CHINA AND ITS NEIGHBOURS: PARTNERS OR COMPETITORS FOR TRADE AND INVESTMENT?

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INTRODUCTION

The very rapid economic growth of China, its dramatic success in world export markets and its heavy receipts of foreign direct investment (FDI) have generated much thought and debate in policy and business circles in different parts of the world. From Malaysia to Mexico and from Indonesia to India the simple "threat or opportunity" question has been posed in relation to the "rise of China". Given the impact of geography on trade and investment patterns, such concerns have been greatest amongst China's most immediate neighbours. This paper examines the evidence from a number of recent empirical studies that address different aspects of this issue in the context of China's economic relations with East and Southeast Asian nations. The broad consensus is that whilst there may be risks to individual sectors in all countries concerned, the pattern of regional trade and investment that is emerging is mutually beneficial, provided enterprises and governments in China's regional partners respond effectively to the adjustments required.

This paper is organized as follows. The remainder of the introduction sketches out briefly some of the conceptual issues. The second section illustrates the differing trade structures between China and its regional partners, since the degree of complementarity is critical to the potential gains from expanded trade. The third section examines evidence on changes in export market share in third-country markets to assess the extent to which regional partners are losing market share to Chinese exports. The fourth section examines the FDI diversion argument. The fifth section looks at the potential benefits to the

[1] This paper draws principally on research by ADB Institute staff and Visiting Fellows conducted over the last two years. Any errors of interpretation are the responsibility of the author. The opinions expressed in this paper are those of the author and do not necessarily reflect the views of UNCTAD.

region (and to China itself) from various forms of trade liberalization arrangements. The final section draws some brief conclusions.

The "stylized fact" view of China is of a large, very rapidly growing economy with very high domestic savings, attracting large absolute values of FDI (but not, it should be noted, in per capita terms) and achieving dramatic export growth (averaging nearly 17 per cent annually 1990–2002). With a large rural population as a source of labour supply China's "modern sector" growth is seen as based on a near perfectly elastic labour supply at a low real wage based on low rural opportunity costs (a contemporary version of the "Lewis model" for a labour surplus economy). Given its size China thus becomes the marginal supplier for labour-intensive goods on the world market, and its real wage level and productivity set world prices in these products. FDI inflows and domestic investment in skills and technology upgrading allow a shift into more technologically sophisticated product ranges, particularly where labour-intensive segments of international supply chains can be relocated to China through FDI (although China lags well behind the Republic of Korea and Taiwan Province of China in technology indicators such as enterprise R&D expenditure per capita).

Falling trade costs (e.g. import tariffs, transport and freight charges, time in transit, the cost of information and managing international supply chains) have facilitated rapid regional integration in trade and capital flows within the East and Southeast Asian region. In addition to this, China's rapid expansion provides an opportunity for regional partners to export to and invest in its large domestic market. However, China is also an export rival in third-country markets (and a country's own domestic market) in a range of goods from simple labour-intensive products to the more technologically complex (for the latter principally because of its large FDI sector). If FDI to the region is treated as a fixed sum, then higher inflows to China will be at the expense of other economies and there will be FDI diversion as an additional possible negative effect that will have consequences for trade flows.

The competitive "threat" from China for particular goods can be seen in terms of changes in domestic market share (negative import substitution) and third-country markets. However whether rising international competition leads to income and welfare losses will

depend upon the flexibility of economies. In a world of zero adjustment costs economies will simply adapt to changing relative costs and if market share is lost in one product, resources will shift into another where market prospects and returns are higher. The familiar argument which states that only firms, not nations, compete rests on a set of simplifying assumptions related to perfect markets and hence zero adjustment costs. In other words, with positive adjustment costs trade competition need not always be mutually beneficial for all different parties.

The impact of "the rise of China" and falling trade costs more generally can be thought of in simple terms of "trade diversion" and "trade creation". For any one economy, trade diversion arises where lower cost or higher quality goods (for example from China) displace those of the economy concerned, creating a potential loss of income if new markets are not found and the resources involved are not shifted to other activities. Trade creation is where growth elsewhere (for example in China) creates a demand for an economy's exports.[2] It will make a difference what type of products are the subject of this diversion and creation process. In general it is desirable for economies to shift up the "ladder of comparative advantage" that runs from simple labour-intensive goods, through capital-intensive, to human capital-intensive technologically sophisticated products. How this process is affected by closer trade links with a large fast growing regional neighbour will clearly be important and the dynamic implications of any new regional division of labour will matter. If an economy adapts by specializing in products with a static global market or a lack of technological dynamism, this new specialization pattern may offer lower growth prospects than the initial pre-adjustment one. A priori it is expected that the more adaptable are the firms in an economy, the greater is the scope for mutually beneficial outcomes from closer trade links. Also the greater is the scope for complementarity between partner economies, in terms of resource and human capital endowments, the greater the potential for trade creation and thus the greater will be the gains.[3]

[2] It should be noted that these are not the classic "Viner definitions" from the theory of customs unions, since the latter assumes a common external tariff that can divert trade from low cost suppliers outside to high cost suppliers within the union. Trade diversion in customs union theory thus becomes a negative factor for an economy and is a cost to be offset against the gains from trade creation.

[3] Zhou and Lall (2005).

Adaptability in this context implies the ability of firms to identify new market niches, to re-equip and re-train, to identify, purchase and adapt new technology and to establish alliances within international supply chains. These firm-level responses are aided by a supportive and flexible policy environment, which encourages firms to take risks, provides adequate public education, training and research expenditure, ensures firms have adequate support from the financial sector, encourages R&D activity with collaboration, where appropriate, and gives an overall strategic direction to "national competitiveness policy".

