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RESEARCH POLICY BRIEF NO.1

# Assessing East-Asian Export Performance

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TRADE & EXPORT COMPETITIVENESS

## **Assessing East-Asian Export Performance**

Based on ADB Institute Research Paper 34, *Did East-Asian Developing Economies Lose Export Competitiveness in the Pre-Crisis 1990s?*  
—Assessing East-Asian Export Performance from 1980 to 1996  
(March 2002) [www.adbi.org/PDF/wp/rp34.pdf](http://www.adbi.org/PDF/wp/rp34.pdf)

## Purpose

For decades until the crisis hit in mid-1997, East Asian economies led the developing world in achieving high rates of economic growth, accomplishing what had come to be known as the East Asian Miracle. This paper focuses on nine East-Asian developing economies (the EA-9), which include, according to common groupings related to different stages of development: the NIE-4 (Hong Kong, China; Korea; Singapore; and Taipei, China); the ASEAN-4 (Indonesia, Malaysia, Philippines, and Thailand); and, the People's Republic of China (PRC). A hallmark of their success has been the capacity to sustain high export growth over long periods of time. Sustaining high export growth involves an on-going process of expanding shares in world markets by increasing the price and quality competitiveness of export products and by specializing in more productive exportable activities that are growing rapidly on world markets.

From around 1985, high export growth became increasingly linked to surging inflows of foreign direct investment (FDI) and deeper regional economic integration (here the trade-FDI nexus). From 1985 to 1995, EA-9 merchandise exports rebounded from a post-OPEC-II slump to grow by 15 percent per year compared to a rate of 10 percent for world exports, while inward-FDI to the EA-9 economies expanded by 29 percent annually compared to 19 percent worldwide. EA-9 economies outperformed global trends most profoundly from 1990 to 1995, maintaining robust export and FDI growth while world growth rates moderated.

Export growth collapsed throughout the region beginning in mid-1995 and extending through 1996. After averaging 21 percent growth per year in 1994 and 1995, EA-9 merchandise export growth dropped to just 3.3 percent in 1996, converging down to world export growth levels for the first time in decades. Export growth fell substantially for all economies in the region, except for Indonesia, whose exports declined moderately, and the Philippines, which bucked the regional trend by increasing exports in 1996. For the first time since the mid-1980s, this deep, unexpected and region-wide collapse in export growth increased uncertainty and raised new concerns that the region's capacity to sustain high export growth rates may be faltering through a loss of competitiveness.

Although several studies have attempted to determine the causes of this regional export growth slump, they present conflicting results using

methodologies that are difficult to compare. The objective of this paper is to develop a comprehensive empirical framework that tracks export performance dynamics among EA-9 and five supplementary economies on a comparable basis over time, among economies, and across sectors. The study focuses on the pre-crisis period from 1980 to 1996 in order to evaluate whether changes in these indicators in the mid-1990s provide evidence that export competitiveness of the EA-9 may have deteriorated significantly during the 1995/96 export slump.

## **Export Performance Indicators Chosen**

Two standard, complementary export performance indicators are calculated: constant market share (CMS) trends and revealed comparative advantage (RCA) indices. Both of these indicators reveal, but do not measure directly, underlying domestic export capabilities in terms of gains in export market share (CMS analysis) and the upgrading of export structures (RCA indices). CMS analysis decomposes aggregate export growth into three sources: (1) growth attributed to a general increase in world demand for exports (World Demand Factor); (2) growth attributed to specializing in specific products or market destinations where demand for exports is growing more rapidly than world averages (Product/Market Demand); and (3) a residual representing gains in export value from increasing share in global markets (the Competitive Factor). An economy outperforms world export growth if the sum of the product/market demand and the competitive factor is positive. Gains in the competitive share factor reflect a gain in competitive advantage, arising when exporters from a particular economy increase market share by gaining a price and/or non-price (e.g. product quality, delivery time and after-sales service) advantage relative to its competitors on world markets.

## **Revealed Comparative Advantage Results**

The RCA index is a measure of export structure. It is calculated as the ratio of two ratios—the ratio of exports for each sector in an economy to that economy's total exports, relative to the ratio of world exports for each corresponding sector to total world exports. It reveals the relative pattern of export specialization for an economy relative to worldwide patterns. The

greater a sector's RCA, the more an economy specializes in that sector's exports relative to world specialization patterns, revealing a stronger comparative advantage in that sector. Tracking the structure of RCAs over time reveals an economy's comparative advantage development and importantly its export upgrading process, which contributes to sustained and future growth.

