export market as well as of its component suppliers. Should the renminbi appreciate only vis-à-vis the dollar but move in line with the currencies of the component supplying countries, the standard impact of an appreciation should be expected. This configuration suggests that it is in the interest of China to have the renminbi not moving in line with the currencies of component supplying countries.

While pegging to the dollar may still be appropriate for most East Asian economies which seek to preserve their competitiveness, it is more debatable for China. First, given the importance of processing in China’s trade, a unilateral appreciation of the renminbi vis-à-vis the US dollar (as well as vis-à-vis the currencies of component supplying countries) is unlikely to have a large impact on China’s exports to the US because the loss of competitiveness of Chinese exports will be partially offset by the decline in inputs costs resulting from the renminbi appreciation against East Asian component suppliers. By the same token, if the renminbi depreciates both vis-à-vis the dollar and vis-à-vis the currencies of the component-supplying countries, the gain in competitiveness on the US market will be offset by the rise in input costs but there will be no major loss in competitiveness (Rahman and Thorbecke 2007). The pivotal role now played by China in the region suggests that the need for exchange rate co-operation/stabilization is probably stronger for East Asian economies (excluding China) and that the appropriate anchor remains the dollar, or a basket including the dollar and the euro. In this context some flexibility in the dollar/renminbi exchange rate may turn out to be less problematic than often claimed.
Prospects for change

In the medium-term, competition from China may get increasingly fierce as China climbs the technological ladder and stops importing intermediate products and shifts away from mere assembly activities towards higher value-added activities. At the same time, however, China is likely to become an increasingly important market for consumer products. More than a threat, the rise of China and the competitive pressure it exerts on neighboring economies constitutes a major challenge, imposing necessary (and possibly costly) adjustments.

Chinese authorities are increasingly seeking to reduce the country’s allegedly excessive dependence on exports and to upgrade its industrial structure. Some movement up the value chain is already under way in China and more upgrading can be expected in the coming years. Renewed declarations by the Chinese authorities to change gear and engage in a more resolute strategy of technological development point in this direction. The 2005 11th Five Year Plan called for a shift of the development strategy away from its over-concentration on resource and energy-consuming industry, and towards a more knowledge-intensive and environmentally-friendly growth path (Naughton 2007a). This may be seen as an attempt to put an end to the “growth at all costs” strategy and to give some substance to the Government’s new economic mantra emphasizing the achievement of a harmonious society and a better balanced economy. The objective of a number of China’s recent regulations or policy provisions is to prioritize technological development together with environment friendly activities, while export-oriented foreign investments are, if not discouraged, not as actively encouraged as was the case in the past. By way of illustration of such a shift the new regulations of inward investment tend to promote quality of investment rather than sheer quantity.23 At the same time, however, Chinese authorities are also trying to develop the Chinese market in an attempt to rebalance growth and to make it less dependent on external demand an more on domestic consumption.

By affecting the conditions in which the two countries interact, this policy change will affect the structure of the game being played by the two countries and impact Korea’s economic strategy in the three areas described earlier.

First of all, Korea will need to shift away from an almost exclusive (at least very heavy) reliance on exports of parts and components and towards enhancing exports of consumer

23 See Nicolas (2008a) for more details on the shift in China’s investment regulations.
goods. Korea’s challenge is to take the appropriate steps to enhance firms’ competitiveness and help them make the best of the potentially huge Chinese market. The next step is managing to design an appropriate strategy that maintains a competitive edge. Beyond specific micro strategies, such as brand name promotion, or niche market strategy, Korean firms also need some public support in the form of a more investment-friendly environment, as well as more comprehensive measures addressing the development of human capital, and the promotion of venture capital. To that end, industrial and innovation policies are needed.

Secondly, as China develops and gets richer, it will be seen increasingly as a viable market. It is worth emphasizing at this stage that accessing the Chinese market does not necessarily imply moving all stages of production into China. Korean firms can perfectly cater to the Chinese market through exports rather than through FDI. The choice between these two strategies should be based on cost conditions. Of course, other barriers may bias the choice in favor of local production, leading to a sub-optimal resource allocation. This is one of the reasons why the implementation of a FTA with China, which would go beyond tariff elimination, would be a welcome step. Removing trade barriers with China would obviously contribute to a better exploitation of the market as well as to a better allocation of resources, helping in particular to maintain more sophisticated activities in Korea rather than relocating them systematically in China in order to circumvent trade barriers. In particular it is not at all obvious that Korean carmakers made an optimal decision by setting up large production facilities in China. While this may be appropriate for low range goods, which can definitely be produced at better-cost conditions in China, such may not be the case for higher-end products, which may be produced more efficiently in Korea. Depending on the type of products, exports will have to be preferred over FDI.

