How China is Reorganizing the World Economy[1]
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Abstract

In this paper we analyze how China's emergence is reshaping the world economy. We first examine how the growth of China's exports is affecting the exports of other countries in Asia. Our innovation here is to account for the endogeneity of China's exports and to distinguish exports of capital goods, consumer goods, intermediates, and raw materials. We next look to the impact of China on direct foreign investment flows. In this case our innovation is to distinguish vertical and horizontal FDI and to look explicitly at how supply-chain relationships affect these forms of FDI. We then look more closely at factors influencing the articulation of these supply chains, focusing on two very different industries, electronics and autos. Finally, we provide an analysis of these spillovers using a cross-country empirical growth framework. We confirm the hypothesis of differential trade, FDI and growth effects by region, stage of economic development, and resource endowment.

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1. Introduction

China's emergence as an industrial and export powerhouse is clearly one of the most important forces reshaping the contemporary world economy. A now standard way of conveying this point is to observe that the increase in employment in China's modern sector by some 25 million workers a year is equivalent to adding another middle-sized industrial country to the world economy annually. Thus, China's growing importance as an assembly platform for exports of manufactures, a destination for foreign investment, and a consumer of imported technology, raw materials and industrial goods is not a one-time shock; rather, it is an ongoing process continually reshaping the balance of global supply and demand.

Nonspecialist observers are sometimes led to conclude that, if current trends continue, it will not be many years before China dominates the market for virtually every type of good. Economists of course understand that even a large country has a comparative advantage. China will consequently specialize in the production and export of those goods in which its factor and organizational endowment give it a comparative advantage while importing the rest. The right question to ask is therefore how China will fit into the global division of labor. As a labor abundant economy with neighbors capable of efficiently supplying industrial technology, components and capital, initially China will specialize in the production of labor-intensive manufactures for sale on foreign and, increasingly, its own domestic markets. It will import capital-intensive manufactures, foodstuffs, and primary products including energy, given that it is relatively less well

endowed in the capital, land and natural resources used intensively in the production of these goods.

These observations in turn have implications for how other countries and regions will be affected. China's rapid growth presumably has more favorable implications for countries like South Korea and Singapore that produce and export electronic components and for countries like Indonesia and Australia endowed with timber, bauxite and other primary products than it does for producers of textiles and footwear such as Pakistan, Bangladesh and Vietnam. In the Western Hemisphere, it has more favorable implications for countries like the United States that produce and export capital goods and for countries like Brazil and Venezuela that export raw materials and energy than for producers of textiles and apparel like Costa Rica and Nicaragua.

But even for this last set of countries, the net impact is unclear. On the one hand they compete head to head with a much larger and increasingly efficient Chinese economy in the production of labor-intensive light manufactures. On the other hand, with labor costs rising in China, they have the same opportunity as Asia's high-income countries to link into supply chains with their larger neighbor, undertaking those stages of the production process where their relatively low labor costs give them a comparative advantage. Ultimately, this may not mean supplying inputs to Chinese assembly operations but rather doing the final assembly of components and the tailoring of textiles produced in China on the basis of their even lower labor costs and even stronger comparative advantage in labor-intensive sectors. But to the extent that proximity matters for this international division of labor, China's emergence may still have very different effects on, say, Vietnam and Nicaragua.

In this paper we summarize and extend our ongoing research on these questions. We first examine how the growth of China's exports is affecting the exports of other countries in Asia and the rest of the world. Our innovation here is to distinguish exports of capital goods, consumer goods, intermediates, and raw materials and to disaggregate textiles, apparel and consumer electronics, the most visible sectors where China's presence is felt. We next look to the impact of China on direct foreign investment flows. In this case our innovation is to distinguish vertical and horizontal FDI and to look explicitly at how supply-chain relationships affect these forms of FDI. We then look more closely at factors influencing the articulation of these supply chains, the fragmentation of production, and the emerging international division of labor, focusing on two industries, electronics and autos, that exhibit very different responses. What is at stake is the impact of China's emergence on growth and living standards in other countries. In the penultimate section of the paper we therefore provide a preliminary analysis of these spillovers using a cross-country empirical growth framework.

2. Trade

The impact of China's trade on the trade of other countries has been studied in two ways.[2] First, there are detailed studies of the pattern of revealed comparative advantage based on comparisons with individual countries, like that of Cerra, Rivera and Saxena (2005) for India and China. The limitation of this work is the difficulty of generalizing to other countries (since the impact on, inter alia, India may not be the same as the impact on other economies). Second, there are multi-country simulation studies

[2] Actually, there are a few studies that don't fit easily into either of the categories distinguished here. We provide a more extensive review of the literature in Eichengreen, Rhee and Tong (2004).

based on computational general equilibrium models, which take as their comparative-statics experiment an event like China's WTO accession (see e.g. Ianchovichina and Walmsley 2003). The problem here is that what one gets out depends on what one puts in. In other words, the results of simulation studies are unavoidably sensitive to parameter calibration.

Our take on these questions is Eichengreen, Rhee and Tong (2004). We use the gravity model of bilateral trade flows augmented to include a role for China's exports. That is, we regress exports from, say, South Korea to the United States on the standard gravity variables (the size and per capita incomes of the two economies, the distance between them, and so forth), but we include also China's exports to the United States. The key assumption is to acknowledge the endogeneity of China's exports to the United States and the correlation between this explanatory variable and the error term in the equation, since an unobserved factor (say, a shock to consumer confidence) that increases South Korea's exports to the U.S. may also increase China's exports to the U.S. A key insight is that the gravity model provides a suitable instrumental variable for treating this problem, namely the distance from China to its market (in the present example that being the United States), which is correlated with the direction of China's exports but does not belong in the export equations for other countries (in this case South Korea). In addition, we use this same specification to estimate the impact of China's growth on its demand for imports from other countries.

The results confirm the tendency for China's exports to third markets to crowd out the exports of other Asian countries, but they suggest this effect is felt mainly in markets for consumer goods, not in markets for capital goods. When we distinguish

consumer goods, intermediates and capital goods, the coefficients in the equations for consumer goods are larger in absolute value and more significant at standard confidence levels. This is a logical result given that China has been exporting consumer goods, not capital equipment. At the same time, there has been a tendency for a rapidly growing China to suck up imports from its Asian neighbors. This direct effect of Chinese imports is felt mainly in markets for capital goods.[3]

In turn these results point to differential effects of China's rise on Asia's high-income exporters of capital goods and low-income exporters of consumer goods. High-income Asian exporters of machinery, equipment and sophisticated inputs into consumer electronics may feel some effect of Chinese competition in third markets, but this impact is swamped by the strong positive effect of China's own buoyant demand for their exports. In contrast, although low-income Asian exporters of unskilled-labor intensive consumer goods have experienced intense Chinese competition in third markets, China's rapidly growing economy has produced relatively little direct demand for their exports, given the country's considerable capacity to produce those same manufactures at home.

