The University of Nottingham

research paper series

China and the World Economy

Research Paper 2006/21

Has China Displaced Other Asian Countries' Exports?

by

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The Centre acknowledges financial support from The Leverhulme Trust under Programme Grant F114/BF

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Acknowledgements

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Abstract

This paper uses gravity modelling to explore whether and how the growth of China's exports is displacing exports of other Asian countries to third markets over the period 1990-2003. Chinese exports are defined both narrowly and more broadly to include exports from Hong Kong. We investigate whether the displacement effect on Asian exports differs when exports from Hong Kong and China are combined compared to the narrow case of Chinese exports only. Aggregate and disaggregated analyses are undertaken. In the latter, we explore whether the displacement effect varies across Asian countries and in trade with different types of countries. We find evidence of a displacement effect which is more pronounced in developed markets and stronger for Hong Kong and China combined. Further it is the high income Asian exporters that experienced a greater displacement effect. We also investigate whether China's development has generated any offsetting effects on its neighbours' exports to China itself and find that Chinese growth has indeed increased China's imports from the Asian countries in the sample and in particular Japan and Korea.

JEL classification: F14

Outline

Non-Technical Summary

Over the last quarter of a century export growth from China has been dramatic, averaging over 15% per annum. This sustained growth has moved China into the position of fourth largest exporter of merchandise exports globally and the expansion shows no sign of abating. Among the fears triggered by this growth is the prospect that it is displacing exports of other developing countries, particularly in labour intensive products, to third markets.

China's size, its highly elastic supply of low cost labour, ability to attract foreign direct investment and on-going trade liberalisation have raised adjustment concerns in both developed and developing countries. The rise of China has triggered fears of increased competition for developing countries and hollowing out of manufacturing firms in advanced countries. Its accession to the WTO in 2001 further increased such fears. Although spillovers from China's rise have gradually stretched to almost all regions of the world, neighbouring Asian countries have been more exposed given their close geographical proximity. Some not only share a common border, language and cultural affinity with China, but are also at the same stage of development, have similar relative factor endowments and production costs and may be most vulnerable to competition. China's abundance of low-skilled and low-cost labour underscores its comparative advantage in low-technology intensive products. Hence, poorer countries in the region in particular, feel at risk of being priced out of world markets. At the same time, China's growing pool of highly-skilled labour means it is climbing the production and export ladder. Many high-tech companies are now based in China and attract highly qualified labour. Regions initially involved in labour-intensive assembly of electronic components, have gradually developed into suppliers of electronic parts and components (e.g. the Pearl River Delta). As a result, more advanced economies in Asia, some of which have already seen a hollowing out of their low-end manufacturing, fear potential encroachment on high-end production. China's appetite for rising imports, however, also offers opportunities for many countries. Countries at different stages of development may be actively engaged in production sharing with China as part of the fast expanding Asian production networks.

Unlike most previous studies which adopt a general equilibrium framework or use indirect methods based on measures of trade similarity, this paper uses gravity modelling to explore whether China's exports have displaced Asian countries' exports in third markets. Since a significant proportion of China's exports use not only Chinese labour but Hong Kong management and distribution skills, we investigate whether any displacement effect differs when exports from Hong Kong and China are combined compared to a narrow definition of China's exports only. We also explore how the effect varies across Asian countries and in trade with different types of countries (developed and developing). Our analysis covers a lengthy period, fom 1990-2003.

We find evidence that China has displaced Asian exports albeit to a relatively small order of magnitude overall. The effect does however appear to be increasing over time and greater in industrialized country markets. Furthermore, China's export expansion has been more at the expense of more advanced Asian exporters rather than low and middle income Asian countries. Our results also confirm the central role played by Hong Kong as a major re-export hub for China.

China's growth and export expansion is affecting Asian countries' exports to China itself. We find that China's economic growth spurred higher imports from its neighbours, with more advanced Asian countries benefiting the most. However, in value terms, Asia's overall exports to China did not rise sufficiently to offset fully the export displacement effects in third markets.

1. Introduction

China has rapidly emerged as a major player on the global economic scene as a result of economic reforms and progressive trade liberalization since 1978. Over the past 25 years, it has registered an annual average GDP growth rate of around 9% and a spectacular expansion of external trade of more than 15% a year. In 2003, it was already the sixth largest economy (at market exchange rates), the fourth-largest global trader and premier recipient of foreign direct investment globally.

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The remainder of the paper is organized as follows: Section 2 gives a brief overview of previous research on China's competitive threat. Section 3 provides background on China's (and China and Hong Kong's) export performance. The model we employ in our analysis is explained in Section 4. Data sources and estimations issues are discussed in Section 5, followed by discussion of our results in section 6. Section 7 analyses the offsetting effects of China's emergence and the final section concludes.

2. Previous Research on China's Impact on Asia

The potential impact of China has generated a growing literature. Studies in this area can be grouped by methodology. One strand addresses the issue in the broader context of the impact of China's accession to the WTO in a Computable General Equilibrium (CGE) setting. For example, Yang and Vines (2000) use the GTAP model with differentiated products to examine the impact of China's accelerated growth over the period 1975-1995. They set China's production and trade shares to its 1975 level and compare counterfactuals with the actual world economic situation in 1995. They find that the negative effects on NIEs terms of trade as a result of increased competition in third markets are offset by increased exports to China. For all other developing regions, including the ASEAN-4, competition in third markets outweighs the complementary demand effects from China. Other studies include Ianchovichina and Martin (2001), IMF (2004) and Ianchovichina and Wamsley (2005). CGE has proved to be a useful tool for analysing the impact of a wide range of possible policy changes based on different scenarios. However, CGE models are stylized

simplifications of the world economy and based on assumptions, which fashion their outputs. For example, since growth is often assumed to be exogenous, these models fail to capture the dynamic impact of China's rise on other regions and hence underestimate the full effects. Moreover, there are uncertainties over the estimated trade elasticities as most models fail to take into account key aspects of China's WTO membership such as liberalization of services and policies to attract foreign investment (IMF, 2004).

Another set of studies seek to identify the degree of overlap of China's export structure with its neighbours'. Lall and Albaladejo (2004) compute relative market shares to assess China's potential competitive threat in different markets and across technology groups in the 1990s. They find market share losses of Asian countries to be mainly in low technology products and Japan to be the most vulnerable market. The "mature Tigers" (Korea, Taiwan, Singapore and Hong Kong) suffer losses in market shares while the "new Tigers" (Malaysia, Thailand, Indonesia and Philippines) experience low market share gains rather than losses. They also note that while China started off with a high share in low-technology products, it is rapidly moving into medium and high technology production. Other studies use export similarity indices, calculated by disaggregating a country's merchandise exports into sub sectors and comparing each sub-sector's proportion of total exports with the same sub-sector's proportion of another country. For example, Li and Song (2005) find that bilateral export similarities between China and Malaysia, Thailand and Singapore have been steadily increasing over the period 1995-2003, pointing to convergence in their export structures and greater competition in third markets. Similarly, a study conducted by the Australian government[1] reveals that since 1998 China's export profile has been gradually moving towards those of Taiwan, Korea, and Thailand.

A third group of studies explores changes in competitiveness and comparative advantage through the use of revealed comparative advantage (RCA) measures, which compare the growth rate of world trade of a specific country to the growth rate of world exports. Using 1999 data, a Hong Kong Monetary Authority (2002) study finds that Asian countries' exports tend to be concentrated in different commodity groups, the only

[1]entitled China's Industrial Rise: East Asia's Challenge (2003)

overlapping sector being apparel. Moreover, countries also exhibit different patterns of specialization, with the NIEs (Korea, Taiwan and Singapore) focusing on heavy industrial products and capital goods, the ASEAN-4 (Indonesia, Malaysia, the Philippines and Thailand) producing more agricultural commodities and raw materials and China showing a bias towards light manufacturing. They find no evidence of a displacement effect. Adams et. al. (2004) compute a dynamic form of the RCA index to capture China's changing competitiveness and find a systematic decline in RCAs of most East Asian countries beginning in 1995 with low or negative numbers for almost all during 2000-2003. China, by contrast, posted high and increasing RCA indices, indicating a rising share of world exports. Finally, although Shafaeddin (2004) focuses on competition with developing countries in general, specific Asian impacts are picked out: in labour intensive goods, competition is mainly with South Asian countries; for capital goods, competition is with Asian newly industrializing economies.

