China and Emerging Asia: Comrades or Competitors?

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Do increases in China's exports reduce exports of other emerging Asian economies? We find that correlations between Chinese export growth and that of other emerging Asian economies are actually positive (though usually not significant), even after controlling for trading-partner income growth and real effective exchange rates. We also present results from a VAR estimation of aggregate trade equations on the relative importance of foreign income and exchange rates in determining Asian export growth. Although exchange rates do matter for export performance, the income growth of trading partners matters even more. In addition, we examine specific products and find evidence that a considerable shifting of trade patterns is taking place, consistent with a 'flying geese' pattern in which China and ASEAN-4 move into the product space vacated by the NIEs. Overall, our results suggest that China and emerging Asia are both comrades (overall) and competitors (in specific products).

Keywords: Exports, Trade links, Exchange rate, Trade equation, Flying geese

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Two men sought a Buddhist monk's help to resolve their dispute. The first man told his side of the story, and the monk said: "You're right!" The second gave his side, and the monk said: "You're right!" A third person who was listening to all this protested to the monk: "These men have opposing views. How can you say you say they're both right?" The monk thought for a bit and told him: "You're right too."

I. Introduction

Discussions of trade flows in Asia highlight two opposing views on the nature of the trade links between China and emerging Asia.[1] Under the first view, China and other Asian economies are comrades. They share mutual benefits from the increased incomes of Chinese consumers and from the potential of greater integration of product lines across the region, both of which are reflected in the expanding intra-regional trade in Asia. The other view sees China and emerging Asia as competitors, specializing in the production of export goods that are relatively close substitutes and competing for market share in major export markets.[2] Like the Buddhist monk in the parable above, we think elements of both views are right.[3]

The first view is right in stressing many of the beneficial effects of China's growth on the rest of Asia. China's tremendous growth has indeed translated into rising imports from the rest of Asia.

[1]Throughout the paper we use the labels "Hong Kong" to refer to "People's Republic of China-Hong Kong Special Administrative Region" and "Taiwan" to refer to "Taiwan Province of China." We use the term "emerging Asia" to refer to the economies (other than China itself) consisting of the newly industrialized economies of Hong Kong, Korea, Singapore, and Taiwan, as well as the so-called ASEAN-4 nations, Indonesia, Malaysia, the Philippines, and Thailand.

[2]See Diwan and Hoekman (1999) and Loungani (2000).

[3]This paper focuses on the trade links between China and emerging Asia. Another aspect of the relationship, which we do not explore here, relates to inflows of foreign direct investment (FDI). Emerging Asian economies increasingly use China as an export platform through direct investment in China. On the other hand, China and emerging Asia compete for inflows of FDI from other countries. For a discussion of the FDI links between China and emerging Asia, see Ho *et al.* (2002).

These have skyrocketed in recent years, and particularly since World Trade Organization (WTO) accession was completed in December 2001. In addition, as China continues its rapid development, other economies in the region have an incentive to try to move up the value chain as their comparative advantage shifts to higher-value added, less labor-intensive industries. Taiwan, for example, is attracting more investment in high-tech research facilities as opposed to pure manufacturing, and Singapore and (to a lesser extent) Malaysia are trying to broaden the scope of their manufacturing sectors to include bio-technology and other emerging technologies.

But the other view is also right in claiming that China's increased integration into the global economy has meant that sectoral transitions in other Asian economies are likely occurring at a faster pace than would otherwise have been the case. For example, popular discussions highlight that manufacturing has been moving from elsewhere in Asia to China, in large part to take advantage of low labor costs and a growing domestic market. Asian economies therefore need to take steps to ease the transition of their labor force into other sectors, including through the provision of social safety nets to ease the costs of adjustment.

Some proponents of the "competitors" view also claim that China's export performance has been greatly enhanced by an undervalued exchange rate.[4] We have less sympathy with this particular claim than with the general proposition of the prevalence of competition. The evidence we present suggests that movements in exchange rates, while important, are not the primary determinant of export performance among the Asian economies.

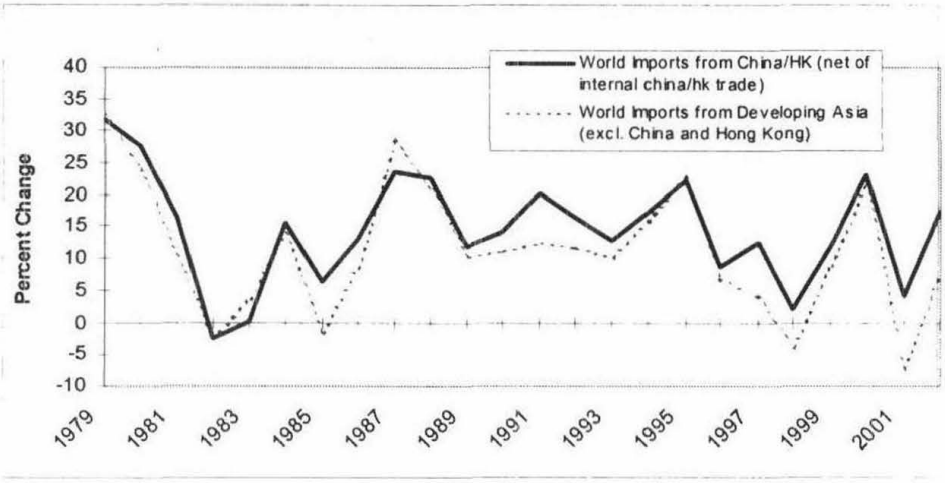
The paper is organized as follows. In Section II, we present evidence on the impact of Chinese export growth on that of other Asian economies, after controlling for the effect of common factors. We find that correlations between Chinese export growth and that of the NIEs and ASEAN-4 are almost always positive (though often not significantly so), suggesting complementarity rather than competition. We also present results from a VAR estimation of

[4]One of the most vocal proponents of this view is Bhalla (1998), whose thesis can be surmised from the title of his paper "Chinese Mercantilism: Currency Wars and How the East was Lost." More recently, Williamson (2003) has argued that "a substantial revaluation [of the renminbi] would be good for both China and the rest of the world."

aggregate trade equations on the relative importance of foreign income and exchange rates in the determination of Asian export growth. An important finding is that, while exchange rates do matter for export performance, the income growth of trading partners matters even more. In this sense, China and emerging Asia are on the same side, with export performance of both still heavily dependent on income growth in common major trading partners, *viz.*, the United States the European Union and Japan (Of course, intra-regional trade alone is also becoming more important).

In Section III, we present evidence from industry-level data on the extent of export competition between China and other Asian economies in the U.S. market, where competition is likely to have been most intense. We find that China has gained market share in the U.S. market as a whole and in almost every industry, while the share of the NIEs has declined. The ASEAN-4 countries have experienced gains in market shares in slightly over half the industries. These changes have been occurring in a trend-like fashion over the entire period of our study-1989 to 2002; an exception to this characterization is the rapid gains made by China in the 'computers, peripherals, and semiconductors' industry since 1998. Changes in the share of ASEAN-4 are far less dramatic and in many instances China and ASEAN-4 have both gained market share while that of the NIEs has fallen. Overall, the results are suggestive of a 'flying geese' pattern in which China and ASEAN-4 move into the product space vacated by the NIEs.