Here we report some additional results further disaggregating consumer goods into textiles and apparel versus other products, disaggregating intermediates into energy (group 3 in SITC 2), non-energy raw materials (group 2 in SITC 2), and other products, and disaggregating capital goods into components and equipment.[4] Table 1a shows that China competes with Asian countries in consumer goods, particularly textiles and

[3] We tested for structural change by breaking the sample in 1997. The basic patterns continue to hold, if anything becoming more pronounced in recent years.
[4] Components include 759, 7649, 77579, 776, and 786 in SITC 2. Equipment is our label for other capital goods categories.

apparel.[5] In contrast, it complements Asian exports of intermediates, in the sense that an exogenous increase in China's exports is associated with an increase in other countries' exports of these same products. This result holds across the board – for raw materials, for energy, and for other intermediate goods (chemicals being an example of this last subcategory). Similarly, China's own exports stimulate other Asian countries' exports of components (mainly electronic components and auto parts), while apparently having no significant impact on other countries' exports of equipment.

In Table 1b, we report the impact of China's growth on its own imports of seven groups of capital goods, intermediates and consumer goods from Asian exporting countries. The income elasticities of demand for capital goods, intermediates and consumer goods are all positive, as expected. But the income elasticity for capital goods is unusually large – in excess of two. This is consistent with the oft-heard observation that China's growth is good for suppliers of components, machinery, and equipment.

Table 1c shows the net impact of China's growth on other countries' exports. We report the percentage change in exports of capital goods, intermediates and consumer goods in the first seven columns and the sum of the seven effects, weighted by the country-specific share of each type of export, for each Asian country. The numbers in each column are the sum of the direct effect of Chinese growth on China's demand for imports and the indirect effect, if any, in crowding out the subject country's exports to third markets. For example, a 10 per cent increase in Chinese income leads to a 5.4 per cent increase in net Japanese exports, combining the direct and indirect effects.

[5] Here the sample of exporting countries is limited to Asian exporters: it includes Bangladesh, Cambodia, India, Indonesia, Japan, Korea, Malaysia, Pakistan, Philippine, Singapore, Sri Lanka, Thailand, and Vietnam. Third importing markets cover 177 economies.

This more disaggregated analysis reinforces our previous finding that China and other exporters of electronic components and auto parts are increasingly forming supply chains. It suggests that China's growth is having very different effects on Asia's high- and low-income economies and on exporters of consumer goods versus intermediates and capital goods. More specifically, it shows that China is making life especially difficult for exporters of textiles and apparel while stimulating production and exports by countries specialized in raw materials, energy, chemicals and components. Positive overall effects are evident not just for Japan but also for Korea, Singapore and Malaysia, reflecting their specialization in and China's strong demand for exports of components and other capital goods.[6] Indonesia similarly shows a strong positive effect, reflecting its healthy exports of energy and raw materials and China's strong demand for the products of these sectors. On the other hand, we see negative effects on Bangladesh, Cambodia, Sri Lanka and Pakistan, reflecting their specialization in textiles and apparel and strong Chinese competition in these sectors. It is interesting that the vast majority of effects on Asian economies are positive, excepting only the four just-mentioned countries.

3. Foreign Direct Investment

The literature on the impact of FDI inflows into China on FDI inflows into other countries is even thinner on the ground. Once again, previous analysts have taken essentially two approaches to this question. First are studies using panel data methods, generally for samples of Asian countries (see for example Mercereau 2005 and Chantasasawat, Fung, Iizaka and Siu 2004). The challenge here is the difficulty adjusting for simultaneity, since unobserved variables that make FDI in China more or less

[6] We suspect that we would find the same thing for Taiwan if we possessed the relevant data.

attractive may also make FDI in other countries more or less attractive, creating a correlation between the key independent variable (China's FDI) and the error term. Second are multi-country simulation models (e.g. McKibbin and Woo 2003), the results of which can again be sensitive to assumptions about model specification.

Our approach here too is to use the gravity model, this time applied to FDI rather than trade.[7] This involves regressing bilateral FDI flows on aggregate and per capita incomes, the distance between the source and recipient countries, and other standard gravity variables, and adding as an additional explanatory factor FDI flows to China from the same source country. Again the key step is to acknowledge the potential endogeneity of China's FDI receipts and to observe that the gravity model provides an appropriate instrumental variable, namely the distance from the source country to China (which – unlike the distance between the source and recipient countries – does not belong in the second-stage equation).

The data for our study are drawn mainly from the OECD.[8] The organization provides data for FDI flows, disaggregated by destination, for 29 source countries (the principal European countries, the U.S., Canada, Australia, New Zealand, Mexico, South Korea and Turkey). It breaks down outflows from these countries, by destination, distinguishing 60 OECD and non-OECD recipients. To broaden our coverage of FDI flows in Asia, where the largest impact may be felt, we added data on FDI inflows from

[7] A large number of previous studies have also applied the gravity model to FDI. An early study by Grubert and Mutti (1991) used it to analyze patterns of plant and equipment investment by U.S. multinationals. Frankel (1997) used the gravity model to analyze the impact of preferential trade arrangements on FDI. Hejazi and Safarian (2002) used an augmented gravity model to explain Canadian FDI. Stein and Duade (2001) used the gravity model to analyze FDI flows between 28 OECD home countries and 63 host countries, focusing on how institutional characteristics of the destination countries in particular affect the volume of flows. Mody, Razin and Sadka (2002) employed a gravity model of bilateral FDI to analyze the role of information in directing investment flows.

[8] "Source OECD" at http://www.sourceoecd.org.

national sources for Bangladesh, Pakistan, and Vietnam (information on which is not included in the OECD data base). We focus on the period from 1988 to 2003, since China only became an important destination for FDI from the early 1990s.