I. TRADE STRUCTURE: CHINA AND THE REGION

In general terms it is well known that China's trade and production structure is intermediate; it is less sophisticated than Japan and the first-tier of NIEs (Singapore, the Republic of Korea, and Taiwan Province of China), but in some sectors considerably more sophisticated than that of the second-tier NIEs (Indonesia, Malaysia, Thailand and the Philippines). This can be illustrated in various ways.

The simplest approach is to compare the structure of exports by trade category. Table 1 reports the correlation coefficient between shares for 3-digit SITC categories for two years 1990 (when China was still a relatively closed economy) and 2000. It can be seen that in 2000 China's export structure was relatively similar to that of Taiwan Province of China, and to a lesser extent the Republic of Korea, ten years earlier. Making the comparison for 2000 China's structure is closest to that of Taiwan Province of China and Thailand (correlation coefficients of over 0.5) and most dissimilar from that of Indonesia and the Philippines (correlation coefficients of around 0.3).

An alternative way of looking at the same data is to draw on a well-established trade classification that groups SITC categories by the technological sophistication of the products they cover based on the R&D intensity and use of natural resource of the products (for more details see Lall 2000). The significance of this means of grouping the data is that more technologically-sophisticated products (principally in the high technology category) in general tend to have higher value-added per unit of export and to show the greatest market growth in

Table 1
CORRELATION COEFFICIENTS CHINA AND REGIONAL EXPORT STRUCTURES
(3-digit SITC)

	China	
	1990	*2000*
Republic of Korea 1990	0.38	0.64
Republic of Korea 2000		0.43
Taiwan Province of China 1990	0.34	0.83
Taiwan Province of China 2000		0.53
Singapore 1990	0.10	0.42
Singapore 2000		0.41
Malaysia 1990	0.28	0.24
Malaysia 2000		0.44
Thailand 1990	0.30	0.52
Thailand 2000		0.51
Indonesia 1990	0.38	0.07
Indonesia 2000		0.33
Philippines 1990	0.23	0.38
Philippines 2000		0.33

Source: Lall and Albaladejo (2004), Table 4.

world trade; in other words the high technology category captures the most dynamic segment of world trade.

Table 2 classifies China and regional trade in 2000 by this technology grouping. Over the period 1990–2000, China's total export growth was considerably faster in the high technology category (averaging 32 per cent annually as compared with 17 per cent for all manufactures). Whilst China's growth in the high technology category (principally electronics) has been impressive, in terms of share in total manufactures it still remains well below most regional partners, with the exception of Indonesia. The importance of low technology goods in 2000 reflects the continued role of clothing and textile products based on low wage costs. This significant role is expected to continue at least in the short term with the removal of the export quota system for these goods in 2005, from which China is expected to be the main beneficiary.

Table 2
TECHNOLOGICAL STRUCTURE OF MANUFACTURED EXPORTS 2000
(In per cent)

	China	*Republic of Korea*	*Taiwan Province of China*	*Singapore*	*Malaysia*	*Thailand*	*Indonesia*	*Philippines*
Resource-based	9.5	11.7	4.4	14.9	13.1	18.4	33.7	6.5
Low technology	44.9	17.1	23.8	6.5	9.6	21.5	31.3	11.9
Medium technology	21.2	34.0	25.5	17.4	17.8	23.8	17.5	11.6
High technology	24.4	37.1	46.3	61.2	59.4	36.3	17.4	70.0

Source: Lall and Albaladejo (2004), Table 3 (see original for explanations of categories).

There is no simple formula for determining the degree of potential complementarity between economies, but given the differences between trade structure and the domestic production that underlie them, prima facie there seems clear scope for a re-orientation of trade in the different economies in response to the opportunities created by closer trade integration and liberalization. As we shall see, there is in fact evidence of this occurring at an accelerated pace, particularly through the segmentation of production chains in the high technology (particularly electronics) branches.

II. CHANGES IN COMPETITIVENESS IN THIRD MARKETS

China's dramatic export expansion is widely recognized and its total share of world trade has risen by 4.5 percentage points from 1990–2002 (from 1.9 to 6.4 per cent).

Like the NIEs before it, export growth has been a critical driving force for industrial development in China, since the opening of the economy to foreign trade in the early 1990s. However the role of export demand in China in the 1990s appears greater than even in the first- and second-tier NIEs at earlier stages of their development. This is illustrated by a simple demand decomposition analysis that breaks down the increase in output over a given period into growth of domestic demand, holding the import share in total supply constant, growth of exports and the import substitution effect.[4] Table 3 reports the result of this decomposition when production data are grouped by the previous technology classifications. For China the dominant role of export expansion is clear and its proportionate share generally exceeds that of the NIEs, for all but resource-based manufactured products from the second tier group who are typically net exporters of these products. A figure of 203 per cent for medium-high technology

[4] This is based on the identity $\Delta P = d1*\Delta S + \Delta X + (d2 - d1)*S2$, where ΔP is change in output between period 1 and 2, ΔS is change in total supply (imports plus domestic production), ΔX is change in exports, d1 and d2 are the share of domestic production in total supply in periods 1 and 2 respectively, and S2 is total supply in period 2. If we divide the three terms by ΔP then the ratio $(d1*\Delta S)/\Delta P$ gives the share of domestic demand in total growth, $(\Delta X/\Delta P)$ gives the share of export expansion and $((d2 - d1)*S2)/\Delta P$ gives the effect of import substitution. A negative sign on the last term means that imports are rising as a share of domestic supply and there is negative import substitution. A negative sign on the first term means falling domestic consumption.