The increased integration of China and other Asian economies does carry its own risks: It makes the fortunes of each side more dependent on economic developments and policy choices in the other than was the case in the past. In section 4, we discuss the implications of our results for the outlook for China and the other emerging Asian economies. In this context, we discuss the state of the financial sector in China, which many think is the greatest economic hurdle facing the country (see, for example, Lardy (1998a, 1998b)).



Notes: The solid line shows recorded imports by all countries in the world from either China or Hong Kong, excluding China's imports from Hong Kong and Hong Kong's imports from China. The dashed line shows imports by all countries in the world from developing Asian economies other than China or Hong Kong. Data source is IMF's Direction of Trade Statistics.

FIGURE 1
EXPORTS FROM GREATER CHINA AND FROM DEVELOPING ASIA

II. Trade Linkages between China and Other Asian Economies: Aggregate Evidence

Figure 1 shows strikingly that exports by China and by other Asian economies tend to move together. The figure shows export growth (measured in dollar values) to the world from China (defined to include Hong Kong) and from the rest of developing Asia, using trading partner statistics. Fernald, Edison, and Loungani (1999) argue that it makes economic sense to combine data for China and Hong Kong even in the period preceding formal unification, since many goods use Chinese labor and Hong Kong management and distribution skills. It makes statistical sense to use trading-partner statistics, to avoid double-counting Chinese and Hong Kong exports.

The co-movement in export growth between China and other Asian economies suggests that common factors-such as growth in advanced economies, movements in the world prices of key exports

such as semiconductors, and movements in the yen-dollar rate-were probably more important determinants of Asian exports than was competition with China.

In addition, the vertical integration of many product markets in Asia would likely add to this similarity in growth rates. As an example of how vertical integration might make export growth rates similar, take the example of a small electronic device like a DVD player. The manufacturing of some components—*e.g.*, motherboards, memory, *etc.*—might be handled in one or several of the ASEAN economies or the NIEs. Those components are then exported to, say, China, where they are assembled into the DVD player. The DVD player is then shipped out to its final destination. Several economies in the region might thus provide value-added to a single device. Hence, as demand for DVD players fluctuates, one would expect export growth to be positively correlated across countries.

Discussions of China's export performance tend to emphasize factors peculiar to China, such as economic reform initiatives, rapid investment, tax incentives, or its WTO accession. More recently, some observers seem to have focused solely on the perceived undervaluation of the renminbi exchange rate to explain China's export performance. Of course, at times there are, indeed, China-specific factors that are likely to have a large impact on China's exports (*e.g.*, China's WTO accession almost certainly had a larger effect on China than on its trading partners/competitors). However, these discussions tend to miss the prevalence of common shocks, which Figure 1, as well as the evidence presented below in Sections II.A and II.B, suggest are of equal or greater importance.

A. Conditional Correlations

It may be that, in contrast to the visual impression given by Figure 1, the correlation between China's export growth and export growth in other Asian countries is actually negative once the most important proximate determinants of Asian real export growth have been controlled for. To investigate this hypothesis, we estimate regressions of real export growth in a particular Asian economy on its proximate determinants, namely, the growth rate of foreign income and the (percent) change in the economy's trade-weighted real exchange rate (an increase in the real exchange rate indicates an appreciation of the currency relative to that of its trading

TABLE 1

CONDITIONAL CORRELATIONS BETWEEN CHINA'S REAL EXPORT GROWTH AND REAL EXPORT GROWTH IN OTHER ASIAN ECONOMIES

	NIEs (Korea, Singapore, Taiwan, Hong Kong)			ASEAN-4 (Indonesia, Malaysia, Philippines, Thailand)			All eight countries (NIEs plus ASEAN-4)		
Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
China's Real Exports	0.29	0.03	0.08	0.48	0.22	0.11	0.38	0.11	0.13
	(0.08)	(0.10)	(0.10)	(0.11)	(0.13)	(0.13)	(0.07)	(0.08)	(0.09)
Lag 1	-	-	0.09	-	-	0.22	-	-	0.09
			(0.14)			(0.17)			(0.11)
Lag 2	-	-	-0.03	-	-	0.17	-	-	-0.01
			(0.13)			(0.19)			(0.13)
Foreign Demand	-	3.16	3.87	-	2.97	5.22	-	3.13	4.13
		(0.63)	(0.93)		(0.69)	(1.23)		(0.47)	(0.83)
Lag 1	-	-	-1.60	-	-	-0.04	-	-	-1.06
			(0.73)			(0.12)			(0.62)
Lag 2	-	-	1.16	-	-	0.03	-	-	0.58
			(0.54)			(0.81)			(0.55)
Real Exchange Rate	-	-0.38	-0.37	-	-0.32	-0.29	-	-0.33	-0.37
		(0.13)	(0.10)		(0.12)	(0.06)		(0.10)	(0.08)
Lag 1	-	-	-0.37	-	-	0.30	-	-	0.15
			(0.12)			(0.08)			(0.10)
Lag 2	-	-	-0.09	-	-	0.11	-	-	-0.05
			(0.14)			(0.08)			(0.07)
Lagged Dependent Variable	0.12	0.14	0.14	-0.08	-0.05	-0.02	-0.01	0.02	0.12
	(0.11)	(0.10)	(0.10)	(0.10)	(0.09)	(0.13)	(0.08)	(0.07)	(0.09)
Adjusted R^2	0.07	0.34	0.44	0.19	0.41	0.49	0.14	0.39	0.39

Notes: Standard errors are in parenthesis. Regression estimated as a panel from 1981-2001. All regressions include country fixed effects (not shown). Data are from IFS and National Income accounts data from country sources.

partners). We add China's real export growth as a regressor to these standard export equations.

The data used in the estimation are annual, and extend from 1981 to 2001. To obtain sufficient degrees of freedom, we pool the data for the four NIEs (we include Hong Kong as a NIE), for ASEAN-4 members, and also for all eight economies. Country fixed effects are included in all regressions, but their estimates are not reported. The coefficient estimates are shown in Table 1; numbers in parentheses are standard errors. The first column presents the results of a regression of real export growth in the NIEs on (1) country fixed effects, (2) a lagged dependent variable and (3) China's real export growth. As shown, the coefficient estimate on the last of these variables is positive (0.29) and significantly different from zero (the t-statistic is about 3.6). In the second column, the growth rate of foreign income and the change in the real exchange rate are included as regressors. The coefficient estimates of these two variables have the expected signs and are statistically significantly different from zero. For present purposes, the key result is that the coefficient on Chinese real export growth now drops to 0.03 (and is indistinguishable from zero). Adding in lags of the independent variables, as in column (3), does not materially affect the conclusion that the coefficient estimate is essentially zero.

A similar set of regressions for the ASEAN-4 group is presented in columns (4) to (6). In this case, the conditional correlations are always positive and are relatively large in magnitude. In column (4), the simplest specification, the coefficient on China's exports is significantly different from zero. In column (5), the t-statistic falls to 1.8, implying a p-value of about 0.07. This regression continues to show substantial evidence of complementarity. Adding lags of the independent variables, however, knocks out the statistical significance of the China variable, although the current and lagged values remain positive-consistent with weak complementarity.