More recently, Zheng and Wern (2005) have used a dynamic shift-share technique to assess the impact of China's competition on regional economies. This methodology compares an economy's export performance to a common third market with a group of competing reference economies, after accounting for size differences. They find that Asian countries experienced negative net shifts to the G-3 markets between 1985 and 2004, with the NIE-3 (Singapore, Korea, Taiwan) experiencing the largest negative shifts.

Finally, only a handful of studies employ an econometric methodology: Ahearne et.al. (2003) examine how China and Hong Kong exports have affected the growth of four NIEs (Korea, Singapore, Taiwan, and Hong Kong) and ASEAN-4 members. Using a panel of annual data for 1981-2001, they regress Asian countries' exports growth on trading partner's income growth, movements in real effective exchange rates and China's real export growth. They find a positive correlation between China's export growth and that of other Asian countries, suggesting that China's exports do not compete with other Asian countries' exports. Eichengreen et al (2004) investigate the same issue over the period 1990-2002 using a gravity modelling approach. Their results show that China crowds out less-developed Asian

countries' exports of consumer goods in third markets. At the same time, China increased its imports of capital goods from more advanced Asian countries.

3. China's Export Performance

China's merchandise exports growth in the post reform era has been linked to its gradualist trade reform process. The early years of reform were marked by a slow weakening of trade planning, a central feature in pre-reform years, and increasing use of border taxes and quantitative restrictions. Average statutory tariffs were as high as 56% in 1982; were reduced to 40% in 1992 and to 15% in 2001. The tariff reform programme also included major exemptions on imports of raw materials, parts and components used in the production of goods for export and phasing out of a number of non tariff barriers such as trade licensing and quotas.

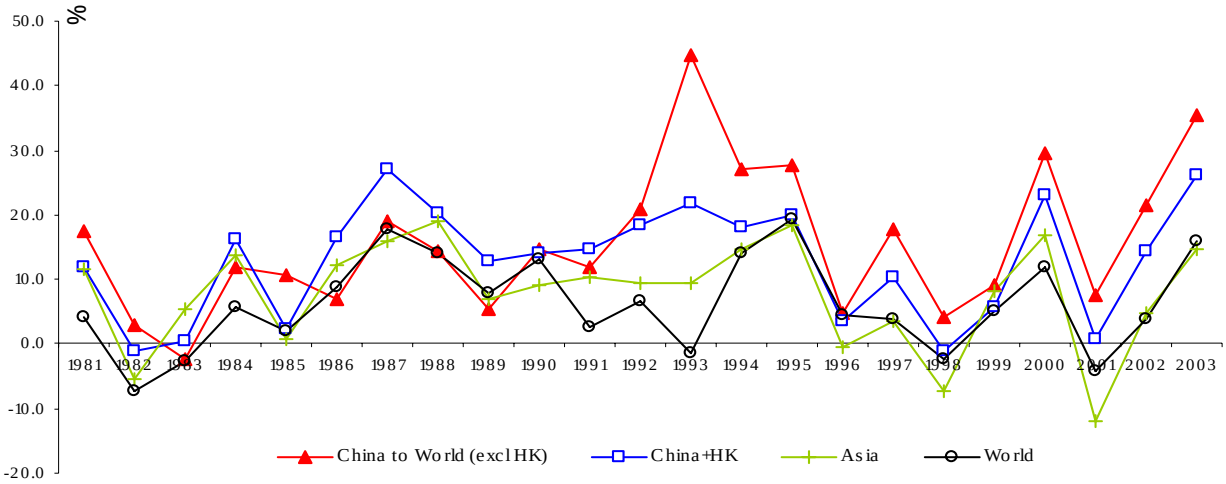
China's exports to the world (excluding Hong Kong) have expanded rapidly since 1990, growing at an average annual rate of 19.7% (13.6% for China and Hong Kong combined[2]) over the period 1990-2003, compared to 7.1% for other Asian countries[3], 8.7% for developing countries and 6.7% for world exports[4] (6.2% for world exports excluding China and Hong Kong) (See Figure 1). Even when most Asian and developing countries' exports fell during the Asian financial crisis of 1997-98, China showed resilience and maintained strong and positive export growth. While there were no discernable disparities in China's and its neighbours' export performance in the 1980s, Asian countries in general started to lag behind in the 1990s. In the latter half of the decade, however, a strong co-movement in export growth was apparent. This not only indicates the interplay of common factors such as growth in advanced economies, movement in exchange rates and fluctuations of world prices of major export commodities, but also highlights the increasing integration between China and Asian countries.

[2] Excludes China's exports to Hong Kong and Hong Kong's exports to China. Ahearne et al.(2003) use trading partner statistics in order to avoid double counting China and Hong Kong exports. However Fernald et al (1998) suggest that China and Hong Kong exports combined do not differ much with the corresponding values of imports recorded by the importing countries. Our calculations (not shown) support this view.

[3] Asia includes: Bangladesh, Cambodia, India, Indonesia, Japan, Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Vietnam

[4] Developing countries and World exclude China.

Figure[5] 1. Growth in Exports, 1981-2003



Source: IMF, Direction of Trade Statistics

China's share of world exports increased from 1 % in 1980 to 6 % in 2003 (See Table 1) by which time China and Hong Kong combined accounted for 8.8 percent of world exports, twice the 1990 share. The ASEAN-4 group showed a steady increase in their trade with the rest of the world till the mid 1990s and stable or declining shares thereafter. While Korea's export share rose in the first half of the period, stabilizing thereafter, Japan and Singapore lost market share in the latter half of the 1990s. Both the US and EU had lower shares of 9.6% and 13.4% in 2003, compared to their 1990 levels of 11.6% and 14.9% respectively.

Table 1. Share in World Exports

(Country's Exports/World Exports, %)

	1980	1990	1992	1994	1996	1998	2000	2002	2003
China	1.0	1.9	2.3	2.8	2.9	3.4	3.9	5.1	5.8
Hong Kong	1.1	2.4	3.2	3.6	3.4	3.2	3.2	3.1	3.0

[5] Figure 1 shows China's exports to the world excluding Hong Kong; China and Hong Kong's exports to the world excluding intra China-HK trade; exports of Asian countries listed in footnote 3; and world (excluding China and HK) exports.

China +HK	2.1	4.3	5.5	6.4	6.3	6.6	7.1	8.2	8.8
Japan	7.1	8.5	9.1	9.3	7.8	7.2	7.5	6.5	6.3
Korea	1.0	2.0	2.1	2.4	2.6	2.5	2.7	2.5	2.6
Singapore	1.1	1.6	1.7	2.3	2.4	2.0	2.2	1.9	1.9
ASEAN-4	2.6	2.6	3.1	3.7	3.9	3.8	4.2	4.0	3.8
Indonesia	1.2	0.8	0.9	0.9	0.9	0.9	1.0	0.9	0.8
Malaysia	0.7	0.9	1.1	1.4	1.5	1.4	1.5	1.5	1.4
Philippines	0.3	0.2	0.3	0.3	0.4	0.5	0.6	0.5	0.5
Thailand	0.4	0.7	0.9	1.1	1.1	1.0	1.1	1.1	1.1
United States	12.1	11.6	11.9	12.0	11.7	12.6	12.1	10.8	9.6
European Union*	16.6	14.9	13.6	14.1	14.1	13.9	12.4	13.4	13.4

Source: IMF, Direction of Trade Statistics

*adjusted for intra-EU trade

China's market penetration in industrialised countries such as the US, EU, Japan and Korea, has increased at least eightfold after 1990. Its market share in developing countries also increased, reaching 8.6% in 2003, only twice the 1990 level (See Table 2). Hong Kong's market penetration, on the other hand, did not show any significant change. It seems to have lost some market share in Japan, developing countries and even China by 2003 compared to 1990. This is not surprising since Hong Kong has long been a very open economy with a trade-to-GDP ratio as high as 261% in 1990. It is already at an advanced stage of development and its comparative advantage lies more in financial and other services rather than in merchandise production. Moreover, owing to its strategic location, its highly developed banking, finance, insurance, transport and other sectors and its sound legal framework, Hong Kong has been a major entrepôt centre for exports and re-shipment of Chinese goods to the West and vice versa.