Table 3
DEMAND DECOMPOSITION ANALYSIS OF MANUFACTURES: CHINA AND NIES
(In per cent)

Region/Time period	*Category*	*Domestic demand*	*Export expansion*	*Import substitution*
China				
1990-1994	(1)	93	18	10
	(2)	-24	164	-40
	(3)	73	48	-21
1995-1999	(1)	94	17	-11
	(2)	-30	185	-55
	(3)	4	203	-107
First-tier NIEs				
1985-1989	(1)	91	15	-6
	(2)	48	75	-23
	(3)	57	44	-2
1990-1994	(1)	103	10	13
	(2)	60	40	0
	(3)	68	34	-2
1995-1999	(1)	538	-9	-429
	(2)	85	21	-6
	(3)	58	53	-11
Second-tier NIEs				
1985-1989	(1)	99	-45	46
	(2)	66	28	7
	(3)	39	81	-20
1990-1994	(1)	77	31	-8
	(2)	59	44	-3
	(3)	48	50	2
1995-1999	(1)	61	85	-46
	(2)	12	96	-8
	(3)	22	82	-4

Source: Weiss and Jalilian (2004), Table 5.
Category: (1) Resource-based; (2) Low technology; (3) Medium and high technology.
Note: First- and second-tier NIEs are as defined in text.

exports 1995–1999 means that the increase of exports over this period is a little more than double output expansion, because of the strong negative import substitution effect, as imports took a rising share of the domestic market for these goods in China.

This strong export growth has seen China's share of world trade rise by nearly five percentage points (1990–2002) and has undoubtedly eroded the position of many regional exporters in third-country markets, such as the United States and Japan. The most direct way of judging this competitive impact is to examine changes in market share for China and regional exporting economies. Lall and Albaladejo (2004) use a simple, but helpful, classification to organize the data. For any given market (or the world economy as a whole) five groupings are possible. The authors' terminology for this classification is as follows:

- partial threat: where China and the economy concerned gain market share, but China gains more;
- no threat: where both China and the other economy both gain market share, but with China growing more slowly;
- direct threat: where China gains market share and the other economy loses it;
- China under threat (or reverse threat) where this time China loses market share and the other economy gains;
- mutual withdrawal: where both China and the other economy lose market share.

Data on competition in the world market between China and the main NIEs is illustrated in Table 4 using these groupings. For each economy its total exports for 2000 are decomposed into these five categories.

From this data it appears that all economies have a majority of their exports (or very close to this in the case of the Philippines) under some form of "threat" as defined here. Countries in the most direct competition by this indicator are Malaysia, Thailand and Indonesia, which tend to have the least sophisticated export structures of the group. The reverse threat, where countries are gaining relative to China is modest in all cases. The countries with the more sophisticated trade structures, with a high share of high technology

Table 4
CHINA THREAT TO NIEs IN THE WORLD MARKET 2000
(Percentage of total exports)

Category	*Singa-pore*	*Taiwan Province of China*	*Republic of Korea*	*Malaysia*	*Thai-land*	*Indo-nesia*	*Philip-pines*
Partial threat	40.4	34.0	28.0	56.5	61.6	48.3	44.0
No threat	32.0	39.3	42.2	5.0	15.9	10.7	44.3
Direct threat	23.5	22.9	26.2	28.7	15.1	19.9	5.8
Reverse threat	3.4	3.4	2.9	6.3	6.1	8.9	3.6
Mutual	0.7	0.4	0.7	3.5	1.3	12.2	2.4

Source: Lall and Albaladejo (2004), Table 6.

exports, are those where the direct threat (where the country concerned is losing market share whilst China is gaining it) is greatest, although no causal inference can be drawn from this relative change in market shares. In fact, data in the appendix to Lall and Albaladejo (2004) indicate that only in Malaysia do a majority (77 per cent) of goods under direct threat belong to the high technology category; elsewhere the majority of directly threatened goods come from low and medium technology and resource-based categories.

A more disaggregate examination of competition in third-country markets is provided by Weiss and Gao (2003). To establish the degree of loss in market share to Chinese exports, for a given country export growth for any commodity to a particular market (such as the United States or Japan) can be decomposed into a share effect (assuming the country keeps a constant share of the market) and a competitiveness effect (allowing for its changing market share). If a comparator economy (in this case China) is introduced competitiveness can, in turn, be decomposed into change in the country's market share relative to China and the change in China's market share relative to the rest of the world.[5]

[5] $\Delta X_{ij} = \Delta Q_i.s_{ij} + s_{ij}.Q_i^* (\Delta s_{ij}/s_{ij} - \Delta s_{ik}/s_{ik}) + \Delta s_{ik}/s_{ik}. s_{ij}.Q_i$
where X is exports and Δ is the absolute change in, Q_i is total imports of commodity i in the market concerned (at the end of the period), s_{ij} is the initial market share of country j in imports of i and with competitor country k, s_{ik} is k's market share for product i. In this expression the first term gives the share effect with market share constant, the second term gives a measure of competitiveness for country i relative to the comparator and the third term gives the competitiveness of the comparator.

This approach is applied to the exports of five ASEAN countries (Singapore, Malaysia, Thailand, Indonesia and the Philippines – henceforth the ASEAN 5) to the United States and Japan over the period 1995–2000. To illustrate the magnitude of the loss of exports to the United States due to the loss of market share relative to China, Table 5 decomposes the change in exports 1995–2000 for the five two-digit SITC categories for which, for the ASEAN 5, the absolute export loss relative to China in the United States is greatest. Change in exports in each category is set at 100, so the competitiveness effect in relation to China is a proportion of this. Columns 2 and 3 always sum to 100 as they reflect the two components of total change in exports. Competitiveness relative to China is one element of total competitiveness and when the third column has a negative sign the country is losing market share to China.

