

Has the Emergence of China Hurt Asian Exports?

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Abstract

We investigate whether the exports of manufactured products by the South Asian and South East Asian countries have been negatively affected by the rise of China. Using a panel data approach, we find that increases in world market shares of China are statistically correlated with declines in world market shares for some Asian countries since 1994, but not before 1994.

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1. Introduction

The significant slowdown in export growth of the East Asian countries, especially Thailand, in 1996 is widely considered to have been one of the triggering events of the recent financial crisis in East Asia. The widening of the current account deficit focused attention on the underlying factors affecting its sustainability, including the build-up of short-term unhedged debt, and the quality and riskiness of investment that was financed by external funds (a shift away from export-oriented investment to real estate and infrastructure investment). The subsequent erosion of investor confidence led to falling stock prices, an increasingly fragile financial system, and ultimately, the successful attack on the baht-dollar peg.

The slowdown in export growth reflected in part a cyclical downturn in world trade, which grew only 4% in 1996. In addition, competition from other low-cost countries, in particular China, has been cited as an important underlying cause. China competes with other Asian countries in export markets and also for FDI, which is usually channeled into export-oriented sectors (Naughton 1996, World Bank 1997). In the financial press the devaluation of the yuan of 48% in January 1994 was seen as a decisive factor behind China's export boom and a source of South East Asia's problems.¹ However, several recent studies disagree, arguing that the effective devaluation was only about 10%.² Moreover, by the end of 1996 the yuan had appreciated cumulatively by more than 20% in real terms, because of relatively high inflation in China. Consequently, the 1994 depreciation is unlikely to have had a very significant impact on the competitiveness of the East Asian countries vis-a-vis China.

In this note we readdress the question whether the rise of China as a large exporter has hurt the Asian countries. Section 2 first presents some basic aggregate data, which seem to suggest that China's emergence has been of little consequence. In section 3 we use more disaggregated trade data in a panel analysis. We then find that increases in world market shares of China are statistically correlated with declines in world market shares of a number of Asian countries in more recent years. Section 4 contains our conclusions.

¹ See Liu et al. (1998) for some press quotes. More recently, the financial press is voicing concerns that a possible devaluation of the yuan will set off another round of devaluations across East Asia (see e.g. *Financial Times*, May 23, 1998 editorial).

² The devaluation was part of the unification of China's dual exchange rate regime. By 1993 about 80% of all transactions was carried out against the market rate. See IMF (1997), Liu et al. (1998), and the *Economist* of March 7, 1998.

2. Some exploratory empirical evidence

Table 1 presents the shares in world exports (dollar value) of manufactured products of China, India, Indonesia, Malaysia, Pakistan, the Philippines and Thailand in the period 1990-96.³ Several features stand out. First, China is a large exporter compared to the ASEAN countries and South Asia. In 1995 its exports were slightly less than the exports of the four ASEAN countries combined. Second, China's big gains in market share, which increased from 2% in 1990 to 3.7% in 1996, has not been accompanied by losses for the Asian countries. On the contrary, all of the Asian countries greatly increased their market share too, although in a number of cases not as impressively and steadily as China. Moreover in 1996, when world trade grew slowly, most Asian countries still managed to increase their market share, with Thailand as the exception. Based on these aggregate data, there seems to be little evidence of crowding out of Asian exports by Chinese exports. On average, countries from outside the region have given up market share.

Table 2 shows the real exchange rate based on competitors' weights for our seven countries.⁴ The countries show remarkably diverging developments regarding the real exchange rate. For China we report two real exchange rates, one based on the official exchange rate, and one based on the assumption that 80% of the transactions was carried out at the market (swap) rate. The former depreciates sharply in 1994, but the latter, which is more realistic, appreciates since 1992. In any case, China's real exchange rate has appreciated more than 20% between January 1994 and December 1996. Over the same period, Malaysia, the Philippines and Thailand experienced a sizable real appreciation of their currency, although a smaller one than China's. By contrast, India, Indonesia and Pakistan's currencies depreciated in real terms. The real exchange rate data do not suggest that China boosted its competitiveness compared to the other Asian countries except for the Philippines. However, real exchange rate data need to be interpreted with caution due to measurement problems. The structural reforms that China has undertaken in recent years, together with the self-reinforcing effects of FDI and exports, may have had a significant positive impact on China's productivity growth and international competitiveness (IMF 1997).

³ We define manufactured products as the products in SITC categories 6-8.