Table 2. China's Market Penetration

(Imports from China /Total Imports, %)

	1980	**1985**	**1990**	**1995**	**2000**	**2003**
China's Market Penetration						

United States	0.5	1.2	3.2	6.3	8.6	12.5
European Union	0.8	1.1	2.4	4.6	6.8	10.6
Japan	3.1	5.0	5.1	10.7	14.5	19.7
Korea	0.0	0.0	0.0	5.5	8.0	12.3
Hong Kong	19.6	25.5	36.7	36.2	43.0	43.5
Developing countries	1.8	2.7	4.6	6.1	7.2	8.6
Hong Kong's Market Penetration						
United States	2.0	2.5	1.9	1.4	1.0	0.7
EU	1.4	1.4	1.9	1.9	1.9	1.6
Japan	0.4	0.6	0.9	0.8	0.4	0.4
Korea	0.4	1.4	0.8	0.6	0.8	1.5
China	2.9	11.2	27.1	6.5	4.2	2.7
Developing Countries	0.7	1.4	2.6	1.5	1.3	1.2

Source: IMF, Direction of Trade Statistics

Alongside the surge of its exports, China has a growing appetite for imports, which have been growing at an average rate of 17.9 % a year for the period 1990-2003. Imports by China and Hong Kong combined grew at an average rate of 19.5% per annum over the same period. Japan, EU and the US have been its major import sources for more than two decades. Recently, however, there has been a shift towards its Asian neighbours (See Table 3). The share of imports from the US dropped from 19.6% in 1980 to 8.2% in 2003, while that from the EU fell from 17.2% to 13.2% over the same period. By contrast, Asia as a whole accounted for 38% of Chinese imports in 2003, compared to only 8.7% in 1980. Its imports from Korea, which were virtually non-existent in 1985, increased steadily to 10% in 2003. While imports from low-income Asia have been very sluggish, the ASEAN-4 group (Indonesia, Malaysia, Philippines and Thailand) have been gradually channeling more exports to China.

Table 3. China's Sources of Imports

(% of China's Total Imports**)**

	1980	1985	1990	1995	2000	2003
Asia	8.7	16.7	38.3	33.7	36.7	37.9
ASEAN-4	2.4	2.1	4.0	4.5	7.1	8.4
Japan	26.5	35.7	14.2	21.9	18.4	18.0
Korea	0.0	0.0	0.4	7.8	10.3	10.4
Low-income Asia	0.9	0.3	0.4	0.8	1.3	1.5
EU	17.2	16.6	17.7	16.3	13.6	13.2
United States	19.6	12.2	12.2	12.2	9.9	8.2

Source: IMF, Direction of Trade Statistics

This analysis of trends unequivocally points to China's accelerating exports and continuous gain in market share, particularly after 1990. Have exports from China (and Hong Kong) increased at the expense of Asian countries' exports? If there is indeed a displacement effect, does it vary across the Asian countries and in trade with different types of countries (developed and developing)? Moreover, has China's development had any offsetting effects on its neighbours' exports to itself? We now turn to these issues.

4. The Gravity Model

In its basic form, the gravity model, posits that trade between two countries is positively influenced by the economic size of the trading partners and negatively affected by distance. Economic size is usually captured by GDP and GDP per capita, with the latter also reflecting a country's level of development. The basic gravity equation is often augmented with a number of other country-specific variables that affect trade such as physical area, indicators of cultural affinity, colonial relationship and various geographic characteristics. The gravity model thus identifies three fundamental determinants of bilateral trade volumes: (1) export supply, captured by income and income per capita of the exporting country, (2) import

demand, captured by income and income per capita of the importing country, and (3) resistance, captured by geographical distance and variables representing policy and cultural barriers to trade.

The model was first used in applied econometric work by Tinbergen (1962) and Poyhonen (1963). Although it performed well empirically, it was challenged as having no theoretical foundations. Subsequent work has risen to this challenge and demonstrated that the gravity model can in fact be derived from a number of standard theories of trade. Anderson (1979) and Bergstrand (1985), for example, show it can be derived under assumptions of product differentiation and monopolistic competition. Deardoff (1995) justifies the gravity model using two extreme cases of Heckscher-Ohlin: frictionless trade in homogenous goods and impeded trade in differentiated goods. Using information on technology, input costs, prices and transport costs, Eaton and Kortum (2002) derive a gravity equation for a model of trade in homogeneous goods in a Ricardian setting. Evenett and Keller (2002) analyze the success of the gravity model in relation to the extent of specialization, which is in turn determined by technology differences across countries, differences in factor proportions and scale economies.

Empirically the framework has been used to evaluate policy issues such as trade impacts of currency unions (Nitsch, 2002 and Rose, 2002a), national borders (McCallum, 1995; Helliwell, 1996,1998), regional trading agreements (Sharma and Chua, 2000; Soloaga and Winters, 1999), and multilateral agreements (Rose, 2002b; Subramanian and Wei, 2003); implications of WTO accession for current non-members (eg Lissovolik and Lissovolik, 2004; Eremenko and Mankovska, 2003); calculation of trade potentials (Nilsson, 2000; Egger, 2002); cross-border investment (Egger and Pfaffermayr, 2004) and China's trade displacement effect (Eichengreen et al., 2004). While most of the aforementioned policy issues have been widely discussed in the literature, the impact of China's emergence as seen through the lenses of the gravity model has not been fully explored.

For the purpose of our analysis, we adopt the following gravity specification:

$$\ln M_{ij} = \beta_0 + \beta_1 \ln ChEXP_i + \beta_2 \ln GDPM_i + \beta_3 \ln CAPM_i + \beta_4 \ln GDPX_j + \beta_5 \ln CAPX_j + \beta_6 \ln Dist_{ij} + \beta_7 \ln Areap_{ij} + \beta_8 Landl_{ij} + \beta_9 Island_{ij} + \beta_{10} Border_{ij} + \beta_{11} ComLang_{ij} + \beta_{12} ComCol_{ij} + \beta_{13} Colony_{ij} + \beta_{14} ImpCorrup_i + \varepsilon_t \quad (1)$$

where

M_{ij} : Imports of country i from Asian country j

$ChEXP_i$: China's (or China + Hong Kong) exports to country i

$GDPM_i$: Real GDP of importing country

$CAPM_i$: Real GDP of importing country

$GDPX_j$: Real GDP of exporting country

$CAPX_j$: Real GDP of exporting country

$Dist_{ij}$: Distance between i and j

$Areap_{ij}$: Product of land areas of country pairs in km²

$Landl_{ij}$: Number of landlocked countries in country pair (0/1/2)

$Island_{ij}$: Number of island nations in country-pair (0/1/2)

$Border_{ij}$: Binary dummy which is unity if i and j share a land border, zero otherwise

$ComLang_{ij}$: Binary dummy which is unity if i and j share common language, zero otherwise

$ComCol_{ij}$: Binary dummy which is unity if i and j were ever colonies post 1945 with same colonizer, zero otherwise

$Colony_{ij}$: Binary dummy which is unity if i ever colonized j and vice-versa, zero otherwise

$ImpCorrup_i$: Importer's Corruption Index

ε_t : Other omitted influences on imports.