We generally find positive effects of China's FDI inflows on FDI inflows into other Asian countries. This is in contrast to our findings for other regions, where there is either no effect (as in Latin America) or a negative effect (as in Europe). Importantly, we find that FDI into China provides a larger boost to FDI into high-income Asian countries that are producing components and capital equipment for production and assembly operations in China than for low-income Asian countries that mainly compete with China in third markets. Again, the picture is one where nearby (Asian) countries benefit more than far-away (European) economies, reflecting the relevance of distance for supply-chain economics, and in which high-income Asian countries benefit more than their low-income counterparts.[9]

Note that the results for trade and FDI point in similar directions. This is not surprising, since the underlying logic is the same. A country that is able to capitalize on the opportunities afforded by China as a platform for assembling and exporting consumer electronics by producing and exporting to China the components assembled there and the equipment required for their assembly will be a more attractive place to invest, foreign multinationals appreciating the attractions of all of the links in this regional supply chain.[10]

Here we take two additional steps in analyzing China's impact on other countries' FDI. First we distinguish horizontal and vertical FDI. Following conventional practice,

[9] Here too the central results continued to hold when we broke the sample, if anything becoming more pronounced in recent years.
[10] These connections have been noted by a number of other authors, such as Lian (2005).

our proxy for the incentive for horizontal FDI is the log of the sum of the GDPs of the source and host countries. This is designed to market size as an incentive for FDI. Note that we continue to include per capita GDPs in both countries as additional control variables. To capture the spillover from China's FDI, we interact the sum of the source and host countries' GDP with the instrumented value of logged Chinese FDI. The results, in Table 2, are consistent with the hypothesis that China's growing attractions as a destination for horizontal FDI crowds out horizontal FDI in other countries: the key coefficient is -0.04 (with a t-statistic of 4.0). An interpretation is that, inter alia, motor vehicle manufacturers deciding whether to site a greenfield plant in China or elsewhere in the region tend to invest less elsewhere as a result of the attractions of producing close to the large and rapidly growing Chinese market.

Our proxy for vertical FDI is the log of the sum of host and source country GDPs, as before, but now interacted with the difference in their (log) per capita GDPs as a proxy for relative labor costs and with a dummy variable equaling one when labor costs so measured are higher in the source than the destination country. The key component of this proxy is the difference in per capita GDPs and therefore in labor costs in the two countries, the argument being that the incentive to outsource stages in the production process rises with the extent of this gap. To capture the spillover from China, we again interact this measure with the instrumented value of China's FDI. The results, also in Table 2, are very different than those for horizontal FDI. For vertical FDI we get a positive coefficient on the spillover term (with a t-statistic of 6.2). In other words, there is evidence that larger vertical FDI flows into China increase vertical FDI into other

countries.[11] These results suggest that whether China's large and growing FDI receipts are encouraging or discouraging foreign investment in other countries depends on whether that investment is horizontally or vertically oriented and specifically on whether other countries are linked to supply chains with China.

4. Supply Chains and Foreign Investment Spillovers

The previous finding leads us to attempt to test the FDI-supply-chain story more directly. We reestimate our equations for FDI inflows including also the fitted value of exports from the FDI host country to China and the interaction of exports from the FDI receiving ("host") country to China and China's FDI receipts. For example, when examining FDI flows from the U.S. to South Korea, we include FDI flows from the U.S. to China, South Korea's exports to China, and the interaction of these two variables. Note that we are able to instrument both components of this interaction term: exports to China by distance from the exporting country (i.e. Korea) to China and China's FDI receipts by the distance from the FDI source country (i.e. the U.S.) to China. If supply chain relationships are affecting the incentives for FDI, then countries that export more to China as a result of being linked into supply chains with that country should receive more FDI when China receives more FDI, other things equal. As in the earlier analysis, we

[11] In Table 2, we de-mean both the horizontal and vertical incentives. That is to say, we subtract the mean of the vertical incentive from the vertical incentive, and the mean of the horizontal incentive from the horizontal incentive. De-meaning will not affect the coefficients for these two incentives in Table 2, because demeaning is simply subtracting a constant from a variable and does not affect the variation of that variable. Neither will demeaning affect the coefficient of the interaction term of incentives and China's FDI. De-meaning of these two incentives, however, could give a more straightforward explanation of the coefficient for China's FDI. Indeed, after demeaning, the coefficient for China's FDI is exactly the total effect of China on other countries' FDI receipts. I.e., the sum of China's negative impact on horizontal FDI and positive impact on vertical FDI is -0.01, not significantly different from zero.

again disaggregate trade into capital goods (components and the other capital goods), consumer goods and intermediates.

Our first-stage estimate of FDI flows from the various host countries to China has a good fit; in the case of components, for example, the R^2 ranges up to 0.73. Moreover, the distance from the FDI host country to China enters with a significant negative coefficient, as predicted. We obtain similar first-stage results for the other categories.

The results of estimating the second stage on the full country sample are reported in Table 3. For components, the coefficient on the interact of exports and China's FDI receipts is positive with a t-statistic of 2.08. In other words, when China receives more FDI, countries exporting components to China also receive more FDI.[12] For other capital goods, intermediates and consumer goods, the coefficient on this term is also positive; it is significantly different from zero for the last two of these grounds. We take all of this as further supply for the supply-chain story.

5. Supply Chains and Production Fragmentation in Electronics and Autos

These results suggest looking more closely at the impact of China's growth on supply chains and production fragmentation in specific industries. We contrast autos and electronics, two cases characterized by different degrees of horizontal and vertical competition. We are not the first to observe that the articulation of supply chains differs between these sectors.[13] But we focus more closely on how China's emergence is

[12] The negative coefficient on the instrumented value of the subject country's exports to China is in fact quite intuitive. Say country A is exporting to the U.S. more than to China, while country B is exporting more to China than to the United States. Then country A is likely to receive more FDI from the U.S. than country B does, especially if the U.S. is providing vertical FDI to country A to facilitate that country's exports to the United States. Country B, in contrast, is unlikely to receive much FDI fro China because China's FDI outflow is still at an early stage.

[13] For references see below.

affecting production fragmentation and regional supply chain relationships, and we develop a different empirical strategy for identifying China's impact.

Prominent among these earlier studies is Lall, Albaladejo and Zhang (2004), who analyze the same UN trade data utilized in this paper but disaggregated to the level of the automobile and electronics industry and who distinguish finished products from parts and components. Contrasting 1990 and 2000, they document that product fragmentation – trade in components in particular – grew rapidly in electronics.[14] In autos, in contrast, exports of parts and components grew more slowly than exports of finished goods. Data for this period also lead them to suggest that fragmentation reflecting regional supply chain linkages is more widespread in electronics than autos in East Asia but more widespread in autos than electronics in Latin America.

This contrast between Asia and Latin America imposes some discipline on analysis of the causes of these patterns and the impact of China in particular. Tradability, which is typically captured by the value to weight ratio, is greater in electronics than autos, pointing to greater fragmentation, but it cannot obviously explain why such fragmentation is so much more advanced in East Asia than Latin America. The variability of exchange rates in East Asia has been pointed to as an explanation for the greater tendency for Asian auto firms to source inputs locally (Ravenhill 2005), but exchange rate variability is no greater in East Asia than it is in Latin America – if anything the opposite is true – and Latin American auto firms did less local sourcing in the 1990s.

[14] In electronics, exports of parts and components grew faster than exports of final products with the exception of the semiconductor segment.