When data for all eight economies are pooled, the conditional correlations are similar. Without controls for trading partner income and the real exchange rate, there is a strong positive correlation between emerging Asian exports and China's exports. Controlling for trading partner income and the real exchange rate, the positive correlation is substantially weakened, although the sign of the effect remains. In particular, there is now a little bit more evidence

TABLE 2

REGRESSIONS WITH BREAK IN COEFFICIENT ON CHINA'S EXPORTS

	(1)	(2)	(3)	(4)	(5)	(6)
China's Real Exports	0.17 (0.10)	0.21 (0.11)	0.14 (0.10)	0.12 (0.09)	0.11 (0.09)	0.09 (0.09)
Change in China's Export Coefficient Beginning in Year:						
1995	-0.07 (0.07)	-	-	-	-	-
1996	-	-0.12 (0.07)	-	-	-	-
1997	-	-	-0.05 (0.08)	-	-	-
1998	-	-	-	-0.03 (0.08)	-	-
1999	-	-	-	-	0.00 (0.08)	-
2000	-	-	-	-	-	0.06 (0.07)
Foreign Demand	2.97 (0.48)	2.85 (0.49)	3.05 (0.49)	3.09 (0.48)	3.13 (0.48)	3.19 (0.49)
Real Exchange Rate	-0.32 (0.10)	-0.32 (0.09)	-0.33 (0.10)	-0.33 (0.10)	-0.33 (0.10)	-0.33 (0.10)
Lagged Dependent Variable	0.01 (0.07)	0.00 (0.08)	0.01 (0.07)	0.01 (0.07)	0.02 (0.07)	0.02 (0.07)
Adjusted R^2	0.39	0.39	0.38	0.38	0.38	0.38

Notes: Standard errors are in parenthesis. Regression estimated as a panel from 1981-2001 with all eight economies (NIEs and ASEAN-4). All regressions include country fixed effects (not shown). Coefficient on China's exports is allowed to change in the year shown in the table. Hence, before the year the coefficient changes, the coefficient on China's exports is shown on line 1; for the year the coefficient changes and after, the coefficient on China's exports is the sum of the coefficient on China's exports (line 1) and the change in the coefficient.

even in column (9), with lagged independent variables, of weak complementarity (the p-value on China's exports is about 0.09).

Has the degree of complementarity changed in recent years? We investigate this by re-estimating the regressions and allowing for a change in the coefficient on China's real export growth starting in

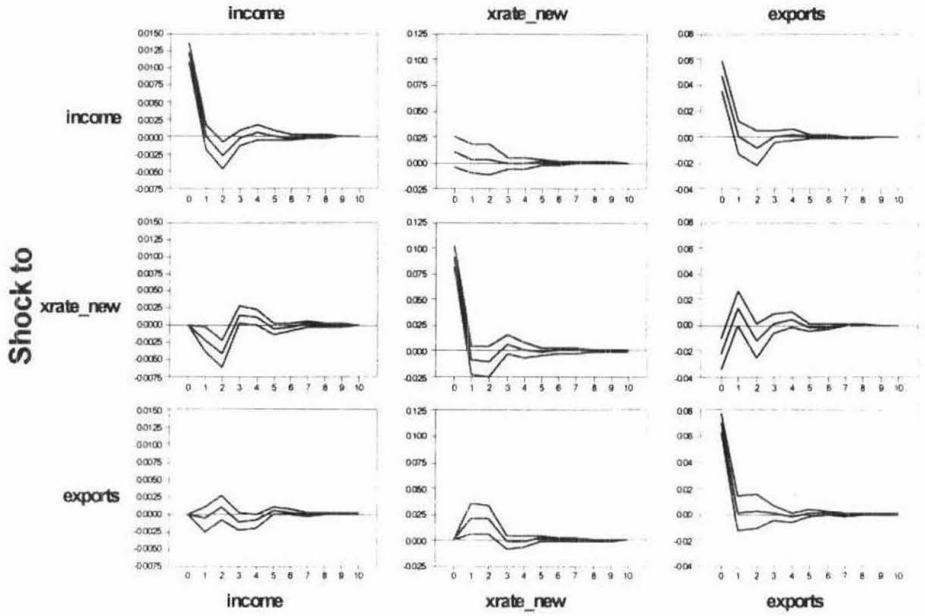
1995. These regressions are reported in Table 2. As shown in the first column, the coefficient on the new variable is indeed negative (−0.07). But it is much smaller in magnitude than the coefficient on China's real export growth itself (0.17), so that the sum of the two still points in the direction of complementarity. Similar conclusions hold if the break point is picked to be a year later than 1995, as shown in columns (2) through (6) of the table.

In sum, when we look at data from non-China Asian emerging economies, we find that real exports tend to be positively correlated with China's exports. Even controlling for major 'common' shocks (trading partner income and real exchange rates), we find that conditional export correlations between China and other economies remain positive (although much smaller in magnitude and significance). These results, at a macroeconomic level, are inconsistent with most stories of severe, cutthroat competition between China and the rest of Asia.

B. The Role of the Exchange Rate: Evidence from VARs

As noted in the introduction, in recent years commentary has often focused on real exchange rates as a channel for competition among Asian economies. At the onset of the Asian financial crisis in 1997, for example, many observers suggested that China had undergone a large depreciation at the beginning of 1994, which ultimately brought pressure to bear on other Asian economies to devalue their own currencies. This view was challenged in IMF (1997) and Fernald, Edison, and Loungani (1999) on two grounds. First, there was little effective nominal depreciation of the renminbi at the time, because the apparent devaluation of the official rate simply unified it with the unofficial rate at which most trade transactions already took place. Second, the moderate real depreciation was rapidly reversed by China's quite high inflation in 1994 and 1995. As a result, China's real exchange rate appreciated rather than depreciated over the 1993-7 period. Nevertheless, many Asian economies did have sharp real depreciations whereas China did not.

If China and emerging Asia were important competitors, such exchange rate movements should lead to corresponding changes in real export growth. Hence, a particular focus of the results in this subsection is whether movements in real exchange rates explain a



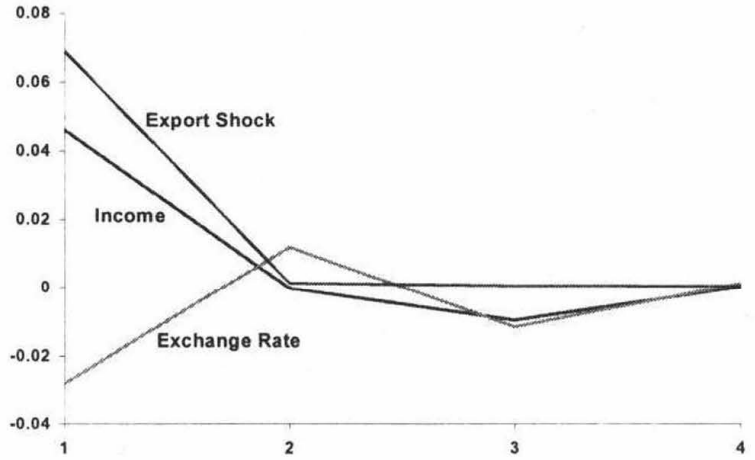
Notes: The columns show the impulse responses of the indicated variable to each of the shocks. The shocks are indicated by the row labels. Each of the figures shows the impulse-response point estimates as well as 2 standard-deviation bounds (from 1000 RATS Monte Carlo draws) from a panel VAR, as described in the text.