Table 5
ASEAN 5 DECOMPOSITION OF EXPORT INCREASE TO THE UNITED STATES 1995–2000

SITC	*Export increase to United States*	*Constant market share effect*	*Overall competi-tiveness effect*	*Competi-tiveness vis-à-vis China*	*Export change as a percentage of 1995 exports*
75	100	112	-12	-220	42
77	100	82	18	-126	55
76	100	593	-493	-572	18
89	100	574	-474	-674	10
82	100	169	-69	-197	78

Source: Weiss and Gao (2003), Table 1.
Note: SITC 75 represents office and data processing machines; 76 is telecommunications; 77 is electrical machinery; 82 is furniture; 89 is miscellaneous.

In all of these categories there has been a strong effect from the loss of market share relative to China, and in all categories except SITC 77 there is a "direct threat" in terminology used above; for SITC the threat is "partial". What is measured is the loss in exports due to the fact that a country's market share has not kept pace with that of China, as a proportion of actual export increase. In some categories the absolute value of the change in relative market share is several times the value of the actual export increase. For example, for office and data processing machines (SITC 75) the loss of exports due to the falling market share relative to China is roughly double the actual

export increase achieved, whilst for telecommunications (SITC 76) it is nearly six times the actual increase. Nonetheless in all these categories, this strong loss of market share was still accompanied by rising exports from ASEAN.

The analysis of changing competitiveness relative to China can be extended by focusing on trends at the four-digit SITC level and explaining these in a regression framework linking product characteristics with changing market share relative to China. Here the dependent variable is the value of lost exports due to change in market share relative to China, scaled by division by total exports in 1995 in the same category.[6] Weiss and Gao (2003) test whether loss of competitiveness defined in this way is systematically related to the characteristics of trade categories, whether in terms of technological characteristics, or patterns of specialization. A simple model that makes competitiveness a function of the characteristics of products, as reflected in a measure of specialization, general shifts in competitiveness and changes in tastes as a demand factor, is applied. They use a measure of specialization – the relative revealed comparative advantage measure (RCA) – at the start of a period to explain changing competitiveness over the period.[7] They justify this choice because the initial RCA can be taken as a proxy for the relative output level and factor intensity of different products.

The analysis across 690 four-digit SITC categories is first conducted for the ASEAN 5 as a group and then for each economy individually. It is carried out separately for the United States and Japanese markets.

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[6] Using the notation in footnote 3 competitiveness (COMP) is measured as:

$$COMP_{ij} = [\, s_{ij}.Q_i^* \, (\Delta s_{ij}/s_{ij} - \Delta s_{ik}/s_{ik}) \,] / X_{ij}$$

where X_{ij} is initial exports of i from j to the market concerned. Where there is a gain in market share relative to China, COMP will be positive and where there is a loss it will be negative.

[7] Relative revealed comparative advantage is defined as RCA = (Xij /Xtj)/(Xik/Xtk) where X refers to export value, t stands for total exports and k is the comparator economy. In principle the RCA may be related to changes in competitiveness, as defined here, either through shifts in relative factor prices or to a simple "catching up" effect. As total trade covers a wide variety of product types to impose some pattern on the data dummies are applied for nine product categories that are sub-divisions of the Lall technology classification noted above. The use of dummy variables reflecting these nine categories implies that there is broad homogeneity within each in terms of the response of different products to the explanatory variables.

The broad results strongly support the view that, not only have the main ASEAN economies been exposed to increasing competition in both the United States and Japanese markets, but also that their reduced competitiveness relative to China appear to be related systematically to particular product categories, with losses greater in the areas within those categories in which the ASEAN economies are most highly specialized relative to China.

Significantly, there is evidence of increased competition from China at both the relatively labour-intensive and the relatively high technology end of the product scale, although within a given trade category technological sophistication appears generally to offer some protection to ASEAN exporters. This latter effect is found in different products categories for different countries and appears to be most uniform for engineering products in the United States. Automobile products are the only product category for which there is no evidence of systematic loss of competitiveness because they are small in value and only a small number of observations exist. In no product category is there any evidence of systematic gains relative to China, although for a few countries and categories there is a significant cross-over rate for the RCA variable; this implies that at lower levels of specialization there is a gain of competitiveness relative to China, whilst there are losses at higher levels.

For the large categories of electronics, electrical equipment and engineering (which combined represent two-thirds of ASEAN exports in the United States and 40 per cent in Japan) there is a consistent pattern of loss of competitiveness, which is stronger in more specialized products, and which holds for all countries in both markets. In the other important categories of primary products, resource-based manufactures and textiles and garments, all countries show significant losses in either the United States or Japan and in a majority of cases for these categories countries show a significant loss in both markets. Again this is always significantly related to the degree of specialization.[8] It must be stressed that loss of competi-

[8] Weiss and Gao (2003) hypothesize that the link between greater specialization in ASEAN countries relative to China and loss of market share is due to shifts in the relative capital rental-wage ratios that are favourable to China and hence unfavourable to ASEAN countries. Increased domestic savings or rising FDI inflows to China, which increase the supply of capital and lower the capital rental-wage ratio, are simple candidates for a general explanation. Naturally, the industry-specific effects as well as general catch-up trends which were noted earlier may also be at work, but the analysis does not capture these.

veness as defined here refers to loss of market share relative to China. This does not necessarily convert into an absolute decline in exports. Absolute export declines for ASEAN countries are found for primary products and engineering in the United States and for primary products, resource-based manufactures, and textiles, garments and footwear in Japan. Hence much of the erosion of market share is in categories whose sales from ASEAN countries are continuing to expand, principally the very large category of electronics and electrical goods. Here losses of market share are in the product lines where ASEAN countries is most specialized, eroding established market positions.

The conclusion is that regional neighbours have been exposed to strong direct competition from Chinese exports and consequently there has been some trade diversion in the sense of relative loss of market share. Before discussing evidence on the net overall impact of closer trade integration we turn to the FDI diversion argument.