The comparison points to a combination of government policies and the nature of learning in the two industries as an explanation for these contrasting patterns. Greater trade openness in Asia than Latin America was integral to the decision of U.S. producers of electronics, and U.S. multinationals generally, to source components in Asia in the 1990s. Automobiles were something of an exception: there, in Asia as in Latin America, governments were concerned not just to attract assembly plants but to develop the entire supply network domestically on the grounds that learning effects are especially powerful when there is domestic production of the entire range of parts and components together with final assembly. The idea evidently is that learning spillovers are especially pronounced in the motor vehicle sector when design, components production, assembly and marketing are all undertaken domestically, or at least when foreign sourcing is relatively limited. This is an interpretation of Japan's experience after World War II that has inspired policy in countries like South Korea and Malaysia.[15] In electronics, in contrast, the perception is that simply learning to fabricate a particular component as a number of East Asian countries have done (disk drives in Singapore, semiconductors in Taiwan) may be enough to stimulate movement down the learning curve; it is not necessary to undertake all the stages of production in order to reap efficiency gains.[16]

Two relevant questions are whether these perceptions will now change and how these patterns are being affected by China. The auto industry developed earlier, in an age when transport and other transactions costs were higher, bolstering the argument that if a country was going to develop its motor vehicle industry it would have to engage in the

[15] Even in Latin America, this same strategy has been at least modestly successful.
[16] To the contrary, in the most notable case where a government used policies of important substitution to develop an indigenous electronics industry spanning design, production of parts and components, and assembly – namely Brazil – the strategy was a signal failure.

entire range of production-related activities domestically. In that age of high cross-border transactions costs, it could be reasonably argued that it was not possible to be an internationally competitive producer of autos without producing the entire vehicle. Now that the costs of cross-border transactions have declined and global sourcing has come to the industry, this rationale for government policy may change. We see this in Thailand, which is not only the third largest market for light pickup trucks in the world, and increasingly an exporter, but which is relying on foreign sourcing for parts and components.

As for China, one can imagine that the country's recent experience with electronics, where it has engaged in extensive foreign sourcing of parts and components while concentrating on assembly operations, may encourage it to attempt to emulate that success by adopting the same strategy in motor vehicles. If so, then China's emergence will be good for other Asian countries engaged in the production of parts and components for automotive as well as electronic products but bad for other countries in the region that compete with China in the assembly of the final products.

We look for evidence of these trends by updating Lall et al.'s results through the 2003.[17] We find that from 1990 to 2003, emerging markets raised their global market share from 27.5 per cent to 56 per cent in electronics. The rise in the share of global electronics exports accounted for by emerging markets is due primarily to East Asia, which accounts for 90 per cent of the EM total in 2000. Between 2000 and 2003, East Asia's global market share in electronics exports then rose further from 42 per cent to 52 per cent, while Latin America's share remained stagnant at 4 per cent.

[17] We use country A's report of imports from country B as country B's exports. This means that we are using the c.i.f. measure instead of the f.o.b. measure of trade. This results in some small discrepancies between our estimates and those of Lall, et al., who instead use the f.o.b. measure of trade.

In the case of motor vehicles, in contrast, exports consist mainly of completely assembled automobiles.[18] Emerging Asia's exports have been rising rapidly: circa 2003, East Asia excluding Japan and Latin America had a similar value of automotive exports (both complete vehicles and parts and components). Lall et al. (2004) argue that different developing regions participate in different global production networks: East Asia in electronics, Latin America in motor vehicles. Our post-2000 data suggest, however, that Asia is developing a significant profile in both sectors.

In the case of electronics, intra-Asian exports grew much faster than exports to other regions, by 2003 comprising 39% of total electronics exports (47% including Japan). Intra-regional imports grew even faster, though at the expense of reduced imports from Japan. (Here intra-Asian refers to the EA9: Hong Kong, Indonesia, Korea, China, Malaysia, Philippines, Singapore, Thailand and Taiwan.) The trade balance with other regions has been increasingly positive, particularly with the main partner, the United States.

China's exports of electronics evolved differently from those of other countries; it was the only Asian country where the share of exports destined for the EA9 fell (from 56% in 1990 to 28% in 2003). In contrast, the share of Japan in China's exports rose from 2.5% in year 1990 to 10% in year 2003. As far as China's imports are concerned, the share of EA9 in China's imports is 54% in year 1990 and stays the same in year 2003 (75% if adding up EA9 and Japan).[19]

[18] Though exports of engines have risen quickly, they still comprised only 10 per cent of auto exports in 2003.

[19] A significant part of China's electronics imports come from free zones. The UN Comtrade treats free zones as a separate group of exporters, and does not include them in any country's exports to China. This reporting practice could underestimate EA9's contribution to China's imports. For example, Malaysia's EPZs (a free zone) concentrate 10% of world TV equipment exports, but they are not included in China's imports from Malaysia. There was no imports by China from free zones in 1990, but in 2003 they occupied

As far as Latin America countries are concerned, the pattern described by Lall et al. (2004) still holds in 2003: the electronics production network in Latin America is a constricted North American network de-linked from the rest of the region, with no signs of the intra-regional links as in the EA9. For instance, Mexico exports primarily to the United States; it imports significantly from Japanese and Korea but buys practically nothing from LAC3 (i.e., Argentina, Brazil and Mexico). A noticeable trend from 2000 to 2003 is that the share of U.S. products in LAC3 imports fell from 62% to 35%.

We now apply our gravity model framework to analyzing the impact of China's emergence on the auto and electronics trade of other countries. We estimate separately equations for electronic parts and components, finished electronic products, auto parts and components, and finished automobiles.[20] We first examine how China affects other Asian countries' exports to third markets. Our instrumental variable for China's exports to a third country is, as always, China's distance to that market. In the case of completed automobiles, the distance variable turns out be insignificant in the first stage (with t-stat being –0.15), so we add China's GDP as an instrumental variable, requiring us to drop the time dummies). The second-stage estimates suggest that China significantly increases

13% of China's global electronics imports. This suggests that East Asia's share in China's imports was actually higher than 54% in 2003 because free zones are popular in East Asia. Note that Lall et. al. (2004) reported the weight of EA9 in China's imports was only 11.9% in year 1990. Our calculation suggests the figure as 54%. The main difference lies in that China's global import value is 4 billions ($) in our estimation, while it was 18 bns in Lall et. al . We tried the following two methods: directly use China's global import value as reported by the UN Comtrade, or indirectly derive it by summing over all exporters. Both methods give us the same value of 4 bns. We thus believe our calculation is more accurate. Note also that the value of China's electronics imports from EA9 rose significantly. From year 1990 to year 2000, the annual growth rate of China's electronics imports from EA9/Japan/the world is 24/25/27% respectively. From year 2000 to 2003, these numbers rise to 40/26/27% respectively.