We use *imports* of country *i* from country *j* as the dependent variable rather than average bilateral trade (imports and exports), which has been used in some studies e.g. Rose (2002), Engelbrecht and Pearce (2004) and Tomz et al. (2005). Subramanian and Wei (2003)

suggest that specifications with imports are more closely grounded in theory as most theoretical underpinnings generate predictions for unilateral trade. They further argue that the inclusion of importer's and exporter's log GDP as separate explanatory variables allows one to distinguish between importer and exporter characteristics. To capture the "displacement effect" of China, we include China's exports to the same destination market of the Asian countries' exports as an additional explanatory variable.

Recent studies have emphasized the relevance of barriers to trade other than tariffs and quotas. Anderson and Marcouiller (2002) argue that the exclusion of hidden transaction costs leads to omitted-variable bias. We, therefore, add importer's corruption indices as an additional regressor since corruption acts as an unobserved barrier to trade and adds to transaction costs.

5. Data Sources and Estimation

Data on bilateral imports and exports are from the IMF Direction of Trade Statistics (DOTS). Merchandise imports and exports series, recorded in millions of US dollars, are deflated by the US CPI for all urban consumers (1982-1984=100) obtained from http://www.bls.gov/home.htm. Real GDP and GDP per capita (in constant 2000 US dollars) are extracted from the World Development Indicators online. All country specific variables are from Rose (2002). Corruption indices are from the International Country Risk Guide-ICRG and range between 0 (high corruption) and 6 (low corruption).

Our panel data consists of observations for 170 importing countries and 13 Asian exporting countries (listed in Appendix A5 and A6). Six countries, (namely Bhutan, Botswana, Burma, Lesotho, Namibia and Swaziland) have been dropped due to non availability of data for the dependent variable from DOTS. Hong Kong is not included among the importing countries for two reasons. First, we are trying to capture the impact of Hong Kong's exports along with China's to third markets; second, since a large proportion of Hong Kong's imports from the region are eventually re-exported, Hong Kong is more of an entrepôt and transit centre than a final destination. China's imports are excluded as well and are dealt with in a separate section. Our panel is unbalanced as some values for both the dependent and explanatory variables for some countries are missing.

Estimation

We use panel estimation as it has the advantage of capturing relationships over time whilst disentangling the invariant country specific effects. It is possible that the variable of interest, China's (and China and Hong Kong's) exports, in specification (1), may not be exogenous. Any unobserved factors captured by the error term that influence imports of country *i* from any Asian country are also likely to affect China's exports to that country. This results in correlation between the error term and key explanatory variables. Endogeneity of China's exports variable is formally tested using the endogeneity test of endogenous regressors. This test hypothesizes that the specified regressor can actually be treated as exogenous. A rejection of the null means that the suspect regressor is endogenous and OLS is inappropriate. The endogeneity test statistic is robust to various violations of conditional homoskedasticity. Based on this test, we are unable to accept the null of regressor exogeneity.

The standard solution to a problem of correlation between the regressors and unobserved effects is to estimate by two-stage least squares (TSLS) using an appropriate set of instruments. We instrument China's exports by (i) distance between China and the importing country and (ii) China's real GDP, as in Eichengreen et al (2004). However, TSLS is efficient only when errors are homoskedastic. The Pagan and Hall test of heteroskedasticity for instrumental variables (IV) estimation confirms that residuals are not homoskedastic. In the presence of heteroskedasticity, the GMM estimator is more efficient than the simple IV technique.

A crucial prerequisite of IV estimation is that all instruments satisfy two conditions: they must be correlated with the endogenous variable *(instrument relevance)*; and uncorrelated with the error term (*instrument exogeneity).* When there is only one endogenous regressor, instrument relevance or strength of instrument is gauged from the first-stage F-statistic. This tests the null hypothesis that all the instrument coefficients are zero, hence instruments are totally irrelevant. The model is then unidentified. As a rule of thumb, the F-statistic must typically exceed 10. The Anderson canonical correlations likelihood-ratio test provides a further check for excluded instrument relevance. Rejection of the null shows that the model is

identified and instruments are relevant. In the GMM context, instrument orthogonality to the error term is reflected by the Hansen J Statistic for the overidentification test for all instruments. A rejection of the null casts doubt on the validity of instruments. Overall, our chosen instruments comfortably pass all of these tests.

6. Econometric Results

We first estimate model (1) for the full sample over the period 1990-2003. Results are reported in Table A1 (China Only) and Table A2 (China and Hong Kong combined). Our model fits the data well, with R-squared ranging from 0.668 to 0.820 for China and 0.508 to 0.794 for China and Hong Kong. Imports tend to rise with GDP of importing and exporting countries[6]. Export performance depends largely on economic size and income growth of trading partners. Exporters' level of development, proxied by GDP per capita, matters as more developed exporters seem to engage in more trade (except for high income exporters, possibly because they have already reached a critical threshold of development). Importers' level of development also positively influences trade. As expected, distance has a deterrent effect on imports. Landlocked and island countries trade less, common language, present and previous colonial relationship between trading partners all have a positive impact on trade. While the product of land areas is inversely related to bilateral trade flows, in general, it has no impact. The model correctly highlights the fact that since bigger countries have substantial resource endowments, they can be more self sufficient and trade less. However, physical area does not seem to matter much, possibly due to increasing specialization in production across countries. Likewise, sharing a common border does not appear to influence bilateral trade. This is not surprising as not many pairs will share the same border given that we are modelling 13 Asian countries trade with the rest of the world.

Overall Displacement Effect

Over the period 1990-2003, China's surge in exports did appear to displace its neighbours' exports to third markets, with a 1% increase leading to 0.07% drop in Asian countries' exports. The results provide evidence of displacement of Asian countries exports to third markets. There is evidence for an even larger impact when China and Hong Kong are

[6] Test statistics and coefficient estimates are robust to arbitrary heteroskedasticity and inter-group correlation.

combined. A 1% increase now results in a 0.17% fall in exports, more than twice that of China narrowly defined. This reflects Hong Kong's pivotal role as a major conduit for China's exports to the rest of the world. In 1996, for instance, re-exports amounted to 52% of Hong Kong GDP (Hsieh and Woo, 1999), while mark ups on those re-exports totalled 10% of GDP, compared to manufacturing's share of GDP of only 7% (Young , 1999).

Changing Displacement Effect

Has this impact been the same in the earlier and later years of our sample period? To this end, we consider two sub-periods: 1990-1996 and 1997-2003. Since post-1996 years were characterized by substantially lower tariffs on manufactures (averaging 17% from highs of 36% in the earlier years) and by greater incentives to export, we expect trade displacement to be higher in the latter period. Results indeed show that crowding out occurs only in the second sub-period, and is higher with the inclusion of Hong Kong. This may be as a result of an influx of foreign direct investment, spurred by further liberalization, relocation of firms to China and increasing role of foreign affiliates in China's exports later in the decade.

Variation in Displacement Effect across Markets

Next, we identify how the displacement effect varies between advanced and developing importers[7]. We estimate the same model separately for each category of importers for the full period 1990-2003. China did not compete much with its neighbours' exports to developing markets but did in developed markets. By the year 2000, market penetration was significantly higher in developed than developing countries. One would in fact expect import demand in industrialised countries to be concentrated on the products for which China has a comparative advantage. The import structures of developing countries, by contrast, may be more heterogeneous, but more concentrated on capital and higher technology goods for which China does not as yet have a comparative advantage. This impact is again higher when Hong Kong is included. The incentives for China to export to developed markets through this hub are much higher. While most manufacturing operations are undertaken on the mainland, quality checks and sorting occur in Hong Kong to meet well defined quality standard requirements in

[7] Countries are classified according to the World Bank Country Classification from the World Development Indicators Database

developed markets. Moreover, 'middlemen' in Hong Kong have the expertise to search for best deals and in the process help to cut transport and marketing costs, making trade with distant markets more profitable. Not surprisingly, major destinations for Hong Kong re-exports of Chinese goods include the large markets of North America and Western Europe where demand for differentiated products is high (Feenstra, 2001).