Underpinning the rapid regional export growth the export structures of the EA-9 economies shifted strongly toward higher-technology manufacturing and non-factor services. Although each economy evolved along its own path, the EA-9 economies also became increasingly interlinked through the expansion of intra-regional trade and FDI facilitated by the proliferation of MNC-led regional production networks. In 1980 the export structures of the EA-9 economies varied widely and were dominated by lower-technology manufacturing products for the NIE-4 and resource-intensive goods for the ASEAN-4 and PRC. While manufacturing exports accounted for around three-quarters of all goods and non-factor services exports for the NIE-4 economies, the bulk of these were lower-technology products, consisting predominantly of textiles, apparel and footwear, and plastics and rubber products.

The export structures of the ASEAN-4 and PRC, were immature and strongly reliant on natural-resource-based exports (both non-manufactured goods and resource-based manufactures), reflecting the relative anti-export bias of their development strategies in 1980. Manufacturing export levels relative to GDP for these economies were relatively low, especially for Indonesia, which had by far the strongest reliance on non-manufactured goods exports in the region, and the PRC, whose export level and structure reflected the distortions inherent in decades of autarky and central planning.

All EA-9 economies achieved high levels of export growth from 1985 to 1995 except Hong Kong, China from 1990-1995. By 1995, the export structure of each of the EA-9 economies had transformed substantially. For the ASEAN-4 and PRC, manufacturing exports boomed as non-manufacturing goods exports fell to less than 10 percent of all goods and services exports for each economy except Indonesia, which nevertheless also greatly reduced its reliance on primary commodities. Within the manufacturing sector, non-natural-resource-intensive exports exploded, with each economy except Indonesia increasing exports rapidly from higher-technology industries, particularly consumer electronics, over this period.

Over the period 1980-95 five upgrading processes appear to have been at work among EA-9 economies, operating more or less in tandem and strongly influenced by intra-regional trade and FDI. First, product-cycle-led restructuring of cost-sensitive industries spurred a shift of export capacity from high-cost (the NIE-4 and Japan) to low-cost (the ASEAN-4 and PRC) economies. This happened most profoundly in five industries that span three different technology-intensity groups: low technology—textiles, apparel and footwear, and wood products and furniture; medium-low technology—other manufacturing and rubber and plastics products; and medium-high technology—electrical machinery (predominantly consumer electronics).

Second, although NIE-4 economies shifted segments of their lower-technology, cost-sensitive export capacity offshore, they appeared at the same time to maintain niches of comparative advantage in these lower-technology sectors as represented by declining but still quite strong RCAs in the product-cycle-led industries. Similarly, the ASEAN-4 economies generally maintained, although at steadily declining levels, comparative advantage in natural-resource-intensive sectors. This dynamic suggests that EA-9 economies have been able to upgrade advantage within traditional lower-technology industries over time even as domestic costs escalated. For textiles, apparel and footwear, it may also reflect the substantial incentives to maintain such exports due to export rents associated with MFA (Multifiber Agreement) import quotas in the United States and EU-12.

Third, unlike Japan, EA-9 economies did not develop strong comparative advantages in traditional “heavy,” medium-technology industries, especially medium-high technology industries such as motor vehicles, chemicals and non-electrical machinery. Fourth, some six regional economies at relatively different stages of development—Taipei, China, Korea, Singapore, Malaysia, Thailand and the Philippines—gained strong comparative advantage positions in high-technology (predominantly personal-computer-related) electronics sectors. And, fifth, unlike any of the other EA-9 economies, Hong Kong, China, and to a lesser extent the Philippines, shifted competitive strength toward non-factor services exports.

### **Constant Market Share Analysis**

The CMS analysis shows that NIE-4 economies gained export market share solidly from 1985 to 1990, and then, for the first time over the sample period, lost share mildly from 1990 to 1996. This loss, however, was more

than compensated for by the surge in product/market demand from 1990 to 1996, which served to boost NIE-4 export growth well above world growth rates over that period. Specialization in rapidly growing electrical machinery and high-technology electronics accounted for most of the gain in product demand, while specialization in booming intra-EA-9 exports contributed the bulk of gains related to market demand.

The experiences among these four economies, however, differed profoundly. Hong Kong, China lost market share among all industrial sectors throughout the sample period, particularly in the 1990s as manufacturing capacity shifted offshore, largely to the PRC. Korea and Singapore, in contrast, continued to gain merchandise export share solidly over the 1985 to 1996 period, successfully offsetting losses of share in lower-technology industries with gains in higher-technology sectors. Korea, unlike any of the other EA-9 economies, did this by expanding market share in a number of medium-high-technology industries over the 1990s, especially motor vehicles, chemicals and non-electric machinery. On the other hand, within the HT electronics sector, while gaining modest shares in communication equipment and semiconductors, Korea also stands out among the EA-9 (except Hong Kong, China) by not gaining a share in office and computer equipment. Almost all of Singapore's impressive gains in market share from 1990-96 resulted from roughly equivalent advances in office and computer equipment, and communications equipment and semiconductors. Whereas Korea broadened its base of export competitiveness among a relatively broad range of industries, Singapore's competitiveness was increasingly concentrated in high-technology electronics.