[20] Electronics parts: 7591, 7599, 7649 and 776 (semiconductors) in SITC Rev2. Electronics finished goods: 751, 752, 76 (except 7649). Auto parts: 784, 7132 and 7139. Auto finished products: 78 (except 784).

other Asian countries' exports of electronic parts and final products to third markets while decreasing their exports in auto parts and final products (Table 4a).[21]

Table 4b reports China's own imports from other Asian countries. For electronics parts and finished products, China's income elasticity of import demand is similar across Asian countries except for Bangladesh and Cambodia.[22] When China's income grows by 5 per cent, its imports of electronic products from other Asian countries rise by about 20 per cent. Column 5 shows that income growth in China similarly increases its demand for auto parts and components from Japan, Korea and Singapore. However, even for these three countries, the magnitude of China's income elasticity is around one, much less than that for electronic products. This may reflect China's protection of the market for domestically- produced cars.[23]

6. Growth Spillovers

What is ultimately at stake is the impact of China's growth on growth and living standards in other economies. While the literature on growth spillovers is still in its early stages of development – we have in mind work like that of Moreno and Trehan (1997), which estimates a canonical cross-country empirical growth model including as an additional regressor the growth rate of a neighboring country or countries – this approach would seem to be ideally suited to the analysis of the impact of China's growth on the growth of its neighbors.

[21] The OLS estimation would suggest a positive impact of China on other Asian countries' finished auto and auto parts exports to third markets.
[22] For Bangladesh, there is only one observation on exports in electronic final products to China. For Cambodia, the value of exports in electronic finished products to China is zero.
[23] China protects its domestic market for completed motor vehicles more stringently than its market for auto parts. In 2001 the tariff for fully assembled cars was 80 per cent while that for auto parts was 20 per cent. This may explain why the estimated income elasticity of demand is larger for auto parts than autos when we consider major motor vehicle producers like South Korea and Japan.

A key issue in estimation is the simultaneity of incomes in the countries concerned. One approach is to assume a joint normal distribution of the disturbances and then to estimate by maximum likelihood (Moreno and Trehan, 1997). However, the joint-normality assumption is restrictive and could therefore yield biased estimates if violated. Another approach is to lag the growth of the neighbouring country or countries (Luo 2005). We use this second approach here.

Our dependent variable is the rate of growth of PPP-adjusted GDP per capita, calculated from the *World Economic Indicators*.[24] We regress growth in country *i* on its population growth rate, China's per capita GDP growth rate lagged one year, and that same variable lagged interacted with distance between country i and China, where distance proxies for the intensity of economic interactions, as in previous contributions to the growth spillovers literature.[25] The country sample includes 177 economies, covering advanced economies, emerging markets and developing countries, and includes the years 1985 to 2003. In the estimation, we drop extreme values defined as the absolute annual GDP growth rate is more than 20 per cent.

Estimation results are presented in Table 5. Columns 1 and 2 show that lagged Chinese growth is positively related to growth elsewhere and that the intensity of the effect increases with geographical proximity. Both Chinese growth and the interaction term are significant at the one per cent level. Columns 3 and 4 show that the effect of China's growth on a country with average distance is weakly positive.

[24] We drop a few extreme values where this source implausibly shows annual growth rates greater than 20 per cent.

[25] Lagging Chinese growth is designed to address concerns about simultaneity, but since growth is a slowly-moving variable this may be an imperfect fix. Below we take an alternative approach to modeling the transmission channels and controlling for simultaneity directly (fortunately we obtain compatible results).

The finding that distance reduces the intensity of the growth spillover may be related to the extent of trade, as in our earlier gravity model analysis. To test this interpretation, we examine the trade channel explicitly. Our approach follows Frankel and Romer (1999). We add openness, in general and bilaterally vis-à-vis-China, to the empirical specification. But to control for the endogeneity of trade linkages, we follow Frankel and Romer (1999) and use a gravity model to substitute the fitted value of trade openness. We first regress the log of the trade between country i and j (over country i's GDP) on the log GDP of country j, the log population of the two countries, the log distance between them, combined land area, land lockedness, number of islands, common language, distance between these two countries, time dummies and country *i* fixed effects. We then sum over the fitted values of bilateral trade between country *i* and its trading partners to derive the aggregated trade of country *i*.

The second-stage results are reported in Table 6. Columns 1-2 present the standard growth equation. As in previous studies, trade openness has a weak positive effect on growth. Next, in columns 3-4, we add lagged Chinese growth. Now it appears that China's growth has no strong spillover effect. But to distinguish the effect of China's growth on growth in neighboring countries from the influence of common omitted variables, we interact China's growth with country *i*'s trade with China (as a share of country i's GDP).[26] The interaction term is significantly positive, while China's growth when entered on its own is insignificant (its t-statistic is 1.4). Evidently, Chinese growth has a spillover effect mainly on countries that trade extensively with it, not in general, and that this spillover is stronger the more extensive that trade. Contrary to popular fears

[26] Our specific measure is the fitted sum of country *i*'s exports to China and imports from China (over country i's GDP). We derive fitted trade with China when j in the above first-stage estimation stands for China.

about Chinese growth's immiserizing cross-border effects, these spillovers are positive. In columns 7 and 8, we drop China's growth as a robustness check. It turns out that the spillover through trade is still strong.

Another potential channel through which China may affect growth in other countries is as a destination for FDI. One can imagine both positive and negative impacts, positive insofar as countries benefit from the existence of a low-cost production platform, negative insofar as they experience "hollowing out" of investment at home. We analyze this possibility by including in our specification country *i*'s FDI outflow as a share of its GDP and its FDI flow to China relative to GDP interacted by China's growth rate.[27] Note that here the country sample size shrinks to 29, as we have FDI outflow data only for 29 OECD source countries. The results, in columns 1-2 of Table 7, suggest FDI in China has a significant impact on source-country growth. Clearly, however, the FDI flow could be endogenous. In columns 3-4 we therefore instrument country *i*'s aggregate FDI outflow and its China-bound FDI with the same variables used to instrument trade openness. Upon doing so, it does not appear that China-bound FDI has a significant impact on source-country growth, one way or the other.[28] To the extent that there exist multiple effects working in opposite directions, this is not entirely surprising.[29]

7. Conclusion

China's impact on the trade and investment of other countries is increasingly evident not just in Asia but in Europe and the Americas as well. Europeans see China, a

[27] The FDI data are from SourceOECD.
[28] We recognize that our results for FDI may be weaker than our results for trade because the data are more limited (there are more missing observations). We hope to address this limitation of the analysis in future work.
[29] Distinguishing horizontal and vertical FDI or high- and low-tech FDI might help to disentangle these effects. This is another task that we leave for future work.

producer of an increasingly broad range of high-quality manufactures, as eating its lunch – or at least as further compounding its competitive difficulties. Americans see a mixed picture depending on their latitude. North Americans enjoy the flood of cheap electronics and apparel from China and see the country as an increasingly important market for their technology and capital goods.[30] South Americans see China as a market for their natural-resource-based exports, while Central Americans feel mainly the pain of Chinese competition. In Asia, where proximity presumably magnifies the impact of China's growth, all these effects are evident. Labor abundant countries feel competitive pressure from a China with a similar resource endowment, while capital and technology abundant economies enjoy a buoyant demand for their exports to a Chinese economy that is not only growing but also opening and specializing along lines of comparative advantage.