Variation in Displacement Effect across Asia

Given evidence of export displacement, which occurred mainly in later years and in developed markets, a follow-up question is which group of countries was affected most? We classify Asian exporting countries into three income groups[8]: High Income (Korea, Singapore, Japan), Middle Income (Indonesia, Malaysia, Philippines, Sri Lanka, Thailand) and Low Income (Bangladesh, Cambodia, India, Pakistan, Vietnam).

For the low income group as a whole, coefficient estimates are negative but indistinguishable from zero. There is no evidence of export displacement for this category. Most low income countries have comparative advantage in unskilled labour-intensive manufactured goods and their exports tend to be concentrated in apparel, textiles and clothing. For instance, textiles and clothing accounted respectively for about 16% and 27% of Vietnam's and India's total merchandise exports in 1997-2002. This largely overlaps with China's factor endowments and comparative advantage. However, given that China only became a WTO member in 2001, its exports of textiles and clothing to industrialized countries were quota-constrained. Although China is a big exporter of textiles and clothing, these restrictions imposed limitations on its ability to gain substantial market share that would displace other Asian producers. The latter might also have captured market share over time. However, the abolition of import quotas on Chinese textiles and apparel in key markets in 2005 under the Agreement on Textiles and Clothing poses serious threats to the exports of low income countries in the years ahead. Unless they adjust their export structures in response to such heightened competition, these economies' major sectors might stagnate or even decline.

[8] Based on World Bank Classification as in footnote 6.

We find a positive, but insignificant, coefficient on China's (and China and Hong Kong's) exports for the middle income Asian countries. There is some suggestion, therefore, that these countries' exports have moved hand-in-hand with that of China. This may reflect the ability of this group, dominated by the ASEAN-4, to adjust their export structures as they accommodate China's growing export capacity. It may also indicate the growing integration and specialization between China and ASEAN. China has emerged as a major assembler of finished products for exports to global markets, sourcing its supply of specialized parts and components from these countries. The insignificant coefficient estimates, however, only lend support to weak complementarity and a reason for caution in interpreting results is the invalidity of the instruments.

Results are particularly striking for the high-income group as these countries' exports appear to be the most adversely affected by the rapid rise of China. A 1% rise in China's exports displaced about 0.4% of their exports on average. The impact more than doubles when Hong Kong is included. This supports the view that China's comparative advantage has changed, and that it is moving from production of low-technology, low-skilled intensive goods to high value added and less labour-intensive manufacturing. China was the largest resource-based exporter in the region in 2000, surpassing both Korea and Singapore. Largely due to its petro-chemical services, Singapore was also a major player in 1990 but has lost market share. Its production of light-technology (LT) manufactures, namely textiles, clothing and footwear as well as toys and sports goods, showed an overwhelming dominance in 2000, at the expense of Korea's exports. Singapore experienced only a marginal increase in its share. By the end of the previous decade, China was the third largest high-technology exporter, even outshining Singapore (after adjusting for Singapore's re-exports) (Lall and Albaladejo, 2004). According to the World Investment Report 2001, Chinese exports of high and new technology products increased from US$ 7.7 billion to over US$ 37 billion in 2000, largely due to foreign–invested firms (UNCTAD, 2001). Many Japanese firms have also moved their production facilities to China.

Table 4 summarizes the displacement effects of China, both narrowly and broadly defined, in terms of elasticities and magnitudes. Over the entire period and the more recent

sub-period, a percentage increase in China's (and China and Hong Kong) exports displaces approximately half the equivalent of Asian countries exports on average. For example, each US$0.8 billion increase in China's exports over the whole period displaces about US$0.3 billion of Asian countries exports. The effect increases as we concentrate on high income exporters in Asia and exports to developed country markets.

Table 4. Displacement Effects by China and China & Hong Kong

China Only	**Annual Average Chinese (HKCH) Exports[¥] US$ bn**	**1% Chinese (HKCH) Exports US$ bn**	**Coefficient Estimate %**	**Annual Average Total Imports[¥¥] US$ bn**	**Displaced Asian Exports (Average) US$ bn**
Period 1990-2003	78.94	0.79	-0.073**	466.00	-0.34
1990-1996	44.16	0.44	0.031	425.14	0.13
1997-2003	113.71	1.14	-0.094**	506.86	-0.48
Developed Markets	64.17	0.64	-0.191**	366.64	-0.70
Developing Markets	14.76	0.15	-0.05	99.35	-0.05
Low Income Exporters	81.87	0.82	-0.021	33.07	-0.01
Middle Income Exporters	81.02	0.81	0.052	118.09	0.06
High Income Exporters	73.93	0.74	-0.397***	314.83	-1.25
China and Hong Kong (HKCH)					
Period 1990-2003	139.93	1.40	-0.167**	466.00	-0.78
1990-1996	100.52	1.01	0.064	425.14	0.27
1997-2003	179.33	1.79	-0.174**	506.86	-0.88
Developed Markets	116.40	1.16	-0.421**	366.64	-1.54
Developing Markets	23.53	0.24	-0.134	99.35	-0.13
Low Income Exporters	144.21	1.44	-0.062	33.07	-0.02
Middle Income Exporters	142.38	1.42	0.139	118.09	0.16
High Income Exporters	133.18	1.33	-0.972***	314.83	-3.06

¥ to the same destination markets as Asian exporters Significance level: *** 1% ** 5% * 10%

¥¥ of importing countries from relevant Asian exporters

It is possible that China's devaluation in January 1994 resulted in a gain in export competitiveness vis-à-vis Asian neighbours who did not react immediately to the adjustment and maintained their exchange rate peg to the US$. We do not believe this to have been the key driver for several reasons. First, although China's exports to the rest of the world increased dramatically in the immediate aftermath of the devaluation, by 32% in 1994 and 23% in the subsequent year compared to 7 % in 1993, when Hong Kong is excluded from the rest of the world, China's export growth was lower at about 27%, relative to its 1993 rate of 45% (see Figure A1 in Appendix). Since the devaluation did not lead to a dramatic rise in Chinese exports to third country markets, displacement of Asian countries exports to those markets is less likely. (This is confirmed by our insignificant Chinese exports coefficients for the period 1990-1996). Second, as noted by Fernald et.al. (1999), the effective depreciation was considerably smaller than the nominal devaluation. The unification of China's dual rate (the official rate and swap-market rate) in 1994 required that the official rate be devalued, with the renminbi/dollar value rising from 5.8 to 8.7. Prior to this, export transactions were undertaken at a weighted average of the official and floating rates. According to some IMF studies, about 80% of the weight was on the floating rate and only 20 % on the official rate. Hence, the large nominal devaluation had a limited impact on export transactions. Third, in real terms, the devaluation was reversed by high inflation, estimated at 26 % in 1994. In fact, the renminbi exchange rate was found to have appreciated by more than 60% from mid 1993 to early 1998 (Fernald et.al., 1999). In contrast, it depreciated steadily over the 1989-1993 period.

Sensitivity Analysis

As robustness checks, we estimate our model using different instrument sets and specifications. Just as importer's corruption may be a tax on trade, exporter's corruption also represents a trade cost. Adding a measure of exporter's corruption as an additional variable does not alter the statistical significance of the variable of interest for all the sub samples (the

Chinese exports coefficient for the whole sample however turns out to be insignificant). Signs are also preserved, except for developing markets and low income exporters.

We estimate the same model with a different set of instruments. We proxy Chinese exports by the distance between China and importing countries and China's corruption. Most displacement effects remain robust to this new instrument set, both in terms of significance and sign, except for middle income exporters' coefficient which now turns negative.