FIGURE 2
IMPULSE RESPONSES OF VARIABLES TO EACH SHOCK

large share of the variance in exports across Asian economies.

In order to quantify the importance of various shocks on Asian exports, we estimate a simple model for Asian export growth. As before, the data used in the estimation are annual, and extend from 1981 to 2001. To obtain sufficient degrees of freedom, we pool the data for all economies and run a panel vector autoregression (VAR) with three variables: (1) real income growth among major trading partners, (2) real exchange rate growth, and (3) real export growth; in estimating the VAR, the variables are ordered as listed, but other orderings of the variables do not affect the results to be described below. Two lags of each variable were included in the estimation. Country fixed effects are included in all regressions.

Figure 2 presents the estimated impulse responses from the VAR showing the response of export growth to standard-sized (*i.e.*, one



Notes: Lines show estimated impulse responses from a panel VAR of Asian emerging economy exports to shocks to income of their trading partners, their trade-weighted real exchange rate, and exports themselves.

FIGURE 3
IMPULSE RESPONSES OF EXPORTS TO VARIOUS SHOCKS

standard deviation) increases in each of the three sources of shocks. Focusing on the last column, it is evident that the contemporaneous responses of exports to foreign income and real exchange rate movements have the expected signs and are statistically significant.

The impulse responses of interest are reproduced in Figure 3, which shows only the point estimates going out four years after the shock. An increase in income growth among trading partners leads to an increase in a "representative" Asian economy's export growth: there is a strong contemporaneous, and statistically significant, impact. The impact dissipates over the next few years and, statistically, is not significantly different from zero. A depreciation in the currencies of major trading partners has the predicted adverse impact on export growth in the representative economy. Here too it is only the contemporaneous impact that is significantly different from zero.

Table 3 presents the variance decomposition of real export growth. As shown, income effects account for a much larger percentage of the variance than relative price effects. For instance,

TABLE 3
VARIANCE DECOMPOSITION OF ASIAN EXPORT GROWTH

Step	Income	Exchange Rate	Exports
1	28	10	62
2	27	12	61
3	28	13	59
4	28	13	59

at the one-year horizon, income growth accounts for 28 percent of the variance, compared with 10 percent for real exchange rate changes.[5] Not surprisingly, shocks to exports themselves show the largest dynamic response (as shown earlier in Figure 2) and also account for the largest share of the variance.

These results suggest that, over the last twenty years, changes in real exchange rates have not been the primary determinant of export growth for the major Asian exporters. A more important determinant has been income growth in the major trading partners (which, over the bulk of our sample period, reflects growth in the industrialized countries, particularly the United States). Industrial country demand and the effects of structural changes are likely to have outweighed exchange rate fluctuations as determinants of China's export growth.[6]

These findings can explain why, for instance, China's export growth remained strong during the Asian crisis in 1997-8. Overall demand remained high (with strength in the United States and

[5]Since China had a dual exchange rate over part of our sample, we constructed an alternative measure of China's real exchange rate, *viz.*, a weighted average of the official exchange rate and the so-called 'swap market' rate. When this alternate measure is used in the VAR, the importance of exchange rate movements, relative to those of foreign income, falls even further. The impulse responses are similar to those reported in Figure 2, though again the impact of the exchange rates on exports is somewhat attenuated.

[6]Chinese export growth has also been helped by structural reforms of the exchange and trade system, as detailed in Cerra and Dayal-Gulati (1999). Examples include allowing local governments and exporting enterprises to retain a proportion of foreign exchange receipts, eliminating mandatory export and import planning, and opening up the economy to foreign direct investment. Despite occasional reversals, the overall trend has been to reduce the role of central planning in China's foreign trade.

Europe countering weakness among Asian trading partners). As a result, export growth remained quite robust despite the drag from the depreciations among many Asian currencies. Prasad and Rumbaugh (2003) make a similar point about the more recent period. While acknowledging that "the recent depreciation of the U.S. dollar, to which the renminbi is linked, has no doubt added temporarily to China's competitiveness," they suggest that it is unlikely that exchange rates are the primary determinant of **China's** export growth because "China's exports continued to grow rapidly virtually across the board even when the U.S. dollar was appreciating against other major currencies."

III. Export Competition Among Asian Economies in the U.S. Market

This section describes how the market shares of exports of the various Asian economies have changed over time. We focus on exports to the United States, which is likely to have been the market where competition has been most intense. In addition to looking at changes in the overall market share (*i.e.* exports across all industries combined), we present evidence on changes in two high-profile industries, which were identified in our previous work as being ones that displayed large changes in trade shares and accounted for a sizable fraction of total U.S. imports from these Asian economies.

By focusing on relative export performance in a single geographic region and for specific industries, we hope to obtain product-level evidence on "export competition." For these purposes, we define export competition as "shifts in market share" across the three groups. In particular, we want to see if China's market share has increased markedly within a particular industry.

Note that by focusing on shares in particular markets we are strongly stacking the deck in favor of the export-competition view. After all, since shares sum to 100 percent, it is arithmetically impossible for all shares to move in the same direction. So a country may have its share in a particular market decline without necessarily experiencing a decline in the level of its exports to that market. It may be losing market share in one market but gaining it in another. Moreover, some changes in shares may be deliberate,

TABLE 4
EXPORT SHARES OF SELECTED ASIAN ECONOMIES IN THE U.S. MARKET

Economy	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	1989	1993	1996	1997	1998	1999	2000	2001	2002
China	**24**	**33**	**34**	**37**	**39**	**39**	**40**	**44**	**49**
China	13	25	29	31	34	35	36	40	45
HK	11	8	5	5	5	4	4	4	3
NIEs	**59**	**44**	**41**	**38**	**36**	**36**	**36**	**33**	**30**
Korea	22	14	13	12	11	13	15	14	13
Singapore	10	10	11	10	9	8	7	6	5
Taiwan	27	20	17	16	16	15	15	13	12
ASEAN-4	**17**	**23**	**25**	**25**	**25**	**25**	**24**	**23**	**21**
Indonesia	4	4	5	5	4	4	4	4	3
Malaysia	5	8	10	9	9	9	9	9	9
Philippines	3	4	5	5	6	5	5	4	4
Thailand	5	7	6	6	6	6	6	6	5
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
US$ (Billions)	90	126	180	199	211	235	278	254	276

Source: Bureau of Economic Analysis.

as in the case of industries that have shifted to a more vertically integrated approach to manufacturing.