III. COMPETITION FOR FDI: IS THERE A DIVERSION EFFECT?

In recent years FDI inflows have been a major driving force in the development of East and Southeast Asian countries; some second-tier NIEs, in particular, have relied heavily on FDI for technology, management and marketing skills. The "rise of China", in terms of its attraction of heavy FDI inflows, has caused considerable concern because if there are limited FDI flows to the region, China's gains will be at the expense of its neighbours. If, as expected, foreign firms have special advantages that allow access to export markets any FDI diversion will in turn have implications for trade flows and diversion effects. Insofar as Southeast Asian economies saw declining FDI inflows in the late 1990s in the aftermath of the regional financial crisis (and net outflows in the case of Indonesia), China was the single largest developing country recipient, this concern had a superficial plausibility. However, a closer examination of the data suggests the case is greatly overstated for a number of reasons.

The absolute and relative size of FDI to China are often confused when the subject is broached. Whilst in absolute terms FDI to China is very large, once this figure is compared with either population or

some measure of economic activity in the country, the ratio is not an outlier in comparison with other countries. This is seen readily in the UNCTAD FDI Performance Index, which compares a country's share in global FDI to its share in global GDP. For 1999–2000, China's figure of 1.2 is roughly the average for the region as a whole, but below the comparable figures for Singapore, Thailand and Malaysia (UNCTAD 2002, Table 2.1).

Second, this type of comparison, which is based on officially recorded FDI flows will give an upward bias to China's position since it is widely accepted that "round-tripping" – that is, the export of domestically generated funds and its return to its country of origin as FDI, is more significant in China than elsewhere. The motives for "round-tripping" in the case of China are essentially threefold: the reinvestment of flight capital that may have had its origins in the black economy; the preference to register enterprises as foreign investments to take advantage of tax incentives not available to local firms; and the wish to incorporate companies abroad (particularly in Hong Kong China) to take advantage of improved reputation, corporate governance and superior financial services. Xiao (2004) examines these issues in detail and by means of a comparison of FDI statistics in the country of origin and China, he breaks down the discrepancy into what he terms a normal "statistical error" and "round-tripping". His most likely estimate of the latter is as high as 40 per cent of FDI inflows in recent years (with high and low estimates of 50 and 30 per cent, respectively). If recorded figures are adjusted downwards by this proportion, China's FDI Performance Index figures (as defined above) will appear well below the regional average.

A simple comparison of FDI statistics and their downward adjustment as appropriate casts some doubt on the extent to which FDI to China is unusually high. However, one can address the diversion argument more rigorously by identifying the explanatory factors behind regional FDI inflows and adding a separate variable for "a China effect". Chantasasawat et al. (2003) do this by setting up a regression model which explains FDI flows to eight East and Southeast Asian economies (1985–2001) by a number of conventional variables (including measures of market size, tax rates, wage levels, human

capital stock, infrastructure quality and government stability) plus FDI inflows to China.[9] If the investment diversion case is valid one will expected a significant negative coefficient on the Chinese FDI variable.

The key result of interest here is that when the level of FDI investment in the eight neighbouring economies is examined, it is positively – and not negatively – related to FDI in China. A 10 per cent increase in FDI to China raises FDI in the region by 5–6 per cent depending on specification. Rather than finding evidence of FDI diversion, it appears that FDI creation is at work. The authors explain this by referring to production networking among international firms in the region. This means that investment in China may be linked with investment elsewhere in the region to supply parts and components to plants located in China (or vice versa with China supplying parts and components to plants in one of the eight neighbouring economies). This result holds regardless of whether or not FDI from Hong Kong China, with an assumed high round-tripping element, is included in the analysis. The "China effect" is not the strongest of the factors explaining FDI inflows with measures of trade openness and taxation showing higher elasticities. Nonetheless, the significant positive sign on FDI to China is a strong undermining of the case that competition for FDI in the region is a zero-sum game. It seems preferable to view FDI flows as at least partially endogenous to regional activity, with FDI responding to the profit opportunities generated by regional growth and with FDI flows to one economy interacting positively with FDI flows to another as international firms exploit regional production sharing in a segmentation of the supply chain.

[9] As there will be simultaneity in the relationship with feedback between FDI to the various countries and China the model is estimated as a simultaneous equation system where:

$$AFDI_{it} = \alpha + \beta PRC\_FDI_t + \lambda x_{it} + \mu_i + e_{it} \quad (1)$$

$$PRC\_FDI_t = \gamma + \delta\, AFDI_{it} + \rho z_t + v + w_t \quad (2)$$

Here subscripts i and t refer to country i at time t; x_{it} is the set of determinants of FDI to the Asian economies covered, so for country i its FDI inflow is $AFDI_i$; z_t is the set of determinants for FDI to PRC (PRC_FDI); u_i and v are country specific terms, and e_i and w are error terms.

IV. WHAT IS THE EVIDENCE ON TRADE CREATION?

China has in recent years seen a major increase in its imports from regional neighbours and its rapid growth has been widely identified as a key source of dynamism for these countries. For example, from 1995–2003 exports of precision instruments and electrical machinery (mostly made up of parts and components) from its nine major neighbouring trade partners grew by over 600 per cent and exports of machinery, chemical products and transportation equipment grew by around 300 per cent.[10] This import growth occurred over a period of major change in trade policy in China in preparation for WTO accession. Many of the changes needed for WTO entry were introduced during the 1990s, so that the weighted average tariff on manufactures fell from 47 per cent in 1992 to 13 per cent in 2001. Under the WTO agreement this tariff is due to be reduced further to 7 per cent (expected by 2005) and the remaining non-tariff barriers are to be simplified and phased out (Martin et al. 2004).