Summary of Findings

Our gravity model estimates show clear evidence of a displacement effect over the period 1990-2003. This effect intensified in the latter half of the period and in particular, in developed country markets. Our findings, however, do not concur with the common perception of a greater competitive threat for low and middle income Asian countries given their similar relative factor endowments. We find that China had no discernable displacement impact on poor Asian countries' exports or on middle income Asian exporters. By contrast, we find strong evidence for high-income exporters losing ground in third markets. This is in line with Shafaeddin (2004) who reaches a similar conclusion using revealed comparative advantage analysis and provides support for the view that China has been moving up the ladder of comparative advantage. It also shows that more advanced economies are disadvantaged in labour-intensive manufacture of consumer goods due to their higher wages. All displacement effects are estimated to be significantly higher when Hong Kong and China's exports are combined.

7. Offsetting Effects

These displacement effects may be offset in part by increased potential for exports to China for Asian countries. To gauge how Chinese growth has impacted on its imports from other Asian countries, we estimate the following gravity model for the period 1990-2003. China's imports from the 13 Asian countries depend on China's GDP and GDP per capita as well as those of the exporting country.

$$\ln M_{ij} = \alpha_1 + \alpha_2 \ln CHGDP_i + \alpha_3 \ln CHCAP_i + \alpha_4 \ln GDPX_j + \alpha_5 \ln CAPX_j + \alpha_6 \ln Dist_{ij} + \varepsilon_t$$

where

M_{ij} : Imports of China from Asian country j

$CHGDP_i$: Real GDP of China

$CHCAP_i$: Real GDP per capita of China

$GDPX_j$: Real GDP of exporting Asian country

$CAPX_j$: Real GDP per capita of exporting Asian country

$Dist_{ij}$: Distance between China and exporting Asian country

We first examine how China's growth impacts on its own imports. Pooled OLS estimation produces insignificant results for all coefficients except GDP and GDP per capita of the exporting country. Given a high R-squared (= 0.76), few significant t-ratios and large standard error, we suspect the presence of multicollinearity and drop lnCHCAP from the specification. China's growth is now associated with higher imports, with a 1% change in real GDP leading to a 1.5% increase in its imports. The distance variable is, however, insignificant and enters with the 'wrong' sign (Table A3).

For each of the 13 exporting Asian countries, China's elasticity of imports with respect to GDP is in the 1%-2% range. Distance enters significantly but with the wrong sign. Eichengreen et al (2004) note that distance is not as powerful when explaining trade with neighbouring countries compared to its use as an instrument for China's exports to third markets. This may be explained by the fact that trade between China and its neighbours

involves lower transportation and information costs compared with Europe and America. Excluding the distance variable, the elasticity of imports is more or less unity for every Asian exporter for the period 1990-2003 (Table A4).

China has certainly been trading with its neighbours for many years, but the rise in imports has been most evident in the second half of the period. Most of China's imports have been sourced from high-income capital-abundant Asian countries like Japan and Korea. China has increasingly been a central player in production networks, including electronics and machinery and has sourced its supply of capital goods and components from these countries. The ASEAN-4 have also benefited by expanding exports of agricultural and agro-processing goods to China. Import elasticities are lowest for low-income, labour-abundant countries like Bangladesh, Sri Lanka and Cambodia.

Linking Displacement and Offsetting Effects

As a final step, we attempt to link export displacement effects resulting from a rise in Chinese exports with the offsetting effects generated by China's economic growth (see Table 5). To this end, we use the average Chinese exports to GDP ratio over the period 1990-2003, which was 19.4%. Based on this ratio, a 1% rise in China's exports which displaces US$ 0.3 billion of its neighbours' exports, would lead to about US$ 0.107 billion increase in its imports (1% of Chinese exports being equivalent to 0.194% of China's GDP). Table 5 shows that overall, the China market effect does provide some offset to the export displacement effect, but is not large enough to fully compensate for the loss of Asian countries' exports to third markets.

Table 5. Average Displacement and Market Effects (China Only): 1990-2003

	Displacement Effects			***Offsetting Effects***			
	Coefficient Estimate (Effect of	**1% Average Chinese Exports**	**Displaced Asian Exports**	**Coefficient Estimate (Effect of**	**Effect of 0.194 % rise in CHGDP**	**Annual Average of Total Chinese**	**Increase in Chinese Imports[¥]**

	1% rise in ChEXP on Asian Exports) %	[¥] US$ bn	US$ bn	**1% rise in CHGDP on China's Imports)** %	**on China's Imports** %	**Imports**[¥¥] US$ bn	[¥] US$ bn
All Countries	-0.073**	0.79	-0.34	1.470***	0.285	37.42	0.107
Low Income	-0.021	0.82	-0.01	1.171**	0.227	1.09	0.002
Middle Income	0.052	0.81	0.06	0.472**	0.092	6.10	0.006
High Income	-0.397***	0.74	-1.25	1.753***	0.340	30.22	0.103

[¥] **to the same destination markets as Asian exporters** Significance level: *** 1% ** 5% * 10%

[¥¥] **from Asian exporters**

8. Conclusions

In this paper, we have used gravity modelling to explore whether and how the rise in China's exports has impacted on other Asian countries' exports over the period 1990-2003. We find that China has displaced Asian exports albeit to a relatively small order of magnitude overall. The effect is, however, increasing over time and greater in industrialized country markets. Further, China's export expansion has been more at the expense of more advanced Asian exporters rather than low and middle income Asian countries. Our results also confirm the central role played by Hong Kong as a major re-export hub for China.

China's growth and export expansion is affecting Asian countries' exports to China itself. We find that China's economic growth spurred higher imports from its neighbours, with more advanced Asian countries benefiting the most. However, in value terms, Asia's overall exports to China did not rise sufficiently to offset fully the export displacement effects in third markets.

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Appendix

Table A1. Pooled TSLS Gravity Estimates: China Only

Dependent:		**Period**		**Markets**		**Asian Exporters**		
Log	**1990-**	**1990-**	**1997-**	**Developed**	**Developing**	**Low**	**Middle**	**High**
Imports	**2003**	**1996**	**2003**					
Log CHEXP	-0.073*	0.031	-0.094*	-0.191***	-0.050	-0.021	0.052	-0.397***
	(-1.952)	(0.635)	(-1.926)	(-3.105)	(-1.040)	(-0.232)	(0.779)	(-4.620)
Log GDPM	0.916***	0.783***	0.979***	1.217***	0.821***	0.932***	0.866***	1.185***
	(21.425)	(14.728)	(18.705)	(17.460)	(15.556)	(9.181)	(10.903)	(13.107)
Log CAPM	0.105***	0.163***	0.069*	0.046	0.015	-0.109*	0.191***	0.035
	(2.926)	(3.980)	(1.773)	(0.338)	(0.292)	(-1.670)	(3.165)	(0.481)
Log GDPX	0.744***	0.700***	0.782***	0.740***	0.767***	0.953***	0.996***	0.731***
	(21.069)	(17.519)	(20.884)	(14.112)	(16.366)	(19.064)	(10.986)	(6.678)
Log CAPX	0.502***	0.599***	0.419***	0.390***	0.536***	0.706***	0.385***	-0.021
	(12.897)	(13.965)	(10.175)	(6.547)	(10.793)	(2.846)	(4.663)	(-0.073)
Log Dist	-1.330***	-1.512***	-1.118***	-1.103***	-1.364***	-1.189***	-1.595***	-1.591***
	(-17.299)	(-16.885)	(-13.661)	(-5.688)	(-15.051)	(-10.037)	(-14.226)	(-8.633)
Log Areap	-0.022	-0.017	-0.024	-0.050*	-0.025	-0.011	-0.098***	-0.063
	(-1.080)	(-0.764)	(-1.093)	(-1.654)	(-0.898)	(-0.273)	(-2.639)	(-1.285)
Landl	-0.714***	-0.624***	-0.704***	-0.695***	-0.790***	-0.437**	-0.780***	-0.826***
	(-7.237)	(-5.324)	(-6.497)	(-4.277)	(-6.334)	(-2.419)	(-5.666)	(-3.621)
Island	-0.630***	-0.627***	-0.632***	-0.145*	-0.898***	-0.346**	-0.981***	0.089
	(-9.098)	(-8.259)	(-8.851)	(-1.676)	(-9.129)	(-1.989)	(-8.102)	(0.428)
Border	-0.193	-0.359	0.005	dropped	-0.081	-1.123	0.038	dropped
	(-0.344)	(-0.687)	(0.009)		(-0.148)	(-1.595)	(0.100)	
Comlang	0.487***	0.474***	0.483***	0.590***	0.315**	0.401***	0.131	0.756***
	(4.724)	(4.264)	(4.723)	(4.958)	(2.318)	(2.757)	(0.820)	(3.042)
Comcol	0.736***	0.716***	0.750***	0.727***	0.758***	0.664***	0.565***	0.183