⁴ The real exchange rate is calculated as the weighted average of bilateral exchange rates deflated by relative consumer price indices vis a vis 47 countries. These countries include, among others, the South East Asian countries themselves, all industrialized countries, Hong Kong, Singapore, India, Pakistan, the Czech Republic, Hungary, Poland, Argentina, Brazil and Mexico. (Taiwan is not included because data are not available.) The weights are determined on the basis of world trade data (exports) disaggregated to the SITC 2-digit level (within SITC categories 5 through 9) for 1994 and 1995. The calculation of the weights for Thailand proceeds as follows. For each SITC category we take the world export market shares of Thailand's competitors, which are then weighted by the share of the SITC category in Thailand's export basket. Exchange rate and CPI data

3. Evidence based on disaggregated data

Since the analysis above is based on aggregate export data, it may yield misleading results. More reliable results may be obtained on the basis of disaggregated trade data, as aggregation may obscure diverging developments in different product markets. For example, Asian countries may lose market share to China in some markets, but gain in other markets. Although market shares of China and Asian countries may be negatively correlated on the product market level, they may appear to be uncorrelated on the basis of aggregate data.

In table 3 we first present some evidence on the degree of competition among the Asian countries in their respective export markets, taking account of differences in product composition of export baskets. Two conclusions can be drawn from these data. The first one is that Asian countries are indeed overrepresented in each other's export markets. For example, China's market share in Pakistan's export markets is 11.5%, and in Indonesia's export markets 8.0%, while its share in the world export market is only 3.6%. A similar pattern characterizes the whole table, except for the pairs Malaysia-India and Malaysia-Pakistan. Hence, Asian countries disproportionately compete with each other (compared to the global norm). The second conclusion is that, due to their small size and in general well-diversified export baskets, Asian countries do not have dominant market positions. The competition they face is overwhelmingly from outside the region. The market share of countries from outside the region ranges from 78% for Pakistan to 88% for Malaysia.

In the remainder of this section we analyze movements in world export market shares for ten different product groups of the following countries: India, Indonesia, Malaysia, Pakistan, Philippines and Thailand. We investigate whether increases in China's market share are on average statistically associated with declines in market share of these six countries. We focus on manufactured products, *i.e.* SITC categories 6 through 8. The data are disaggregated to the 2-digit SITC level. Source is the COMTRADE database of the UN. Data are available for the period 1988-96, except for India and Thailand (1988-95). For each of the six countries we estimate the following (fixed-effects) panel regression

$$(1) \quad \Delta S(i,t) = a + c(i) + d(t) + \beta_1 D_1(t) \Delta SC(i,t) + \beta_2 D_2(t) \Delta SC(i,t) + e(i,t)$$

are from *International Financial Statistics* (IMF), trade data are from the COMTRADE data base of the United Nations. Base year is 1994=100.

where S denotes the world market share of the country under analysis, SC the corresponding world market share of China, and e the disturbance. Δ stands for the difference operator. The indices i and t denote product category and time respectively. The coefficient $c(i)$ differs for each 2-digit SITC product group, while $d(t)$ differs for each period. $c(i)$ removes fixed differences between product groups (degree of specialization), while $d(t)$ removes time-related factors common to all product markets (international business cycle, domestic aggregate demand, real exchange rate). Each regression is based on 80 product-year observations. D_j equals one for observations from subperiod j , and zero otherwise. We distinguish two subperiods, usually 1989-93 and 1994-96. The parameters β_1 and β_2 measure the displacement (or crowding out) effect in the first and second subperiod respectively, and should be negative. β equals -1 if a gain by China happens completely at the expense of the country in question. Moreover, β_2 should be more negative than β_1 in case displacement has become more intense over time.

On visual inspection, market shares of all countries appear to be non-stationary in the levels, although formal testing on stationarity is pointless in view of the short length of the time series. We have differenced the data to obtain stationarity, and avoid spurious correlations. Normally differencing entails a loss of (long-run) information contained in the levels, but in our case it probably does not, because there is no genuine economic long-run relationship between the two market shares.⁵

To assess the incidence and severity of displacement we concentrate on the ten most important export product groups. We report two sets of results for eq. (1). In the first set the ten most important product groups are determined from the viewpoint of China by selecting the ten largest contributors to China's export earnings in 1995-96. In this set the product categories are the same across the equations for the different countries. We thus look whether China has achieved its sometimes tremendous gains in world market shares to the detriment of the Asian countries. Between 1988-90 and 1995-96 China doubled its world market share for these product groups. The selected 10 product categories account for 64% of China's total exports in 1995-96. Important categories are clothing, textiles, footwear and office and computer equipment. The weight of the same product categories in total exports in 1995-96 is 55% for

⁵ A natural equilibrium situation would be a constant market share for every country, implying the absence of a long-run relation. Of course, China's gain in market share has to be matched by a loss of market share of the other countries combined on account of the adding-up constraint. This could give rise to a downward bias in the estimates for the displacement coefficients. However, this bias is likely to be very small since the world market shares of the Asian economies are usually very small.