However, establishing the link between this surge in regional imports and the trade reforms associated with WTO entry calls for more than a simple description or projection of current trade patterns. A counterfactual non-reform scenario must be compared with a projected "with reform" case. The conventional means of addressing this is to apply a form of computable general equilibrium (CGE) model that compares a baseline (pre-reform) case with scenarios based on one or more trade reform packages. Roland-Holst (2002) and (2003) applies a version of the well-known GTAP model to assess the impact of reform on trade and income for both the region and China itself.[11]

[10] See ADB (2004); these figures include Hong Kong China as a separate export source and are therefore slightly misleading.

[11] The model is aggregated to cover 16 countries and 18 sectors. Production sectors are based on constant returns CES production functions. Macro-growth is imposed exogenously from consensus forecasts and there are fixed government and balance of payments positions. The latter is set by exogenously given capital flows and is maintained by a change in real exchange rates which are endogenous. Productivity growth is determined partly by the imposed macro-growth rate and partly endogenously as it is assumed to be positively related to the export-output ratio by an imposed elasticity; for details see Roland-Holst (2002).

The model provides a direct comparison of "with and without scenarios" and their outcomes are driven by a combination of assumed macro-growth rates, changes in import protection (i.e. the degree of trade reform), and demand and supply patterns in the countries concerned. However, as a projection of the future it is best described as "indicative"; that is a projection of what will happen if markets clear in the way models of this type assume. As CGE models of this type assume that all markets revert to equilibrium, they imply instant adjustment as resources shift from previously protected activities, so there are no frictional underutilization problems arising from changes in trade policy. This is the perfectly competitive world in which "competitiveness" is not an issue. This is not to imply that such models give results that have no meaning, but by ignoring transitional difficulties arguably they have an implicit bias in favour of the policy they are examining.[12] Furthermore there is always the issue of whether non-tariff barriers are adequately accounted for in this type of exercise.

The major result of Roland-Holst (2002, 2003) is that in the wake of the China's WTO accession, it will have a rising trade surplus with North America and Europe up to 2020, but a rising trade deficit with ASEAN countries and with the neighbouring region more generally. Broadly speaking China will export finished goods to the former markets and import foodstuffs, raw materials, parts and components and capital goods from the latter.[13] Tables 6 and 7 illustrate the basic run of the model which compares the baseline case (i.e. projections under the assumption of no policy change) with China's WTO accession scenario.

Table 6 shows for example that China's exports to ASEAN countries are 36 per cent higher in 2020 as a result of WTO accession, while ASEAN country exports to China are 28 per cent higher. The respective percentage changes for the Republic of Korea and Taiwan Province of China (the NIEs in this context) are 43 and 32 per cent. Table 7 gives the same results now focusing on the change in the

[12] Modelers often respond, however, that by omitting dynamic effects relating to higher investment or capital flows these models tend to understate, not overstate, the gains from trade reform. See for example Lee et al (2004).

[13] This broad result is found in a number similar studies. See for example Ianchovichina and Martin (2003).

Table 6
TRADE GROWTH WITH CHINA WTO ACCESSION
(Percentage change from baseline scenario in 2020)

Exports to	*China*	*Japan*	*NIEs*	*ASEAN*	*United States*	*European Union*	*Rest of world*	***Total***
Exports from								
China	0	37	43	36	31	35	32	34
Japan	38	0	-4	-6	-7	-5	-5	3
NIEs	32	-10	-7	-11	-13	-10	-10	3
ASEAN	28	-4	-1	-2	-5	-3	-4	1
United States	24	-1	1	-1	0	-1	-1	1
European Union	22	0	1	-1	-2	-1	-2	0
Rest of world	13	0	2	-2	-2	-1	-1	0
Total	26	5	6	2	2	0	1	3

Source: Roland-Holst (2002), Table 4.2.
Notes: NIEs are the Republic of Korea and Taiwan Province of China.

Table 7
ABSOLUTE CHANGE IN BILATERAL TRADE BALANCE WITH CHINA IN 2020 COMPARED WITH BASELINE SCENARIO
(In 1997 US$ billions)

Country	*Change in bilateral balance: China – country due to WTO accession*	*Projected actual bilateral trade balance China – country 2020*
Japan	-4	-5
NIEs	-34	-135
ASEAN	-3	-41
United States	61	166
European Union	46	66
Rest of world	51	71

Source: Roland Holst (2002), Table 4.3 and (2003), Table 2.2.
Note: A negative sign indicates a deficit for China.

bilateral trade balance between different groupings and China as a result of WTO accession. The NIEs have a bilateral trade surplus with China in 2020 of US$34 billion as a result of WTO accession. This accounts for approximately one-third of their total projected surplus. The share of ASEAN countries explained by WTO accession is much smaller (presumably because trade barriers were lower prior to accession) at less than 10 per cent (US$3 billion out of a surplus of US$41 billion).

These results can be extended by accepting WTO accession as a given and posing the question what additional trade creation results from new regional arrangements – such as China's joining the ASEAN free trade grouping, the Asian Free Trade Area (ASEAN plus China) – or China, plus Japan and the Republic of Korea, joining ASEAN (ASEAN plus 3)? Tables 8 and 9 provide the answers in terms of percentage change in trade flows in 2020, now compared with the scenario of China's WTO accession, rather than the original baseline.

A strong growth in Chinese exports to ASEAN countries is predicted (47 per cent above the level with WTO accession alone). Import growth from ASEAN countries is only modest at 2 per cent, presumably on the basis that barriers in China are treated as already very low after WTO accession. ASEAN countries significantly reduce imports from third countries, so there is an important trade diversion effect (e.g. United States exports to ASEAN countries are 6 per cent lower and Japanese exports are 10 per cent lower). Most effects are magnified in the case of the wider group of ASEAN nations plus China, Japan and the Republic of Korea, with Chinese exports to the latter two countries rising strongly. However, the exports to China grow only modestly relative to the predicted level under WTO accession (Japan's are 2 per cent higher and ASEAN's 4 per cent). This is once more due to the fact that WTO accession is taken to have offered easy market access to exporters from these economies to China. There are now also greater diversion effects for exports of non-members than in the more limited ASEAN plus China arrangement (United States exports to ASEAN, for example fall by 9 per cent).