	(6.001)	(5.422)	(5.924)	(2.990)	(5.293)	(3.788)	(3.221)	(0.537)
Colony	0.992***	1.097***	0.853***	0.596*	0.329	0.723***	1.299***	dropped
	(3.834)	(4.247)	(3.163)	(1.923)	(1.196)	(2.721)	(4.168)	
Importer Corruption	0.102***	0.051	0.145***	-0.048	0.078*	0.244***	0.098**	-0.065
	(3.815)	(1.484)	(5.055)	(-0.993)	(1.943)	(5.532)	(2.532)	(-1.241)
Constant	-	-	-	-	-14.120***	-	-	-
	16.206***	13.312***	19.347***	20.877***		24.505***	18.658***	7.762***
	(-14.709)	(-10.829)	(-16.775)	(-8.977)	(-9.715)	(-13.117)	(-7.786)	(-3.071)
R^2	0.748	0.757	0.754	0.820	0.668	0.696	0.785	0.696
Endogeneity Test [p-value]	380.205	69.103	112.375	394.051	204.669	100.528	95.092	367.385
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
First Stage F Stat	755.07	552.04	577.57	406.48	475.84	119.48	208.72	118.68
Anderson Canonical LR [p-value]	3852.374	1012.036	1111.459	2203.320	2478.257	1269.529	1231.506	722.363
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Hansen J-Statistic ¥ [p-value]	0.062	0.034	0.081	0.078	1.603	0.457	9.644	0.196
	[0.804]	[0.854]	[0.776]	[0.779]	[0.205]	[0.499]	[0.002]	[0.658]
N	17414	7780	9634	5408	12006	5852	7039	4523

¥ Hansen J Statistic (Overidentification test of all instruments)

Significance level: *** 1% ** 5% * 10% (t-ratio in parentheses)

Note: Colony was dropped from the model for High Income Asian countries as it is a singleton dummy, hindering the GMM estimation.

Table A2. Pooled TSLS Gravity Estimates: China & Hong Kong

Dependent:		Period		Markets		Asian Exporters		
Log	1990-	1990-	1997-	Developed	Developing	Low	Middle	High
Imports	2003	1996	2003					
Log HKCHEXP	-0.167*	0.064	-0.174*	-0.421***	-0.134	-0.062	0.139	-0.972***
	(-1.885)	(0.749)	(-1.936)	(-2.739)	(-1.196)	(-0.333)	(0.777)	(-3.482)
Log GDPM	0.996***	0.756***	1.054***	1.468***	0.879***	0.967***	0.791***	1.685***
	(12.284)	(9.717)	(12.155)	(8.955)	(9.845)	(5.109)	(4.662)	(6.811)
Log CAPM	0.098***	0.161***	0.058	0.013	0.004	-0.108	0.194***	-0.031
	(2.657)	(3.980)	(1.472)	(0.095)	(0.084)	(-1.472)	(3.058)	(-0.301)
Log GDPX	0.741***	0.687***	0.782***	0.753***	0.763***	0.951***	0.970***	0.836***
	(20.230)	(17.043)	(20.308)	(13.160)	(15.574)	(18.510)	(9.264)	(5.413)
Log CAPX	0.504***	0.612***	0.418***	0.373***	0.542***	0.730***	0.389***	-0.109
	(12.609)	(14.324)	(9.895)	(5.699)	(10.543)	(3.049)	(4.797)	(-0.300)
Log Dist	-1.380***	-1.496***	-1.154***	-1.253***	-1.408***	-1.208***	-1.547***	-1.958***
	(-15.126)	(-14.987)	(-12.754)	(-5.356)	(-12.738)	(-8.669)	(-10.461)	(-6.734)
Log Areap	-0.023	-0.009	-0.026	-0.064*	-0.025	-0.013	-0.087**	-0.114
	(-1.094)	(-0.408)	(-1.168)	(-1.882)	(-0.842)	(-0.287)	(-2.074)	(-1.528)
Landl	-0.745***	-0.617***	-0.744***	-0.707***	-0.834***	-0.484**	-0.706***	-1.056***
	(-6.768)	(-5.256)	(-5.991)	(-3.910)	(-5.561)	(-2.345)	(-4.325)	(-3.105)
Island	-0.616***	-0.616***	-0.615***	-0.115	-0.879***	-0.324*	-0.973***	0.106
	(-8.775)	(-8.203)	(-8.514)	(-1.207)	(-8.742)	(-1.764)	(-8.101)	(0.384)
Border	-0.233	-0.360	-0.008	dropped	-0.090	-1.143	0.028	dropped
	(-0.404)	(-0.701)	(-0.013)		(-0.157)	(-1.556)	(0.074)	
Comlang	0.519***	0.459***	0.521***	0.660***	0.338**	0.408**	0.137	0.983***
	(4.792)	(4.097)	(4.928)	(4.893)	(2.375)	(2.442)	(0.855)	(2.996)
Comcol	0.722***	0.711***	0.742***	0.772***	0.742***	0.635***	0.575***	0.056

	(5.703)	(5.416)	(5.690)	(2.951)	(4.960)	(3.460)	(3.228)	(0.131)
Colony	1.037***	1.082***	0.882***	0.614*	0.329	0.728***	1.210***	dropped
	(3.870)	(4.268)	(3.196)	(1.820)	(1.074)	(2.735)	(3.524)	
Importer Corruption	0.107***	0.052	0.152***	-0.038	0.073*	0.241***	0.100***	-0.052
	(4.105)	(1.511)	(5.675)	(-0.759)	(1.730)	(5.542)	(2.658)	(-0.739)
Constant	-	-	-	-	-13.393***	-	-	-5.861*
	15.758***	13.394***	19.151***	20.861***		24.451***	18.664***	
	(-13.528)	(-10.467)	(-16.256)	(-8.524)	(-7.920)	(-13.174)	(-7.961)	(-1.786)
R^2	0.738	0.760	0.744	0.794	0.658	0.691	0.791	0.508
Endogeneity Test [p-value]	154.658	30.660	61.874	238.709	101.639	51.929	16.780	238.444
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
First Stage F Stat	138.63	233.69	155.25	82.62	95.05	28.86	33.09	22.13
Anderson Canonical LR [p-value]	1007.286	443.380	418.341	600.895	694.606	417.746	210.084	148.132
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Hansen J-Statistic ¥ [p-value]	0.343	0.000	0.209	0.209	0.965	0.380	8.297	0.099
	[0.558]	[0.998]	[0.648]	[0.648]	[0.326]	[0.538]	[0.004]	[0.753]
N	17286	7711	9575	5422	11864	5810	6985	4491

¥ Hansen J Statistic (Overidentification test of all instruments)

Significance level: *** 1% ** 5% * 10% (t-ratio in parentheses)

Note: Colony was dropped from the model for High Income Asian countries as it is a singleton dummy, hindering the GMM estimation.