Unlike the NIE-4, the ASEAN-4 and PRC exceeded world export growth rates from 1985 to 1996 primarily by gaining competitive shares in global export markets, with specialization in rapidly growing markets becoming somewhat more important during the 1990s for the ASEAN-4 but less so for PRC. Also unlike the NIE-4, these five economies increased market shares broadly among most manufacturing industries over the entire period, with gains increasing rapidly over the 1990s. From 1990 to 1996, PRC stands out among all EA-9 economies as gaining market share across most manufacturing industries, with particularly strong gains in lower technology industries such as textiles, apparel and footwear.

Malaysia, Thailand and the Philippines—and to a lesser extent PRC—advanced market share strongly in higher-technology industries



from 1990 to 1996, dominated by a boom in competitive share gains associated with electronics, both electrical machinery and particularly personal-computer-related products. While Malaysia and Thailand most strongly gained market share in office and computing equipment, the Philippines advanced most strongly in communications equipment and semiconductors. PRC most strongly gained shares in electrical machinery. Only Indonesia among the ASEAN-4 did not increase its share significantly in electronics markets.

## **Regression Analysis**

To throw further light on the CMS results, regression analysis is used to examine whether changes in export market share are correlated significantly with changes in exchange rates and FDI flows. Annual proportional changes in export market share gains for East Asian economies, derived from the CMS analysis are regressed on a set of exchange rates, FDI flows and control variables, defined as follows: (a) real effective exchange rates and the yen/dollar exchange rate, each lagged one year; (b) inward-FDI as a percentage of GDP and outward-FDI as a percentage of GDP; and (c) a set of control variables.

Two results are evident. First, the regressions for the EA-9 economies show no discernible correlation between changes in exchange rates and export market shares from 1990 to 1996. This suggests, at least within this limited sample of data, that exchange rates for the EA-9 economies were not generally overvalued in the pre-crisis 1990s and were not sensitive to swings in the yen/dollar rate. The second result is that increasing foreign direct investment was correlated with EA-9 gains in export market share over the 1990s. This highly significant correlation holds when export competitiveness is measured for merchandise exports or all goods and services exports.

CMS estimates of export competitiveness for EA-9 economies over the full 1990-1996 period show little indication of declining export competitiveness. However starting in mid 1995 and continuing into 1996 there was a major downturn in regional export demand. About 89 percent of the decline in export growth in 1996 for EA-9 economies can be attributed to weakening export demand either through world demand or product and market demand, with only 11% due to a loss in competitiveness.

## **Thailand Results**

Thailand appears to be the only EA-9 economy (and only crisis-affected economy) to experience a deterioration in export competitiveness in the lead up to the crisis, a deterioration that may be even milder than estimated here given evidence of export data irregularities that appear to moderate the deterioration somewhat. More emphatically than for any other EA-9 economy, growth of Thai exports in volume terms plummeted from around a positive 40 percent in 1995 to around a negative 10 percent in 1996, while prices for Thai exports actually increased mildly. Thai RCAs declined more abruptly in 1996 than for any other EA-9 economy, especially for other transport equipment, rubber and plastic products, and, to a lesser extent, textiles, apparel and footwear.

## **Summary Findings**

Our analysis suggests strongly that the 1996 region-wide collapse in export growth resulted predominantly from a large drop in overall export demand, including both world and product/market demand, not by a serious erosion in regional export competitiveness in terms of a loss in market share. World export demand in nominal terms cycled downwards unusually strongly in 1996, while typically robust product/market demand for the EA-9 began to trend downward in 1995 and became a negative influence on EA-9 export growth. Weakening product/market demand reflected slumps in intra-EA-9 trade and in a number of industries that EA-9 economies tend to specialize in, including textiles, apparel and footwear, and communication equipment and semiconductors.

Gains in export market shares did weaken substantially in 1996 compared to 1995 for the PRC, Korea and Thailand. Thailand, however, appears to be the only EA-9 economy (and crisis economy) to experience a broad-based, although relatively mild, deterioration of export competitiveness in the lead up to the crisis.

This also supports the view that the causes of the crisis could not be blamed on macroeconomic factors associated with a conventional current account crisis, since such factors would have been expected to have led to a loss in international competitiveness.

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