Nevertheless, the changing shares give some sense of how trade patterns are evolving in the various countries. Also, from the perspective of a producer within a narrow industry, these figures give some sense of who they are competing against. Thus, the changing trade patterns discussed here provide indirect evidence on whether China and emerging Asia are truly comrades or competitors.

For this analysis, the Asian economies we consider have been classified into one of three groups: China (China and Hong Kong), the NIEs (Korea, Singapore, and Taiwan), and the ASEAN-4 (Indonesia, Malaysia, the Philippines and Thailand). While the analysis focuses on the period 1996 to 2002, some tables also provide data for 1989 and 1993 to provide a longer-term perspective on the changes in trade shares. The data are at the three-digit industry level (on an end-use basis) and are published by the U.S. Department of Commerce's Bureau of Economic Analysis (BEA).

As a preamble to the industry-level analysis, Table 4 shows

export shares for the three groups for the U.S. market as a whole. As shown, in 1989 China and Hong Kong together accounted for about a quarter of total exports to the United States from the three groups. By 1993, China's share had increased to a third. Mainland China alone nearly doubled its share of the U.S. market, helped perhaps by the real depreciation of the renminbi over this period. The ASEAN-4 group also increased its market share, but by a smaller magnitude than the increase in mainland China's share. Correspondingly, the share of the NIEs fell from 59 percent to 44 percent. There is, therefore, some evidence of "competition"—shifts in market share—among the three groups over the period 1989 to 1993. By contrast, the period between 1993 and 1997 is far more tranquil. The shares of China and ASEAN-4 inch up over this period at the expense of the NIEs.

The Asian crisis, and the associated sharp real depreciations in the currencies of many Asian economies, did not lead to any dramatic changes in market shares: The relative stability that characterized the period 1993 to 1997 continued through 2000. In the most recent period, from 2000 to 2002, however, China's share grows from 40 percent to 49 percent, at the expense of both the NIEs and the ASEAN-4. Thus, only in the most recent period do we see strong signs of competition.

The picture is much the same when we look at the country groups' shares of world exports to the United States. As can be seen in Figure 4, China's share of world exports to the United States has risen steadily since 1989, with a sharp increase since 2000. The share of the ASEAN-4 also rose through much of the 1990s, but has fallen a little over the most recent period. The NIEs have experienced a steady decline in their share.

Another perspective is offered in Figure 5, where we plot the dollar value of the country groups' exports to the United States. Again, we only see strong signs of competition in the most recent period, from 2000 to 2002, during which China' exports to the United States have soared, while exports of the NIEs and the ASEAN-4 have registered declines. During the 1990s, the dollar value of each groups' exports actually rose, suggesting that the earlier analysis based simply on shares may have overstated the extent of competition during that period.

Next, we examine industry-level data. Tables 5a and 5b present data for 1989 and 2002 for the three country groups and covering

TABLE 5a

SHARES IN U.S. IMPORTS FROM ASIA

End Use Code	1989			2002		
	China	NIEs	ASEAN	China	NIEs	ASEAN
000	0	3	96	1	2	98
001	22	17	62	34	14	52
002	2	4	93	20	4	76
010	22	29	49	30	8	62
100	21	9	70	18	42	40
101	71	1	29	72	0	28
103	98	0	2	100	0	0
104	0	0	0	0	0	0
110	24	75	1	35	0	65
111	19	76	5	26	58	16
120	13	5	82	25	5	69
121	29	56	16	28	55	17
123	16	37	46	8	84	8
125	22	70	9	44	39	17
130	2	28	70	58	6	36
131	8	75	17	62	12	27
140	68	5	27	79	14	7
141	1	96	3	17	71	12
142	52	14	33	60	30	11
150	10	80	10	33	55	11
151	12	86	3	36	61	3
152	18	78	4	56	36	8
160	63	19	18	65	30	6
161	23	67	10	48	44	9
200	22	70	8	55	31	14
210	4	75	21	36	54	10
211	16	82	2	50	44	6
212	11	86	4	52	45	3
213	7	72	21	24	42	34
214	21	66	13	39	30	31
215	28	66	6	72	14	14
216	20	49	31	37	31	32
220	10	86	4	22	72	6
221	16	83	2	73	26	1
222	11	83	6	37	55	8
223	0	100	0	14	22	64
300	0	100	0	0	100	0
301	0	99	0	70	28	2
302	11	75	13	34	43	23
400	36	52	12	69	12	20
401	46	46	8	64	30	5
410	24	66	10	67	22	11
411	38	57	5	84	11	6
412	19	64	18	53	17	30
413	48	23	29	67	5	28
420	16	40	45	34	39	27
421	34	38	28	71	10	19
500	27	58	15	34	47	19

TABLE 5b

U.S. IMPORTS FROM ASIA

End Use Code	Description	Total Imports from Asia 1989 (US $ billions)	Total Imports from Asia 2002 (US $ billions)	Asia's Share of U.S. Imports 1989 (percent)	Asia's Share of U.S. Imports 2002 (percent)
000	Coffee, cocoa, and sugar	0.3	0.3	9	11
001	Other agricultural foods	1.3	2.2	10	7
002	Feedstuff and foodgrains	0.1	0.2	13	10
010	Nonagricultural foods	1.5	3.1	20	23
100	Petroleum and products	2.4	1.8	5	2
101	Fuels, n.e.c. - coal and gas	0.0	0.1	0	1
103	Nuclear fuel materials and fuels	0.0	0.1	2	5
104	Electric energy	0.0	0.0	0	0
110	Paper-base stocks - pulpwood and woodpulp	0.0	0.0	0	0
111	Newsprint and other paper products	0.1	0.5	1	6
120	Agricultural products	1.1	1.3	27	24
121	Textile supplies and related materials	1.4	3.0	26	28
123	Other materials except chemicals	0.0	0.1	2	7
125	Chemicals, excl. medicinals and food additives	0.7	3.2	5	10
130	Lumber and other unfinished building materials	0.5	1.5	11	12
131	Other building materials, except metals	0.5	1.5	19	15
140	Steelmaking materials - unmanufactured	0.1	0.1	5	3
141	Iron and steel mill products - unmanufactured	0.3	0.9	5	10
142	Nonferrous metals - crude and semifunished	0.3	0.4	2	2
150	Iron and steel products, except advanced	0.6	0.8	20	20
151	Iron and steel manufactures - advanced	0.8	1.8	34	41
152	Finished metal shapes and advanced manufactures	0.4	1.5	15	21
160	Unfinished nonmetals	0.1	0.2	6	13
161	Finished nonmetals	1.2	4.4	21	26

(Table Continued)