This paper has added some flesh to this skeletal picture. We confirm the hypothesis of differential trade effects by region, stage of economic development, and resource endowment. Countries specializing in the production and export of components, capital goods and raw materials feel positive effects from China's growth, while countries specializing in the production of consumer goods feel negative effects. The pattern of FDI spillovers is broadly similar. Countries that compete with China for horizontal FDI find it more difficult to attract foreign investment as a result of that country's emergence. In contrast, countries that are potentially attractive destinations for vertical FDI find it easier to attract foreign investment as a result of trade links, especially in components and intermediates, that allow them to take advantage of supply chains involving their large and dynamically growing neighbor. This positive response is

[30] Although if they live in the U.S. and are members of the political class they also have a tendency to blame China for their country's massive current account deficit.

shaped by proximity; in particular, Asian countries located close to China have a geographical and cost advantage when attempting to capitalize on these supply chain relationships. But this response also depends on industrial specialization and hence on past policy. For example, countries producing electronics, an industry that lends itself to production fragmentation, are better positioned than producers of motor vehicles, where for policy-related reasons, if not also because of technology, there is less scope for exploiting these international complementarities.

China's emergence is a challenge for other developing countries, for Asia, and for the world. That challenge will not diminish anytime soon. This suggests that there will be plenty of time to refine and extend the findings of this paper.

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Table 1a: The Impact of China's Exports on Asian Countries' Exports to Third Markets (Second Stage, 1990-2003)

	Consumer Goods	Consumer Goods	Consumer Goods	Consumer Goods	Inter-mediates	Inter-mediates	Inter-mediates	Inter-mediates	Inter-mediates	Inter-mediates	Capital	Capital	Capital	Capital
	Textile	Textile	Others	Others	Raw material	Raw material	Energy	Energy	Others	Others	Parts	Parts	Others	Others
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
China's exports	-0.31	0.11	-0.13	0.06	0.36	0.05	0.24	0.12	0.79	0.08	0.26	0.07	0.02	0.08
GDP of importing country	0.91	0.07	0.88	0.06	0.64	0.07	0.62	0.19	0.24	0.08	0.68	0.09	0.81	0.08
GDP per capita of importer	0.94	0.09	0.22	0.03	-0.08	0.03	-0.20	0.10	0.10	0.04	0.16	0.03	0.11	0.03
GDP of exporting country	0.17	0.02	0.69	0.02	0.28	0.02	0.25	0.06	0.87	0.02	0.71	0.02	0.86	0.02
GDP per capita of exporter	0.04	0.03	0.28	0.02	0.43	0.03	0.23	0.08	0.46	0.03	0.82	0.03	0.79	0.03
Product of land areas	0.06	0.01	0.04	0.01	0.10	0.02	0.02	0.04	0.09	0.01	0.04	0.02	0.05	0.01
Distance	-0.85	0.08	-1.37	0.06	-0.91	0.07	-2.18	0.19	-0.61	0.09	-1.08	0.11	-1.15	0.10
Common language dummy	0.55	0.06	0.48	0.04	0.16	0.04	0.22	0.11	0.21	0.06	0.89	0.06	0.59	0.05
Number of land locked	0.05	0.07	-0.47	0.05	-0.38	0.06	-1.13	0.34	-0.34	0.08	-0.28	0.07	-0.33	0.06
Number of islands (0/1/2)	-0.85	0.04	-0.42	0.03	-0.51	0.03	0.19	0.09	-0.51	0.04	0.00	0.05	-0.24	0.03
Land border dummy	-0.58	0.32	-0.91	0.20	0.29	0.20	0.15	0.37	0.58	0.21	0.49	0.35	0.06	0.31
Common colonizer post 1945	0.70	0.08	0.78	0.07	1.12	0.07	0.22	0.19	1.36	0.08	0.70	0.09	1.01	0.08
Pairs ever in colonial relation	1.72	0.14	1.23	0.07	1.20	0.11	-0.03	0.38	0.90	0.11	0.95	0.21	1.53	0.13
Political Risk for importer	0.05	0.00	0.01	0.00	0.00	0.00	0.03	0.01	0.01	0.00	0.02	0.00	0.01	0.00
Political Risk for exporter	0.00	0.00	0.01	0.00	-0.01	0.00	0.01	0.01	0.02	0.00	0.05	0.00	0.04	0.00
Constant	5.36	1.03	13.06	1.20	5.64	1.20	18.62	3.36	-9.39	1.87	-3.50	1.45	0.97	1.73
No. of observations	11084		12705		10388		4654		12351		9548		11228	
R-squared	0.59		0.66		0.62		0.41		0.61		0.71		0.73	

Note: Time fixed effects are included though not reported.

Table 1b: The Impact of China's Growth on China's Imports (1990-2003; disaggregated by commodities)