Table 8
TRADE GROWTH WITH CHINA JOINING ASEAN
(Percentage change from China WTO accession scenario in 2020)

Exports to	*China*	*Japan*	*NIEs*	*ASEAN*	*United States*	*European Union*	*Rest of world*	***Total***
Exports from								
China	0	-4	-4	47	-3	-4	-3	1
Japan	2	0	1	-10	1	1	1	0
NIEs	2	0	0	-12	1	1	1	0
ASEAN	2	4	3	33	3	3	1	9
United States	1	0	0	-6	0	0	0	0
European Union	1	0	0	-5	0	0	0	0
Rest of World	2	0	0	-7	0	0	0	0
Total	2	0	0	9	0	0	0	1

Source: Roland-Holst (2003), Table 3.2.

Table 9
TRADE GROWTH WITH CHINA JOINING ASEAN PLUS 3
(Percentage change from China WTO accession scenario in 2020)

Exports to	*China*	*Japan*	*NIEs*	*ASEAN*	*United States*	*European Union*	*Rest of world*	***Total***
Exports from								
China	0	21	33	27	-8	-9	-8	3
Japan	2	0	39	40	-2	-2	-2	10
NIEs	3	50	31	43	0	-1	-2	11
ASEAN	4	49	35	26	5	4	0	14
United States	5	-4	-11	-9	1	1	1	-1
European Union	4	-2	-10	-11	1	0	0	0
Rest of world	5	-9	-10	-8	1	0	1	-1
Total	4	12	10	13	-1	0	-1	2

Source: Roland-Holst (2003), Table 3.3.

Detailed information on particular sectors can also be derived from this model. If one considers the relatively inclusive regional trade grouping of ASEAN plus 3 as compared with the WTO accession scenario, Chinese exports by 2020 are higher in nine out of the 18 sectors in the model, the vast majority of total export gains are in just two sectors: processed food (US$40 billion in 1997 prices); and textiles (US$8.5 billion) (Roland-Holst 2003, Table 3.9). A disaggregated look into import and export flows at the sector level

arising from the ASEAN plus 3 scenario is also possible using a simple measure "intra-industry competitiveness", essentially net exports relative to total trade in the sector.[14] Table 10 gives this measure of bilateral trade flows by sector in 2020 for the scenario of China joining ASEAN plus 3.

Table 10
INTRA-INDUSTRY COMPETITIVENESS
2020 FOR CHINA BY SECTOR AND TRADING PARTNER
(Scenario of China in ASEAN plus 3)

Sector	*Japan*	*NIEs*	*ASEAN*	*Total*
Rice	1.00	1.00	-0.94	-0.47
Other grains	1.00	1.00	1.00	-0.48
Oil seeds	1.00	1.00	1.00	-0.78
Sugar	1.00	-1.00	-1.00	-0.86
Other crops	0.96	0.92	-0.54	-0.48
Livestock	0.72	0.44	-.64	-0.51
Energy	0.96	-0.28	-0.74	-036
Processed food	0.94	0.63	-0.45	-0.15
Textiles	0.04	-0.69	0.41	-0.12
Clothing	0.89	0.73	0.99	0.92
Leather goods	0.94	-0.26	0.80	0.72
Basic manufacturing	-0.06	-0.38	0.09	-0.02
Motor vehicles	-0.81	0.52	0.76	-0.32
Other transport equipment	-0.06	-0.54	0.85	0.00
Electronic goods	-0.32	-0.42	0.02	0.06
Other manufactures	-0.11	-0.05	0.44	0.22
Construction	-0.32	0.31	1.00	-0.48
Services	0.26	0.32	0.34	0.24

Source: Roland-Holst (2003), Table 3.13.
Note: NIEs are the Republic of Korea and Taiwan Province of China.

The sectoral picture which emerges is that in general, under this scenario, China is a net importer of primary products, foodstuffs and energy and a net exporter of manufactures. This pattern is replicated in its projected trade with ASEAN countries. In the important electronics category the IIC figure 0.02 indicates a small trade surplus of 2 per cent of electronics trade (imports plus exports) between

[14] For sector i intra-industry competitiveness (IIC) is IICi = (Xi – Mi)/Xi + Mi, where X and M are exports and imports respectively. This figure can be given for total trade or for bilateral trade between countries x and y, so that for sector i in trade between x and y we have $IICi_{xy} = (Xi - Mi)_{xy}/(Xi + Mi)_{xy}$.

China and ASEAN countries. With respect to trade with the Republic of Korea and Taiwan Province of China there is a projected net deficit in manufactures with the important exceptions of clothing, processed food and motor vehicles. In this case there is a heavy deficit in electronics with the IIC of –0.42 indicating a trade deficit roughly 40 per cent of total trade in electronics with these two countries. Trade with Japan is projected to be in surplus with the exception of more capital and technology intensive sectors in manufacturing and construction.

Concern has been noted that closer trade links with China may push ASEAN economies down rather than up the ladder of comparative advantage into lower skill activities. Evidence from the same modeling work casts doubt on this. The IIC indicator can be adjusted to reflect differences in skilled to unskilled labour ratios between sectors, and this labour-adjusted version of the IIC can be used to classify sectors into "import dependent", "trade neutral" and "export oriented".[15] If one considers changes over the late 1990s (1996–2000) in bilateral Chinese-ASEAN country trade on the basis of skilled labour content there was a substantial shift of 16 percentage points towards greater export–orientation (which was much greater than if the unadjusted data are used). The implication is that over this period ASEAN countries were increasing their net exports to China in relatively more skill intensive activities.