India (1995 only), 30% for Indonesia, 59% for Malaysia, 78% for Pakistan,⁶ 53% for the Philippines, and 56% for Thailand (1995 only). So with the exception of Indonesia, the same categories that are important to China are important to the Asian countries as well.

In the second set the ten most important product groups are determined from the viewpoint of the individual country by selecting the ten largest contributors to its export earnings during 1988-90. Hence, in this set the product categories differ across the country equations. We thus look whether the Asian countries have had difficulties keeping or expanding their market shares because of increased Chinese competition.⁷

Table 4 presents the estimation results.⁸ We also report average world market shares of the countries in order to facilitate the interpretation of the results. There is little evidence of Asian countries' exports being crowded out by China's exports in the period 1989-93. In both sets the displacement coefficient β is in general insignificantly different from zero, although its point estimate is negative in a number of cases. Hence, other countries have given up market share to accommodate China's ascent. For Indonesia the displacement coefficient is even significantly positive, indicating that increasing world market shares for China went hand in hand with increasing world market shares for Indonesia.

After 1993 there is more support for the displacement hypothesis as the displacement coefficient declines significantly for Indonesia, Malaysia, Pakistan and Thailand. For the latter three countries the estimate is significantly negative. Pakistan and Thailand appear to be hurt most by China as their displacement coefficients compared to their average market shares are relatively large. The sum of the four coefficients in column 4 in the upper panel is -.29, implying that a one percent increase in world market share for China in its top-10 markets will rob these four countries collectively of .29% market share, and that the brunt of the adjustment (.71%) is still borne by other countries. The Philippines register an enormous increase in the displacement coefficient after 1995, reflecting their very strong export performance in 1996, when exports of industrial products increased by 135%. Although it is unclear how much significance should be attached to this result since it is based on only one year of

⁶ Pakistan's exports are heavily concentrated in two 2-digit SITC categories, fabrics and clothing, which between them account for 73% of total export earnings. The econometric analysis for Pakistan is therefore based on the ten most important 3-digit SITC categories.

⁷ The total weight of the ten most important export product groups in total exports in 1988-90 is 58% for India, 32% for Indonesia, 45% for Malaysia, 73% for Pakistan, 41% for the Philippines, and 50% for Thailand. For Pakistan we work with ten 3-digit SITC categories, which accounted for 60% of total exports.

⁸ Estimation is by OLS. Since both world market shares are endogenous variables we also applied instrumental variables, using as instruments a constant, time and product dummies and lagged changes in world market shares. However, this did not change the results qualitatively.

observations, it certainly does not show that Chinese exports have hurt Philippino exports. For India the displacement coefficient is now significantly positive, strongly rejecting displacement.

4. Conclusion

We investigate whether the exports of industrial products by the South Asian and South East Asian countries have been negatively affected by the emergence of China, especially since 1993 when China devalued the yuan and also started to receive large amounts of FDI. We look whether increases in the world market shares of China are statistically correlated with declines in the world market shares of the Asian countries, using a panel data approach. We find little empirical evidence of displacement by China before 1994. By contrast, our findings constitute some preliminary support for the view that China's rapid export growth has hurt some Asian economies in their core export markets since 1994, notably Malaysia, Pakistan and Thailand. A negative displacement coefficient does not necessarily imply an underlying competitiveness problem, as it may also reflect a move toward more technologically advanced and more skill-intensive products. However, the general impression is that the Asian countries have been lagging in the upgrading of their production. Hence, more research is needed to arrive at a definitive conclusion on the impact of China. Relevant research topics are the role of foreign direct investment, and structural factors like technological upgrading and infrastructural and skill shortages. Another important issue is the compilation of disaggregated international trade data that will permit the distinction between prices and quantities.