End Use Code	Description	Total Imports from Asia 1989 (US $ billions)	Total Imports from Asia 2002 (US $ billions)	Asia's Share of U.S. Imports 1989 (percent)	Asia's Share of U.S. Imports 2002 (percent)
200	Electric generating machinery, electric apparatus	2.4	8.3	19	25
210	Oil-drilling, mining, and construction machinery	0.3	0.7	6	10
211	Industrial and service machinery, n.e.c.	2.7	9.9	9	15
212	Agricultural machinery and equipment	0.1	0.3	3	7
213	Computers, peripherals, and semiconductors	14.8	67.8	44	67
214	Telecommunications equipment	2.6	7.8	27	34
215	Other office and business machines	0.8	1.8	18	41
216	Scientific, hospital, and medical equipment	0.4	2.8	11	18
220	Civilian aircraft, engines, and parts	0.2	0.5	2	2
221	Railway transportation equipment	0.0	0.0	2	3
222	Vessels, except military and pleasure craft	0.0	0.1	13	11
223	Spacecraft, engines, and parts, except military	0.0	0.0	0	0
300	Passenger cars, new and used	1.6	6.9	4	6
301	Trucks, buses, and special-purpose vehicles	0.0	0.0	0	0
302	Parts, engines, bodies and chassis	1.9	6.5	6	9
400	Apparel, footwear, and household goods	23.1	41.1	65	47
401	Other consumer nondurables	2.0	6.5	19	11
410	Household and kitchen appliances	9.2	38.8	50	59
411	Recreational equipment and materials	6.0	19.4	48	61
412	Home entertainment equipment	5.3	17.1	43	52
413	Coins, gems, jewelry, and collectibles	1.5	4.0	22	25
420	Consumer nondurables - unmanufactured	0.0	0.0	3	3
421	Consumer durables - unmanufactured	0.6	1.2	11	9
500	Exports, n.e.c. and U.S. goods returned	1.4	5.9	10	12

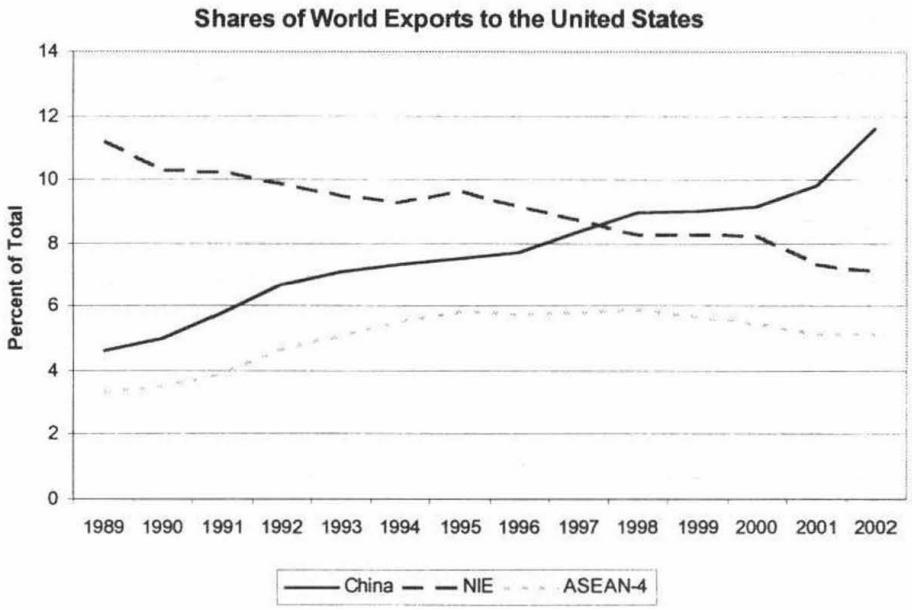


FIGURE 4
ASIAN EXPORTS TO THE UNITED STATES

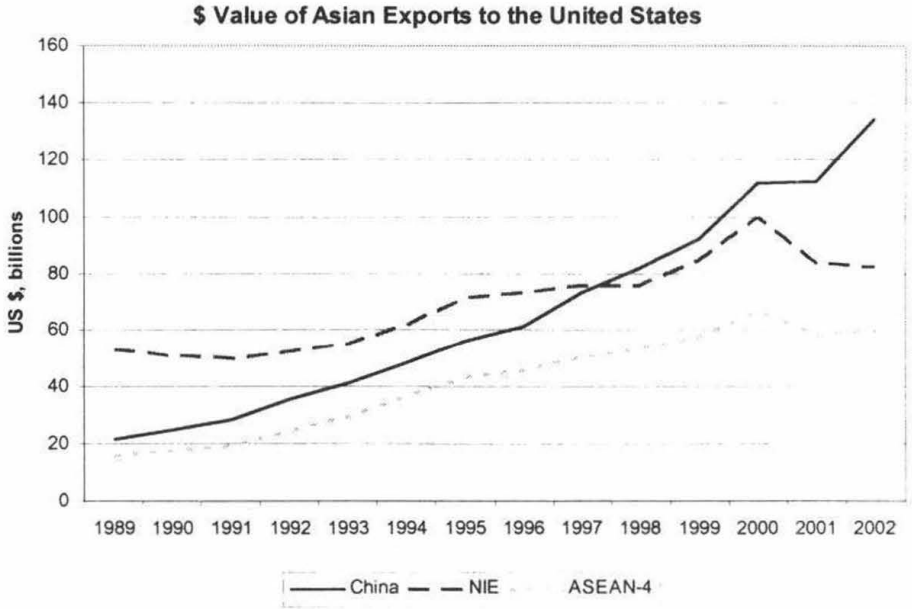


FIGURE 5
ASIAN EXPORTS TO THE UNITED STATES

each of the 48 industries that make up the aggregate. The tables contain a huge amount of data but some salient features do emerge. First, looking at Table 5a, there is no doubt that China has emerged as a significant exporter across virtually the entire spectrum of industries: its share has increased in 42 industries. In contrast, there are only five industries in which the NIE share is higher in 2002 than in 1989 and these are all in the industrial supplies and materials category (1-digit code '1').[7] In addition, there is one industry, 300 (new and used passenger cars), in which the NIEs have maintained a 100 percent share of U.S. imports from emerging Asia since 1989, although with foreign direct investment in China's auto sector growing rapidly, it may not be too long before China starts exporting autos. Second, increases in the shares of ASEAN-4 are also quite prevalent, increasing in 26 of the 48 industries. This means that cases in which the shares of both China and ASEAN-4 have increased are just as likely as cases in which their shares have moved in the opposite direction.

Overall, the message from Table 5a is that China and ASEAN-4 appear to have been moving into the product space vacated by the NIEs. The evidence is only reinforced if one takes into account the amount of imports from Asia in each industry, which is shown in the second column of Table 5b. In each of the five largest industries, the shares of China and ASEAN-4 have moved in the same direction (these are industries 213, 400, 410, 411 and 412). Moreover, although we can see from the last two columns of Table 5b that Asia's share of the largest industries has generally been rising (industry 400 is an exception), the NIEs share of the U.S. market has been declining.

We now turn to a more detailed analysis of the two largest industries based on U.S. imports in 2002, namely, industry 213 (computers, peripherals and semi-conductors) and industry 400 (apparel, footwear and household products). First consider the changes in industry 213 (Table 6). Here, mainland China's market share rose from essentially zero in 1989 to 7 percent in 1997; however, over half of this increase appears to have come at the

[7]They are 100 (petroleum and products), 123 (other agricultural products and textile supplies), 140 (unmanufactured steelmaking and ferroalloying materials), 142 (crude and semifinished nonferrous metals), and 160 (unfinished nonmetals).