Table A3. Impact of China's Growth on its Imports, 1990-2003

Dependent variable: Log China's Imports	**Full Model**	**Restricted Model**	**w/o Distance**	**Asian Exporters**		
				Low Income	***Middle Income***	***High Income***
Log CHGDP	-4.611	1.477***	1.470***	1.171**	0.472**	1.753***
	(-0.108)	(5.578)	(5.537)	(2.567)	(2.412)	(9.098)
Log GDPX	0.837***	0.837***	0.832***	0.549***	2.456***	0.509***
	(10.849)	(10.879)	(10.801)	(4.276)	(27.563)	(10.542)
Log CAPX	0.608***	0.608***	0.623***	2.497***	0.914***	0.016
	(7.436)	(7.458)	(7.676)	(3.162)	(7.567)	(0.105)
Log Dist	0.486	0.485				
	(1.370)	(1.373)				
Log CHCAP	6.818					
	(0.143)					
Constant	72.646	-	-	-	-60.958***	-
		49.991***	46.125***	42.186***		39.441***
	(0.085)	(-6.347)	(-6.255)	(-3.638)	(-11.433)	(-7.592)
R^2	0.760	0.760	0.758	0.649	0.944	0.877
N	179	179	179	67	70	42

Significance level: *** 1% ** 5% * 10% (t-ratios in parentheses)

Table A4. Impact on China's Imports, by Exporting Asian Country

	1990-2003 With Distance	**1990-2003 w/o distance**	**1990-1996 w/o Distance**	**1997-2003 w/o Distance**
lchgdp*japan	1.118***	1.032***	1.308	2.760***
	(3.138)	(2.819)	(1.441)	(3.745)
lchgdp*korea	1.817***	1.130***	1.363*	2.639***
	(4.840)	(3.516)	(1.717)	(4.084)
lchgdp*singapore	0.942***	1.075***	1.137	2.416***
	(3.246)	(3.632)	(1.499)	(4.653)

lchgdp*indonesia	0.527	1.292***	1.689**	2.637***
	(1.348)	(3.990)	(2.113)	(3.695)
lchgdp*malaysia	0.950***	1.191***	1.401*	2.515***
	(3.271)	(4.118)	(1.952)	(4.330)
lchgdp*philippines	1.230***	1.228***	1.528**	2.532***
	(4.249)	(4.120)	(2.082)	(3.944)
lchgdp*thailand	1.661***	1.211***	1.495**	2.566***
	(5.117)	(3.994)	(1.994)	(4.033)
lchgdp*srilanka	0.725**	1.110***	1.352**	2.243***
	(2.593)	(4.243)	(2.082)	(4.154)
lchgdp*bangladesh	1.851***	1.197***	1.593**	2.409***
	(5.240)	(3.979)	(2.158)	(3.598)
lchgdp*cambodia	1.590***	1.239***	1.433**	2.244***
	(6.290)	(5.250)	(2.452)	(4.513)
lchgdp*pakistan	1.043***	1.247***	1.611**	2.526***
	(3.427)	(4.065)	(2.136)	(3.725)
lchgdp*vietnam	1.792***	1.286***	1.624**	2.489***
	(5.644)	(4.494)	(2.321)	(3.940)
lchgdp*india	1.017***	1.268***	1.774*	2.715***
	(2.775)	(3.437)	(1.937)	(3.249)
lgdpx	1.697	0.486	-1.283	-2.096
	(1.446)	(0.423)	(-0.404)	(-0.835)
lcapx	-0.003	2.000	4.377	1.582
	(-0.002)	(1.465)	(1.169)	(0.596)
ldist	42.686***			
	(3.294)			
_cons	-377.525***	-39.834**	-20.628	-8.053
	(-3.643)	(-2.576)	(-0.454)	(-0.251)
R^2	0.956	0.953	0.950	0.981
N	179	179	88	91

Significance level: *** 1% ** 5% * 10% (t-ratios in parentheses)

Table A5. List of Importing Countries

1	ALBANIA	58	GRENADA	115	PAPUA NEW GUINEA
2	ALGERIA	59	GUATEMALA	116	PARAGUAY
3	ANGOLA	60	GUINEA	117	PERU
4	ANTIGUA AND	61	GUINEA-BISSAU	118	PHILIPPINES
5	ARGENTINA	62	GUYANA	119	POLAND
6	ARMENIA	63	HAITI	120	PORTUGAL
7	AUSTRALIA	64	HONDURAS	121	QATAR
8	AUSTRIA	65	HUNGARY	122	REUNION
9	AZERBAIJAN	66	ICELAND	123	ROMANIA
10	BAHAMAS	67	INDIA	124	RUSSIA
11	BAHRAIN	68	INDONESIA	125	RWANDA
12	BANGLADESH	69	IRAN	126	SAMOA
13	BARBADOS	70	IRAO	127	SAO TOME & PRINCIPE
14	BELARUS	71	IRELAND	128	SAUDI ARABIA
15	BELGIUM	72	ISRAEL	129	SENEGAL
16	BELIZE	73	ITALY	130	SEYCHELLES
17	BENIN	74	IVORY COAST	131	SIERRA LEONE
18	BERMUDA	75	JAMAICA	132	SINGAPORE
19	BOLIVIA	76	JAPAN	133	SLOVAK REP
20	BRAZIL	77	JORDAN	134	SLOVENIA
21	BULGARIA	78	KAZAKHSTAN	135	SOLOMON IS
22	BURKINA FASO	79	KENYA	136	SOMALIA
23	BURUNDI	80	KIRIBATI	137	SOUTH AFRICA
24	CAMBODIA	81	KOREA	138	SPAIN
25	CAMEROON	82	KUWAIT	139	SRI LANKA
26	CANADA	83	KYRGYZ REP	140	ST. KITTS AND NEVIS
27	CAPE VERDE	84	LAO PDR	141	ST. LUCIA
28	CENTRAL AFRICAN REP	85	LATVIA	142	ST. VINCENT & GRENS
29	CHAD	86	LEBANON	143	SUDAN
30	CHILE	87	LIBERIA	144	SURINAME
31	COLOMBIA	88	LIBYA	145	SWEDEN
32	COMOROS	89	LITHUANIA	146	SWITZERLAND
33	CONGO REP	90	LUXEMBOURG	147	SYRIA
34	CONGO, DEM. REP	91	MACEDONIA	148	TAJIKISTAN
35	COSTA RICA	92	MADAGASCAR	149	TANZANIA
36	CROATIA	93	MALAWI	150	THAILAND
37	CYPRUS	94	MALAYSIA	151	TOGO
38	CZECH REPUBLIC	95	MALDIVES	152	TONGA
39	DENMARK	96	MALI	153	TRINIDAD AND
40	DJIBOUTI	97	MALTA	154	TUNISIA
41	DOMINICA	98	MAURITANIA	155	TURKEY
42	DOMINICAN REP	99	MAURITIUS	156	TURKMENISTAN
43	ECUADOR	100	MEXICO	157	UGANDA
44	EGYPT	101	MOLDOVA	158	UKRAINE
45	EL SALVADOR	102	MONGOLIA	159	UNITED ARAB
46	EQUATORIAL GUINEA	103	MOROCCO	160	UNITED KINGDOM
47	ESTONIA	104	MOZAMBIQUE	161	UNITED STATES
48	ETHIOPIA	105	NEPAL	162	URUGUAY
49	FIJI	106	NETHERLANDS	163	UZBEKISTAN
50	FINLAND	107	NEW ZEALAND	164	VANUATU
51	FRANCE	108	NICARAGUA	165	VENEZUELA
52	GABON	109	NIGER	166	VIETNAM
53	GAMBIA	110	NIGERIA	167	YEMEN
54	GEORGIA	111	NORWAY	168	YUGOSLAVIA
55	GERMANY	112	OMAN	169	ZAMBIA

56	GHANA	113	PAKISTAN	170	ZIMBABWE
57	GREECE	114	PANAMA		

Table A6. List of Exporting Countries

1	BANGLADESH
2	CAMBODIA
3	INDIA
4	INDONESIA
5	JAPAN
6	KOREA
7	MALAYSIA
8	PAKISTAN
9	PHILIPPINES
10	SINGAPORE
11	SRI LANKA
12	THAILAND
13	VIETNAM