	Consumer Goods	Consumer Goods	Consumer Goods	Consumer Goods	Inter-mediates	Inter-mediates	Inter-mediates	Inter-mediates	Inter-mediates	Inter-mediates	Capital	Capital	Capital	Capital
	Textile	Textile	Others	Other s	Raw Material	Raw Material	Energy	Energy	Others	Others	Parts	Parts	Others	Others
	Coef	St err.	Coef	St err.	Coef	St err.	Coef	St err.	Coef	St err.	Coef	St err.	Coef	St err.
China GDP (log)*Japan	3.87	0.85	1.04	0.43	0.20	0.46	1.28	1.06	-0.21	0.66	2.83	1.07	2.45	0.73
China GDP (log)*Bangladesh	3.66	0.51	1.27	0.24	0.98	0.27	2.41	0.63	1.16	0.38	1.21	0.60	2.31	0.41
China GDP (log)*Cambodia	3.45	0.32	1.18	0.16	0.63	0.17			1.30	0.25	1.91	0.42	1.89	0.27
China GDP (log)*Sri lanka	3.31	0.37	1.19	0.19	0.28	0.21	1.16	0.45	0.75	0.29	2.57	0.46	2.26	0.31
China GDP (log)*India	3.89	0.81	1.54	0.39	1.75	0.42	3.56	0.97	1.11	0.60	0.66	0.97	3.27	0.66
China GDP (log)*Indonesia	3.64	0.61	1.46	0.30	1.26	0.33	3.09	0.74	1.14	0.46	1.75	0.74	2.99	0.51
China GDP (log)*Korea	3.83	0.65	1.30	0.33	0.37	0.36	1.42	0.80	0.43	0.51	3.11	0.81	2.51	0.56
China GDP (log)*Malaysia	3.46	0.51	1.29	0.26	0.52	0.29	1.35	0.63	0.80	0.41	3.34	0.64	2.48	0.44
China GDP (log)*Pakistan	3.43	0.53	1.65	0.26	1.09	0.28	2.69	0.63	1.01	0.40	1.19	0.63	2.57	0.43
China GDP (log)*Philippine	3.59	0.49	1.39	0.25	0.78	0.27	2.29	0.60	0.98	0.38	2.40	0.61	2.82	0.42
China GDP (log)*Singapore	3.21	0.70	1.06	0.35	-0.54	0.39	0.08	0.85	0.25	0.55	4.41	0.86	1.89	0.59
China GDP (log)*Thailand	3.52	0.54	1.43	0.27	0.81	0.30	1.81	0.66	0.76	0.42	2.68	0.67	2.70	0.46
China GDP (log)*Vietnam	3.64	0.45	1.64	0.21	1.18	0.23	2.88	0.53	1.29	0.33	1.92	0.52	2.82	0.36
Exporter' GDP (log)	-0.23	1.51	0.62	0.73	-1.40	0.79	-4.06	1.84	1.15	1.12	4.81	1.83	-1.07	1.24
Exporter' GDP per capita (log)	1.04	1.84	1.40	0.86	3.95	0.94	7.58	2.16	2.69	1.35	-5.36	2.10	3.68	1.45
Constant	-24.95	6.89	-9.18	2.95	-8.82	3.24	-29.33	7.97	-17.19	4.63	1.24	7.38	-27.06	5.11
Number of observations	161		177		179		148		179		152		165	
R-squared	0.80		0.94		0.90		0.76		0.89		0.86		0.93	

Table 1c. Net Impact of China's Income Growth (1990-2003)

	Consumer goods Textile	Consumer goods Others	Inter-mediates Raw Materials	Inter-mediates Energy	Inter-mediates Others	Capital Goods Parts	Capital Goods Others	Overall
Japan	0.75	-0.04	0.16	0.66	0.67	1.32	0.60	0.54
Bangladesh	-0.47	-0.14	0.21	0.17	1.00	0.85	0.05	-0.36
Cambodia	-0.47	-0.13	0.37	0.17	1.05	0.84	0.05	-0.39
Sri Lanka	-0.47	-0.15	0.11	0.17	0.99	0.95	0.08	-0.12
India	-0.47	-0.12	0.97	0.21	1.00	0.84	0.21	0.42
Indonesia	-0.47	-0.12	0.34	0.45	1.02	1.00	0.48	0.38
Korea	-0.34	0.15	0.20	0.56	0.76	1.49	0.58	0.69
Malaysia	-0.46	-0.12	0.22	0.32	0.95	1.32	0.22	0.65
Pakistan	-0.47	0.03	0.23	0.48	0.99	0.84	0.07	-0.04
Philippine	-0.46	-0.08	0.15	0.48	0.99	1.18	0.41	0.71
Singapore	-0.46	-0.02	0.06	0.15	0.86	1.32	0.28	0.65
Thailand	-0.47	-0.10	0.32	0.84	0.95	1.26	0.36	0.42
Vietnam	-0.46	-0.11	0.51	0.78	1.03	0.96	0.13	0.11

Table 2: China's Impacts on Horizontal and Vertical FDI into Other Countries (1988-2003)

	Coef.	Std. Err.	t-stat
GDP of outflow country (log)	1.63	0.10	16.7
GDP per capita of outflow country (log)	2.27	0.13	18.1
GDP of inflow country (log)	1.19	0.05	25.1
GDP per capita of inflow country (log)	-1.25	0.12	-10.2
Product of land areas (log)	-0.02	0.02	-1.1
Distance between source and host countries	-1.14	0.05	-23.7
Common language dummy	1.08	0.12	9.2
Number of land locked (0/1/2)	-0.20	0.09	-2.3
Number of islands (0/1/2)	-0.37	0.10	-3.8
Land border dummy	0.03	0.17	0.2
Common colonizer post 1945	6.26	2.09	3.0
Pairs ever in colonial relation	2.00	0.19	10.6
Strict currency union	5.67	1.71	3.3
Political risk for outflow country	0.08	0.01	10.1
Political risk for inflow country	0.05	0.01	10.7
Horizontal incentive	0.06	0.09	0.6
Vertical incentive	-0.14	0.02	-8.4
Fitted China's FDI * Horizontal incentive	-0.04	0.01	-4.0
Fitted China's FDI * Vertical incentive	0.01	0.001	6.2
Fitted China's FDI (log)	-0.01	0.04	-0.3
Constant	-34.0	1.72	-19.8
Number of observations	7282		
R-squared	0.58		

Note: Time fixed effects are included though not reported.

Table 3: The Impact of China's FDI inflows on Other Countries' FDI Receipts (1990-2003)

	Compo-nents	Compo-nents	Other Capital Goods	Other Capital Goods	Inter-mediates	Inter-mediates	Consumer Goods	Consumer Goods
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
GDP of source country (log)	1.59	0.08	1.57	0.08	1.61	0.08	1.59	0.08
GDP per capita of source country (log)	1.78	0.10	1.76	0.10	1.81	0.10	1.78	0.10
GDP of host country (log)	1.45	0.07	1.52	0.07	1.68	0.08	1.59	0.07
GDP per capita of host country (log)	-0.44	0.06	-0.34	0.05	-0.58	0.06	-0.48	0.05
Product of land areas (log)	-0.08	0.03	-0.08	0.02	-0.07	0.02	-0.06	0.02
Distance between host and source	-1.15	0.05	-1.20	0.05	-0.90	0.06	-1.02	0.05
Common language dummy	1.31	0.13	1.33	0.13	1.39	0.13	1.48	0.13
Number of land locked (0/1/2)	-0.29	0.09	-0.29	0.09	-0.45	0.09	-0.29	0.09
Number of islands (0/1/2)	-0.18	0.09	-0.29	0.09	-0.34	0.09	-0.28	0.10
Land border dummy	-0.06	0.17	-0.02	0.17	0.26	0.17	0.12	0.17
Common Colonizer post 1945	6.54	2.04	6.56	2.07	5.37	2.08	6.36	2.07
Pairs ever in colonial relation	2.01	0.20	1.95	0.20	1.79	0.20	1.85	0.20
Dummy for strict currency union	6.22	2.88	6.19	1.69	4.50	1.70	5.12	1.69
Political Risk for source country	0.09	0.01	0.08	0.01	0.09	0.01	0.09	0.01
Political Risk for host country	0.07	0.01	0.07	0.01	0.06	0.01	0.07	0.01
Fitted China's FDI from source country	-0.25	0.08	-0.12	0.08	-0.73	0.14	-0.30	0.10
Fitted exports from FDI host to China	-0.23	0.03	-0.26	0.04	-0.54	0.06	-0.36	0.05
(Fitted China's FDI)*(Fitted Exports)	0.009	0.004	0.002	0.004	0.032	0.007	0.012	0.005
Constant	-34.6	1.5	-33.3	1.4	-29.6	1.5	-33.5	1.4
Number of observations	6526		6643		6747		6717	
R-squared	0.60		0.59		0.59		0.59	

Note: Time fixed effects are included though not reported.