TABLE 6

EXPORT SHARES OF SELECTED ASIAN ECONOMIES IN THE U.S. MARKET: DATA FOR INDUSTRY 213 (COMPUTERS, PERIPHERALS AND SEMICONDUCTORS)

	1989	1993	1996	1997	1998	1999	2000	2001	2002
China	**7**	**7**	**8**	**10**	**12**	**13**	**15**	**19**	**24**
China	0	3	6	7	9	11	13	17	23
HK	7	5	3	3	2	2	2	1	1
NIEs	**72**	**68**	**64**	**61**	**55**	**53**	**52**	**47**	**42**
Korea	21	16	18	16	13	17	18	13	12
Singapore	31	29	28	24	22	18	16	15	13
Taiwan	20	23	19	20	20	18	18	19	17
ASEAN-4	**21**	**25**	**27**	**29**	**33**	**33**	**33**	**34**	**34**
Indonesia	0	0	1	1	1	1	1	1	1
Malaysia	12	15	15	15	16	17	17	19	20
Philippines	4	4	6	8	10	10	10	10	9
Thailand	5	6	5	5	6	5	5	5	4
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Bureau of Economic Analysis.

expense of Hong Kong. When the two are combined, their market share increases only slightly over the period. The share of ASEAN-4 increases somewhat more substantially, with a corresponding fall in the share of the NIEs. In the period since the onset of the Asian financial crisis, both China and ASEAN-4 have continued to gain market share at the expense of the NIEs.

The story in the case of industry 400 is a bit different (Table 7). Here, China does experience a big increase in market share between 1989 and 1997, from 36 percent to 63 percent, with the bulk of this increase occurring between 1989 and 1993. The share of the ASEAN-4 also increased over the period, with the change being more substantial in the earlier part of the period. Since the onset of the crisis, there has been virtual constancy in market shares, with the NIEs losing only a small portion of their shares to China since 2000.

In sum, contrary to some popular perceptions, China's gains in market share have not come about primarily at the expense of the labor-intensive ASEAN-4 economies. Instead, China displaced the

TABLE 7

EXPORT SHARES OF SELECTED ASIAN ECONOMIES IN THE U.S. MARKET: DATA FOR INDUSTRY 400 (APPAREL, FOOTWEAR AND HOUSEHOLD PRODUCTS)

	1989	1993	1996	1997	1998	1999	2000	2001	2002
China	36	56	62	63	63	64	64	65	69
China	18	41	48	51	50	51	52	54	59
HK	18	14	14	13	13	12	12	11	10
NIEs	52	26	17	15	16	15	14	13	12
Korea	27	13	7	6	7	7	7	7	6
Singapore	3	2	1	1	1	1	1	1	1
Taiwan	22	11	9	8	8	7	7	6	5
ASEAN-4	12	19	22	22	21	21	21	22	20
Indonesia	3	7	8	9	8	8	8	8	7
Malaysia	2	2	3	2	2	2	2	2	2
Philippines	4	5	6	5	6	5	5	5	5
Thailand	3	5	5	5	6	6	6	6	6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Bureau of Economic Analysis.

NIEs in industries that these more advanced economies were relinquishing—apparel, footwear, and household products. This is a healthy development. It mimics an earlier period, when the NIEs moved into the industries relinquished by a more advanced Japan.

Even when the period is extended to include 1994 to 2000, there was virtual stability in export shares of the three Asian groups (China, the NIEs and the ASEAN-4) both at the aggregate level and in key industries.[8] To the extent that there were small gains in China's export shares in this period, these continued to come largely by displacing the NIEs. The significant real depreciations of the currencies of the "Asian crisis" economies did not have the dramatic impact on market shares that would have been expected if exchange rate movements were a strong factor behind export growth.

In the most recent period, however, from 2000 to 2002, we see

[8]In our previous work we showed that this stability of export shares holds in the United States, and appears to hold in Japan and many major European markets as well.

the shares starting to change once again. In fact, China's share has risen considerably, primarily at the expense of the NIEs, and to a lesser extent at the expense of the ASEAN-4. Some of this change may be due to the shifting of low-value-added production to China, while these economies, particularly the NIEs, focus on higher-value-added production. In that case, it would represent a healthy change for both China and the NIEs, as each would be focusing on the area in which it has a comparative advantage: China in low-value-added, labor-intensive manufacturing, and the NIEs in high-value-added, capital-intensive manufacturing. Another explanation may be that the role of the exchange rate in determining exports has increased in importance recently.

A. The Destination of Asian NIE Exports

An interesting fact that emerges from the data is that the NIEs are losing import shares in the U.S. market in almost all categories of goods at the same time that their overall exports are growing. This raises an obvious question: "Where are exports from the NIEs going?" In Table 7, we attempt to answer this using data from the IMF's Direction of Trade Statistics (DOTS).[9] The table shows the average annual growth rate of exports from China, the NIEs, and the ASEAN-4, as we have defined them in this paper, to the world, the G-3 (defined here as the United States, Japan, and European Union, which we use as a proxy for industrial countries), China, the NIEs, and the ASEAN-4.[10] The growth rates are broken down into the three time periods we identified earlier: the first period of China's increasing shares from 1989-93, the relatively stable shares period from 1993-2000, and the recent period in which China's shares have risen rapidly from 2000-2.

In the early period, it is obvious that China's share of the G-3 import market was growing at the expense of the NIEs. The average growth in Chinese exports to the G-3 was almost 20 percent during that period, while NIE export growth to the G-3 was just 2 percent.

[9]The data is augmented with data from the CEIC database as needed. In particular, data for Taiwan are not up to date in the DOTS database.

[10]So, for example, exports from the ASEAN-4 to the ASEAN-4 represent total exports from each of the ASEAN-4 countries to the other three countries in the ASEAN-4-in essence, an intra-subregional trade measure. Similarly, exports from China to China capture mainland China's exports to Hong Kong and Hong Kong's exports to the mainland.

TABLE 8

AVERAGE ANNUAL GROWTH OF EXPORTS FROM EMERGING ASIA BY REGION

		World	G-3	China	NIE's	ASEAN-4
1989-1993	China	15.8	18.6	12.7	17.6	13.2
	NIE's	9.3	2.4	27.7	15.7	16.9
	ASEAN-4	15.3	12.8	19.8	20.7	17.3
1993-2000	China	10.3	11.2	8.2	12.0	13.6
	NIE's	9.3	8.7	11.2	13.9	10.7
	ASEAN-4	10.6	9.4	13.7	10.7	18.1
2000-2002	China	8.0	5.7	9.6	7.7	14.0
	NIE's	-4.6	-9.8	7.2	-8.2	-5.2
	ASEAN-4	-0.9	-4.0	15.7	-4.4	2.7

Source: IMF Direction of Trade Statistics.