Examination of trade flows alone does not indicate income or welfare changes (and may imply the "mercantilism fallacy" that exports are good and imports are bad). The modeling exercise also incorporates income change estimates calculated as future discounted income streams with a consumption and savings component. The fullest statement of these estimates can be found in Lee et al. (2004), which looks at a shorter period 2005 to 2015 and appears to use a slightly

[15] The adjusted figure is $ELTi_{xy} = (\lambda i^x Xi - \lambda i^y Mi)_{xy}/(\lambda i^x Xi + \lambda i^y Mi)_{xy,}$ where λi^x is the skilled to unskilled labour ratio in value-added for commodity i in country x and λi^y is the same for country y. Sectors are classed as import dependent if ELTi is between –1 and –0.33, trade neutral if it is between -0.33 and 0.33, and export-oriented if it is between 0.33 and 1. See Roland-Holst and Weiss (2004).

different model specification to the earlier work.[16] Table 9 summarizes the income effects by 2015 for three different scenarios: China's unilateral removal of all remaining trade barriers (China UNI); China joining ASEAN; and ASEAN plus 3. For 2015 the income change by country and region for these scenarios is given relative to the baseline (broadly the Chinese WTO accession scenario). These estimates are given in two versions with (Table 11) and without (Table 12) agricultural liberalization.

Table 11
INCOME EFFECTS RELATIVE TO BASELINE 2015
(Per cent change)

Country	*China UNI*	*ASEAN plus China*	*ASEAN plus 3*
China	2.9	1.4	4.0
Japan	0.3	0	1.6
Republic of Korea	0.6	-0.1	3.7
Taiwan Province of China	1.0	-0.3	-1.0
ASEAN	0.5	2.5	4.0
World	0.4	0.2	0.7

Source: Lee et al. (2004), Table 1.

Table 12
INCOME EFFECTS RELATIVE TO BASELINE 2015 WITHOUT REMOVAL OF BARRIERS ON FOOD AND AGRICULTURAL PRODUCTS
(Per cent change)

Country	*ASEAN plus China*	*ASEAN plus 3*
China	0.9	1.9
Japan	0.1	0.7
Republic of Korea	-0.1	1.5
Taiwan Province of China	-0.3	-1.0
ASEAN	1.7	2.6
World	0.1	0.3

Source: Lee et al. (2004), Table 2**.**

[16] One difference is the inclusion of "trade costs" as a wedge between cif and fob prices. Policy reform scenarios assume not just a removal of tariffs, but also a lowering of trade cost, in this case by 2.5 per cent. Also in the more recent work the baseline scenario is not very explicit and it appears to be the equivalent of China's WTO accession in the earlier papers.

As is predictable in this type of model, since adjustment costs are assumed away, the wider the spread of the area of free trade the larger are the benefits. Hence ASEAN plus 3 is the preferred arrangement in terms of income change for all countries, apart from the excluded trading partner Taiwan Province of China. Unilateral removal of remaining tariffs by China is a superior alternative for it and the rest of the world than its entry into the limited free trade area of ASEAN, although the latter is a superior option for ASEAN countries. If agricultural trade is excluded from the reform process, benefits to all parties fall and the Republic of Korea and Taiwan Province of China can lose from China's unilateral trade liberalization.

As noted earlier these modeling exercises mask complex internal shifts in resource allocation within partner economies as trade barriers are reduced. In China this will entail potentially complex shifts within agriculture (for example in relation to grains) and in parts of manufacturing (particularly in heavy industry, parts of which are often said to be highly inefficient). These modeling exercises imply that there is ample income growth to compensate potential losers and ensure a "Pareto optimal" outcome. However, with rising inequality and a fiscally constrained state, compensation is likely to be potential rather than actual and the adjustment process will almost certainly imply winners and losers.[17] Similar points can be made concerning adjustments in partner economies.

There has been considerable concern in many countries, including China, that national domestic firms may be too small to compete in global markets. During the 1990s official policy in China identified a "national team" of 120 large enterprises to be "championed", although for a range of reasons, including restrictions on mergers and acquisitions due to intervention by provincial authorities and what was seen as forced diversification, the "national global giants" strategy has been judged a failure (Nolan 2001:187). As yet there is little evidence from the trade data that this has been a serious hindrance for the economy and that in key sectors local firms are too small to compete.

[17] How rapidly private sector investors emerge to take up opportunities offered by these developments on the trade front will have important implications for the actual pace and pattern of adjustment. See Kanamori and Zhao (2004) for a discussion of the evolution of the private sector in China. Kanamori (2004) discusses fiscal constraints.

V. CONCLUSIONS

There is now considerable evidence, as surveyed here, that China's recent rapid growth has generated substantial opportunities for trade with, and investment in, regional partner economies. This rapid growth has sucked in large volumes of imports of both primary and manufactured goods that have compensated its neighbours for their losses of market share in the United States and Japan. Even the concern over FDI diversion, which appeared an obvious "threat" a few years ago, can be set aside on the basis of substantial empirical evidence. Central to the growth of regional intra-industry trade has been the spread of global production networks either between units of the same firm or with independent contract manufacturers, who provide goods to the buyer's specification. Hence, final products made in China may contain parts and components from many different parts of the region with value-added at stages in a production chain that stretches across a number of countries. FDI has been a prime mover in this process in integrating Chinese-based firms in these global networks and developing the "triangular trade" between China, the rest of East and Southeast Asia and the large markets in the United States and Europe. In this emerging specialization its regional neighbours provide the inputs for manufactures from China, which are then exported out of the region. At this point in time, this is proving strongly mutually beneficial.

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