Table 4a: The Impact of China on Other Asian Countries' Exports (1990-2003)

	Electronics Parts	Electronics Parts	Electronics Finished Products	Electronics Finished Products	Auto Parts	Auto Parts	Auto Finished Products	Auto Finished Products
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
China's exports	0.627	0.067	0.671	0.173	-1.972	0.404	-0.428	0.050
GDP of importing country	0.235	0.091	-0.021	0.168	2.900	0.446	0.942	0.047
GDP per capita of importing country	0.224	0.033	0.350	0.058	-0.412	0.119	-0.011	0.040
GDP of exporting country	0.217	0.028	0.119	0.028	1.333	0.049	1.580	0.027
GDP per capita of exporting country	1.196	0.040	1.446	0.040	0.419	0.069	0.126	0.035
Product of land areas	0.129	0.017	0.198	0.018	-0.005	0.031	-0.063	0.016
Distance (log)	-0.733	0.112	-0.312	0.127	-2.630	0.319	-0.618	0.056
Common language dummy	0.814	0.066	0.429	0.068	1.508	0.210	0.141	0.070
Number of land locked (0/1/2)	0.141	0.079	-0.213	0.064	-1.920	0.231	-0.604	0.085
Number of islands (0/1/2)	0.095	0.050	-0.503	0.045	0.326	0.095	-0.520	0.051
Land border dummy	1.245	0.299	0.832	0.283	-0.260	0.552	0.175	0.296
Common colonizer post 1945	0.336	0.109	0.406	0.107	1.456	0.225	0.931	0.112
Pairs ever in colonial relationship	0.893	0.214	1.105	0.177	1.540	0.272	1.364	0.188
Political Risk for importing country	0.014	0.003	0.004	0.004	-0.025	0.007	0.006	0.003
Political Risk for exporting country	0.039	0.004	0.031	0.004	-0.007	0.008	0.049	0.003
Constant	-9.96	1.41	-15.81	2.33	29.97	6.10	3.35	0.91
Number of observations	8662		9395		7567		8243	
R-squared	0.70		0.69		0.7		0.60	

Note: Time fixed effects are included though not reported.

Table 4b: China's Imports from Other Asian Countries (1990-2003)

	Electronics Parts	Electronics Parts	Electronics Finished Products	Electronics Finished Products	Auto Parts	Auto Parts	Auto Finished Products	Auto Finished Products
	Coef	St err	Coef	St err	Coef	St err	Coef	St err
China GDP (log)*Japan	3.63	0.95	4.07	1.03	2.61	1.51	1.39	1.04
China GDP (log)*Bangladesh	3.71	0.52			-0.79	0.83		
China GDP (log)*Cambodia	3.69	0.37					0.40	0.40
China GDP (log)*Sri lanka	4.24	0.40	3.81	0.44	-0.22	0.64	0.94	0.46
China GDP (log)*India	3.72	0.83	4.27	0.91	-0.33	1.30	1.44	0.92
China GDP (log)*Indonesia	3.98	0.64	4.42	0.70	0.11	1.00	1.19	0.71
China GDP (log)*Korea	4.13	0.72	4.18	0.78	1.70	1.14	1.24	0.79
China GDP (log)*Malaysia	4.46	0.57	4.27	0.62	0.90	0.89	0.98	0.63
China GDP (log)*Pakistan	3.43	0.54	4.01	0.60	-0.57	0.85	0.82	0.61
China GDP (log)*Philippine	4.37	0.53	4.47	0.57	0.08	0.82	0.89	0.58
China GDP (log)*Singapore	4.39	0.77	3.87	0.83	1.92	1.21	0.80	0.86
China GDP (log)*Thailand	4.25	0.59	4.35	0.64	0.84	0.92	1.03	0.65
China GDP (log)*Vietnam	4.27	0.46	4.12	0.50	-0.55	0.71	1.00	0.52
Exporter' GDP (log)	2.14	1.57	-0.34	1.71	0.28	2.47	-0.65	1.73
Exporter' GDP per capita (log)	0.63	1.86	2.70	2.03	-4.25	2.92	2.09	2.10
Constant	-40.85	7.14	-41.36	7.82	38.92	11.39	-7.72	8.20
Number of observations	145		129		128		132	
R-squared	0.90		0.89		0.67		0.85	

Table 5: Growth Spillovers

	Coef	St Err.	Coef	St. Err.
Lagged China's grow rate	0.48	0.17	0.03	0.03
(Lagged China's grow rate) *(Distance to China)	-0.05	0.02		
Population growth rate	-0.56	0.07	-0.57	0.07
Constant	0.02	0.00	0.02	0.00
Observations	2754		2754	
R-squared	0.026		0.024	

Source: see text.

Table 6: Determinants of Growth Rate, Frankel-Romer Model

	Coef	St Err.	Coef	St Err.	Coef	St Err.	Coef	St Err.
Trade/GDP	0.002	0.002	0.001	0.002	0.001	0.002	0.001	0.002
Lagged China's grow rate			-0.039	0.035	-0.049	0.035		
Population growth rate	-0.69	0.07	-0.63	0.08	-0.61	0.08	-0.61	0.08
(Lagged China's grow rate)* (Lagged trade with China/GDP)					3.98	1.09	3.85	1.09
Constant	0.025	0.002	0.027	0.003	0.026	0.003	0.022	0.002
Observations	2605		2438		2438		2438	
R-squared	0.039		0.034		0.039		0.038	

Source: see text.

Table 7: Determinants of Growth Rate

	Without IV	Without IV	With IV	With IV
	Coef.	Std. Err.	Coef.	Std. Err.
Population growth rate	0.57	0.35	0.49	0.35
FDI Outflow/GDP	0.01	0.04	-0.001	0.004
Lagged China's growth rate	-0.09	0.06	-0.08	0.06
(Lagged China's growth rate)* (Lagged FDI outflow to China/GDP)	91.6	54.7	-1.21	4.72
Constant	0.02	0.01	0.03	0.01
Observations	187		187	
R-squared	0.04		0.03	

Source: see text.