However, NIE exports to China were growing at almost a 30 percent annual rate at that time. In the stable share period from 1993-2000, the export growth rates of all three groups were fairly similar. The NIEs experienced a more rapid period of export growth to the G-3, perhaps due to the U.S. high-tech boom, and the NIEs exports to China continued to rise, albeit at a slower rate. In the final period, however, the differences are striking. In this period of rapid increases in shares for China in the U.S. import market, both the NIEs and ASEAN-4 have experienced falling exports to just about every group except China.[11]

We offer two explanations for the rise in NIE exports to China and the relative weakness of exports to the G-3. First, demand in China remained strong throughout the period we examined, despite several episodes of global weakness. Most noticeably, during the 2000-2 period, the U.S. high-tech bubble burst, global demand fell, and yet China continued to grow at a robust pace. Thus, it is not surprising that exports to China rose significantly in that period. Second, the shifting of production facilities to China from the NIEs

[11]Prasad and Rumbaugh (2004) present complementary evidence by looking at how important China has become to various countries as a destination for their exports. In the case of some of the Asian NIEs the increase in the importance of China as an export destination has been quite dramatic. For example, China has gone from accounting for under 0.1 percent of Korea's exports in 1990 to over 10 percent in 2000 and nearly 15 percent in 2002.

likely has boosted NIE exports of intermediate products to China for processing and export of the finished product.[12] The data presented here do not shed light on the relative importance of these two explanations, but it is likely that both are partly responsible.

IV. Implications of Regional Integration

We have shown above that China and emerging Asia are competitors at the sectoral level. However, at an aggregate level their relationship is much more complementary. This complementarity results in part from growing trade links that tie the fortunes of China and emerging Asia more closely together. As a result, economies throughout Asia are more dependent on economic developments and policies in China than they were previously. Closer integration with China, therefore, represents not only an opportunity for the economies of emerging Asia, but also a potential source of macroeconomic risk. In this section, we describe channels through which macroeconomic developments in China are likely to spill over to elsewhere in Asia, and briefly discuss several aspects of the outlook for economic activity in China and emerging Asia.

Why might greater trade integration in Asia be expected to increase the transmission of shocks between economies in the region? One obvious reason is that China has become a source of demand for final goods produced in emerging Asia. From this perspective, the rise of China is a positive factor for growth in emerging Asia. For example, Korean exports of steel products to China have surged recently, reflecting robust spending on infrastructure and other construction projects in China. But, by the same token, a significant downturn in China's economy would be expected to have a negative impact on the exports of emerging Asian economies.

[12]For a detailed discussion of the rise in intraregional trade in Asia, see Zebregs (2003). He concludes that "the rise in intraregional trade is largely driven by rapidly growing intra-industry trade, which is a reflection of greater vertical specialization and the dispersion of production processes across borders. This has led to a sharp rise in trade in intermediate goods ··· but the EU, Japan and the United States remain the main export markets for final goods.

In addition, greater integration of product lines across the region means that developments in China increasingly matter for the rest of Asia. As mentioned earlier, a significant portion of the final assembly of Asian-made products takes place in China. As a result, disruptions in China could potentially create a bottleneck in the production of a wide range of goods. An economic crisis in China could cripple numerous product lines, hurting corporations from emerging Asia that do business in China. Another example would be the imposition by advanced countries of tariffs on goods imported from China. Demand for intermediate inputs (possibly produced elsewhere in Asia) used in the production of these goods would likely decline as a result of such tariffs.

More generally, shocks to China's economy are likely to be transmitted to emerging Asia through confidence effects. By now, China's economy is so large and so integrated with the rest of Asia that investor sentiment toward emerging Asia depends in part on what happens in China. We now briefly discuss the outlooks and risks faced by China and the economies of emerging Asia.

Many observers believe that the health of China's financial system represents the greatest risk to the country (see, for example, Lardy (1998a, 1998b)). For example, concerns have been raised about Chinese banks' ability to compete with foreign banks, which are being permitted to enter the Chinese market gradually as part of China's WTO accession.[13] If depositors were to shift large amounts of funds from domestic banks to foreign banks, many domestic banks might find themselves illiquid. If the government is then forced to rescue these banks, the most accessible source of funding is the central bank. Then the government may face the undesirable choice of seeing an increase in inflation, or a substantial slowdown in growth (as banks are unable to extend new loans and are forced to call in outstanding ones).

Observers have also questioned whether massive capital flight could put pressure on the currency and balance of payments, given evidence that China's capital controls can be easily evaded. Capital

[13]The Chinese authorities recently announced that foreign banks are now permitted to conduct local-currency business with domestic Chinese firms. Under the terms of China's WTO accession agreement, foreign banks are supposed to be permitted to conduct local-currency business with retail customers in 2006. For a discussion of the impact of WTO accession on China's financial system, see Lardy (2002).

flight is currently not an issue, however, as errors and omissions in the balance of payments (sometimes used as a measure of capital flight) turned from large outflows over the period 1995 to 2001, averaging about $14 billion, to a large inflow of about $8 billion in 2002. The recent change has been driven by speculation about a change in the exchange rate regime that would permit the renminbi to appreciate against the dollar, thus raising the value of renminbi assets. In the long term, however, the fear is that capital outflows, for example caused by a sudden loss of confidence in the banking system or by an opening of capital controls, could lead to capital flight. Given the size and continued growth of international reserves, though, China may be better situated to handle this situation than other countries.

Despite all of these potential pitfalls, the consensus is that China will continue to grow at a robust pace in the medium- to long-term, boosted by the continued reforms and improvements in productivity. This would be positive for emerging Asia, the outlook for which we now briefly discuss.

Economies in emerging Asia rebounded sharply from the Asian crisis, before being battered in 2001 by the falloff in U.S. growth, weakness in Japan, and the plunge in global demand for high-tech products. The region suffered another blow in 2003 when it was hard-hit by SARS. However, recent signs have been more encouraging and most analysts expect a return to robust growth as the region benefits from stronger demand among leading trading partners and the global recovery in demand for high-tech products.

Two downside risks, however, are worthy of mention. First, in many countries, the financial restructuring that began after the Asian crisis is still incomplete. To the extent that such reforms remain incomplete, inefficient financial sectors may weigh on performance and exacerbate vulnerabilities over the medium term. Second, our results suggest that competition from China for export-market share is growing. Emerging Asia will need new strategies to move up the value chain and develop economies that are more knowledge-based. Greater levels of foreign direct investment may play a role in achieving these objectives. It is important to reiterate that, notwithstanding increased competition, China's rapid growth represents a significant opportunity for emerging Asia. China's imports have grown in lock step with its exports, and China is thus an important source of demand for goods from emerging

Asian. Thus it is not far fetched to say that, at present, China and emerging Asia are both comrades and competitors.

V. Conclusions

We find little evidence overall that increases in China's exports reduce exports of other emerging Asian economies. Indeed, it appears that China's exports and exports of the other economies are positively correlated. The correlation appears largely driven by common shocks-such as trading partner income-but even after controlling for the major sources of common shocks, the correlation remains weak but positive.

Nevertheless, when one looks at specific products, there is clearly considerable shifting of trade patterns taking place. It seems likely that these shifts require actual shifts in resource allocations, which can often be painful for those who lose out. From this perspective, China and emerging Asia are competitors. However, to the extent that China is displacing other economies in industries that the more advanced economies are moving out of, it is a healthy development with positive implications for the region. Moreover, the appropriate policy response would be to take steps to smooth the flow of resources across sectors.

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