Lastly, with China shifting away from being a mere assembly platform for re-exporting and towards becoming both a market in its own right and a full-fledged competitor on third markets, the exchange rate issue will need to be solved differently than in the past. In these two cases, since bilateral trade flows can be expected to become increasingly sensitive to exchange rate fluctuations, the case for exchange rate cooperation/stabilization is also likely to rise. For instance, as the two countries get increasingly in competition in third markets such as the US, cooperation will become increasingly advisable, otherwise the risk is high that one country engaging in competitive devaluation or manipulation of its currency may lead the other to follow suit and there will be coordination by chance rather than by design and with no structured joint response in case of turbulence.
Broadly speaking the emergence of a new division of labor and of different market patterns is likely to enhance the scope for cooperation.

The impact of the current global economic crisis

The current global economic crisis underscores how tightly linked the economic fates of the two countries are. Korea’s exports suffered the worst monthly plunge on record in January, while the IMF warned that the Korean economy would contract 4 percent in 2009, against a growth of 2.5 percent the year before. The biggest reason for the downturn is to be found in sharp demand collapses in the world, particularly in China, which accounts for 22 percent of Korea’s overall exports. In the last quarter of 2008, the sharp fall in China’s GDP from 11.2% a year earlier to 6.8 per cent had a dramatic impact in Korea where GDP contracted 3.4 per cent in the three months from a year earlier, against a gain of 3.8 per cent in the third quarter.

Next to the negative impact on growth performances, the current crisis can be expected to have an ambiguous impact on the direction of China’s development strategy. As a result of the global economic crisis, the risk is high that China may drop the priorities it had set itself over the past few years and turn away from upgrading and rebalancing growth towards standard export promotion. Emergency measures may push China to shift away from this priority and towards “standard” measures such as export promotion based on low cost labor-intensive activities.

Alternatively, the crisis may provide an opportunity for Chinese authorities to push the reform more forcefully and in particular to enhance the development of the domestic market in an attempt to rebalance growth and to reduce the dependence on external demand and thus the economy’s vulnerability to external shocks.

Two possible scenarios can thus be envisaged. Under the first scenario, China is induced to backtrack and hold up a number of reforms. As a result, the complementarity between China and its neighbors, in particular Korea, will persist, there will not be any strong incentive to engage in cooperative schemes and the current status quo will prevail.

An alternative scenario is an acceleration of reform in response to the crisis. In an attempt to rebalance its growth, and to reduce its dependence on external markets China may be seeking to further boost its internal market. These efforts will result in an expansion of the regional
market and Korean firms will need to adjust to the new pattern of demand. For instance, China's domestic demand for home electronics and automobiles is increasing at a rapid pace thanks to a variety of government policies, including the “home electronics and automobiles to the countryside”\textsuperscript{25} policy. With this in mind, Korean companies need to place more focus on developing and marketing mid- and low-priced customized products with superior basic functions and high quality.

Another important change resulting from the crisis is the potential expansion of a regional market. In this respect, pushing for a China – Korea FTA may be instrumental in helping turn the region into a market rather than a sheer production base. Moreover the case for an FTA may also be more compelling because of the perceived need to reduce the dependence on the US market in the wake of the crisis.

4. Concluding remarks

The Korea – China trade and investment structure has been shown to be unusual in many respects. First, Korea’s exports to China are primarily designated for re-exporting abroad after processing in China rather than for meeting China’s domestic demand. As a result, parts, components and intermediate goods account for the bulk of Korea’s exports to China, and Korea-China trade is essentially intra-industry trade. Second, China has emerged as the main destination of Korea’s outward direct investment since the early 2000s. Third, a substantial share of Korean exports to China is purchased by Korean-invested firms operating in China. Fourth, exports by Korean-invested firms in China are primarily targeted to the US market and tend to crowd out direct Korean exports to the US.

The specific nature of the de facto integration between China and Korea directly impacts on the chances for de jure economic cooperation between the two economies. It has been argued that the highly complementary relationship prevailing to date does not provide a strong rationale for formal cooperation neither in the exchange rate nor in the trade area. While the shift away from complementarity and towards fiercer competition may pave the way for closer government-led economic cooperation, the recent developments associated with the

\textsuperscript{24} See Nicolas (2009) on the reason why the impact of the current economic crisis on the direction of China’s economic policy can go both ways.

\textsuperscript{25} As part of the campaign “to send electronics down to the countryside”, a 13 percent rebate is given to rural households on purchases of TVs, cell phones and computers. Also, subsidies for the purchases of cars and home appliances to replace older models have been tested in a number of rural areas before being extended to all rural areas and lastly to major cities.
current economic crisis may delay this likely evolution. It remains to be seen how China will emerge from the current crisis and whether it will stick to its objective of rebalancing growth and pushing for a less outward-oriented economy or whether on the contrary it will lead to some backtracking. In the former case the rationale for economic cooperation will definitely be strengthened while in the latter it will be further held up.

(approximately 8500 words)

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Figure 1

Korea's trade with China, 1991 - 2008

Source: IMF, Direction of Trade Statistics
Figure 2
Figure 3

Korea's parts exports to and ODI into China (1991 - 2008)

Korea's ODI into China (LHS)
Korea's parts exports to China (RHS)

Sources: KITA and Export-Import Bank
Changes in China’s and Korea’s exports

Source: IMF, Direction of Trade Statistics

Korea’s exports to China

China’s exports to the US