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Table 1. World export market shares of Asian countries, 1990-96

%	1990	1991	1992	1993	1994	1995	1996
China	1.97	2.37	2.70	3.01	3.55	3.70	3.72
India	0.54	0.53	0.60	0.64	0.67	0.65	0.68*
Indonesia	0.43	0.53	0.67	0.81	0.75	0.70	0.76
Malaysia	0.76	0.96	1.10	1.39	1.59	1.69	1.78
Pakistan	0.21	0.24	0.24	0.25	0.24	0.21	0.24
Philippines	0.15	0.28	0.17	0.20	0.21	0.23	0.53
Thailand	0.68	0.83	0.89	1.09	1.18	1.23	1.20*

Source: COMTRADE data base of the United Nations. Data refer to manufactured products (SITC categories 6-8).

* Estimated by applying the growth rate of total exports taken from *Direction of Trade Statistics* (IMF).

Table 2. Real exchange rates of Asian countries, 1990-96

	1990	1991	1992	1993	1994	1995	1996
China - official rate	136.9	121.3	115.9	128.3	100.0	108.7	115.4
China - 80% swap rate	92.9	86.7	84.8	91.8	100.0	108.7	115.4
India	130.8	112.2	102.3	95.7	100.0	95.8	92.5
Indonesia	91.0	91.4	89.3	97.4	100.0	95.5	97.6
Malaysia	94.3	92.6	98.6	101.0	100.0	100.3	104.3
Pakistan	100.0	99.6	98.1	98.0	100.0	98.4	93.9
Philippines	80.9	81.5	89.9	92.1	100.0	101.4	108.6
Thailand	92.3	94.4	92.9	97.2	100.0	97.6	101.5

Note: Real exchange rates based on competitors' weights (see footnote 4).

Table 3. Asian countries' share in each other's relevant export markets, 1994-95

%	Export markets of:							World
	China	India	Indonesia	Malaysia	Pakistan	Philippines	Thailand	
China	9.27	8.29	8.03	3.90	11.51	6.48	6.66	3.63
India	1.51	2.81	1.19	0.39	2.94	0.84	1.09	0.66
Indonesia	1.59	1.29	5.51	1.27	2.01	1.42	1.22	0.72
Malaysia	1.76	0.97	2.89	3.76	0.98	2.90	2.27	1.64
Pakistan	0.70	0.99	0.62	0.13	2.38	0.30	0.37	0.22
Philippines	0.39	0.28	0.43	0.39	0.30	0.48	0.36	0.22
Thailand	2.21	1.99	2.03	1.67	2.03	1.96	2.12	1.21
Other countries	82.55	83.38	79.30	88.50	77.85	85.61	85.92	91.70

Note: Exports refer to manufactured goods (SITC categories 6-8). Columns show the weighted average of the world market shares in product markets (defined as 2-digit SITC categories within SITC categories 6-8), where the weights are the shares of these product groups in total exports (of products in SITC categories 6-8) of the country listed at the top.

Table 4. Displacement coefficients and average world market shares

	Top-10 exports of China			
	1989-93 *		1994-96 **	
	displacement coefficient	average world market share	displacement coefficient	average world market share
India	-0.018 (0.70)	0.968	0.080 (2.12)	1.073
Indonesia	0.196 (4.59)	0.650	-0.081 (1.53)	0.872
Malaysia	0.004 (0.35)	1.548	-0.042 (3.79)	2.600
Pakistan	0.000 (0.01)	1.151	-0.083 (2.25)	1.377
Philippines	0.006 (0.50)	0.318	0.413 (2.09)	0.890
Thailand	-0.082 (1.07)	1.274	-0.082 (1.59)	1.805
	Top-10 exports of individual country			
	1989-93 *		1994-96 **	
	displacement coefficient	average world market share	displacement coefficient	average world market share
India	-0.036 (1.31)	0.912	0.065 (2.33)	1.030
Indonesia	0.167 (3.98)	1.512	-0.070 (1.01)	1.830
Malaysia	-0.041 (1.24)	1.639	-0.087 (2.99)	2.742
Pakistan	0.022 (0.96)	2.567	-0.161 (2.27)	2.799
Philippines	0.033 (1.24)	0.410	0.553 (2.28)	1.019
Thailand	-0.091 (1.11)	1.328	-0.128 (2.57)	1.882

Note: *t*-statistics in parentheses. Based on eq. (1) with outliers and insignificant effects removed. Sample: 10 2-digit SITC categories, 1989-96 (80 observations), except India and Thailand, 1989-95 (70 observations).

Results for Pakistan are based on 3-digit SITC categories. Average world market share in percent.

* 1989-92 for Malaysia, 1989-95 for the Philippines.

** 1993-96 for Malaysia, 1994-95 for India and Thailand, 1996 for the Philippines.