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The Relative Revealed Competitiveness of China's Exports to the United States *vis à vis* other Countries in Asia, the Caribbean, Latin America and the OECD

Peter K. Schott

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THE RELATIVE REVEALED COMPETITIVENESS OF CHINA'S EXPORTS TO THE UNITED STATES *VIS À VIS* OTHER COUNTRIES IN ASIA, THE CARIBBEAN, LATIN AMERICA AND THE OECD*

Peter K. Schott**

I. INTRODUCTION

This paper compares the export competitiveness of China with that of the Organization for Economic Cooperation and Development (OECD) and of other developing countries in Asia, the Caribbean and Latin America. Using endowment-driven trade theory as a guide, this assessment is made along two dimensions: the distribution of countries' export products to the United States and the distribution of export prices across countries within each product category.

China as a whole exhibits extreme labor abundance, creating the expectation that it and the relatively more capital- and skill-abundant countries of Latin America (e.g. Mexico and Brazil) may not compete directly in world markets. This aggregate assessment of the Chinese economy, however, ignores the underlying diversity of its regions. Though inland provinces are generally rural and underdeveloped, coastal areas and large municipalities like Shanghai are more similar to the fast-growing Tiger economies of Asia. Data for comparing regions within China is scarce, but very rough approximations indicate that the variation in provincial development within China may be at least as great as the variation found across countries within Latin America. These differences suggest that China may begin to export skill- and capital-intensive goods to the United States long before the aggregate economy appears ready to do so.

Examination of China's export patterns offers some support for this view. One measure of the relative sophistication of countries' export bundles is their similarity with the products exported by the OECD. China's export overlap with this set of developed countries increases steadily between 1972 and 2001, jumping from a rank of 46 among non-OECD U.S. trading partners in 1972 to a rank of 5 in 2001, when it was just behind Mexico (the perennial leader), Korea, Taiwan and Brazil. This growth in export overlap is a result of large increases in China's manufacturing market share and product penetration, where the latter refers to the number of products actually exported to the U.S. as a share of all possible export products. By 2001, China's product penetration exceeded that of Latin America and the Caribbean combined. Among the countries in these two regions, only Mexico and to some extent Brazil have comparable levels of sophistication and penetration in manufacturing.

* This paper compares the U.S. exports of China to those of the United States' other trading partners. This comparison is made along two dimensions: the distribution of products exported to the United States and the distribution of prices within these export product markets.

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China's export similarity with the countries of Asia, Latin America and the Caribbean also increased substantially between 1972 and 2001. For the most part, this overlap increased most, and is highest, in relatively labor-intensive industries such as footwear, apparel and textiles. The overlap in apparel and textiles merits particular attention in light of the planned January 2005 end of product quotas in these industries as the global Multifiber Arrangement expires. Apparel industry exports alone represent more than 50 percent of U.S. exports in a large number of developing countries, and a significant jump in Chinese apparel exports after the quota regime ends may have a substantial impact on these economies.

Within manufacturing product categories, China's export prices (measured via unit values) are generally lower than the prices received by other developing economies. The premia received by Asia, the Caribbean and Latin America are highest in machinery and lowest in apparel. One explanation for this result is that the products emanating from these countries offer either higher quality or more attributes than the products originating in China, thereby driving up their value. An alternate explanation, which receives support from 'new' trade theory models focusing on heterogenous firm productivity, is that China's relatively low prices in most goods reflect greater productive efficiency due to extremely low labor costs.¹ This second explanation is consistent with China's relative increase in U.S. market share over time, and it suggests that the ability of developing economies to sustain competition with China in some product markets may be limited as China's capacity and access to foreign markets increases.

Determining which of these explanations is correct is quite important. Developing countries that are able to differentiate themselves from China by exploiting their endowment advantages to move up the value chain are likely to face a very different set of circumstances than countries whose firms go bankrupt as China's trade grows. As a result, further research into the nature of the product price disparities found here is warranted.

The remainder of this paper is structured as follows. Section II provides a brief overview of the theory guiding the analysis; Section III summarizes the relative endowments of China, Latin America and the Caribbean; and Section IV examines Chinese, Latin American and Caribbean export overlap and pricing. Section V concludes.

¹ In new trade theory models (e.g., Krugman [1979 and 1980] and Melitz [2002]), a product variety's price varies inversely with its producer's productivity.

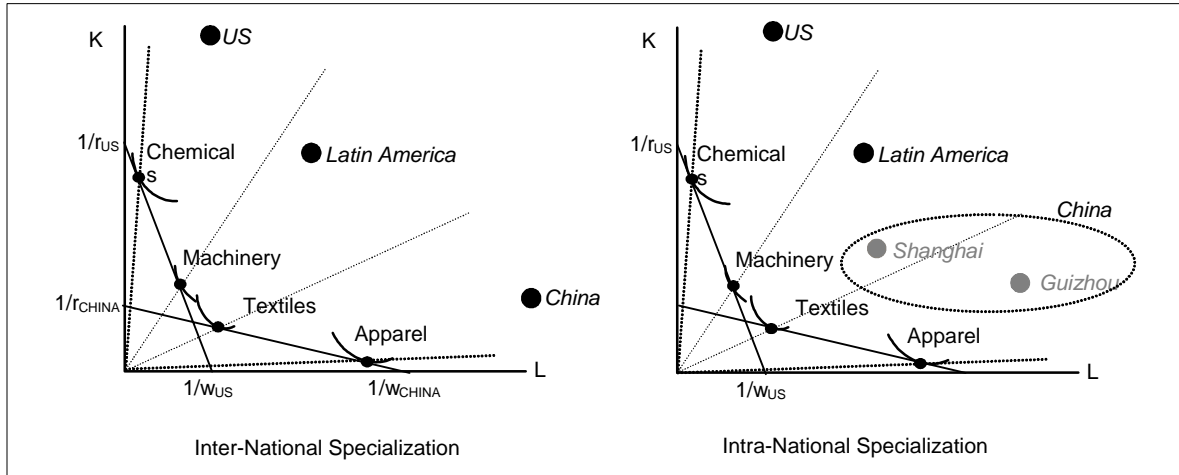
II. THEORY

The analysis in this paper is guided by the factor proportions framework, in particular the multiple cone equilibrium of the Heckscher-Ohlin model, which has country product mix varying with relative factor endowments. The two-factor version of this equilibrium is displayed in the Lerner diagram in the left panel of Figure 1. This diagram features four industries -apparel, textiles, machinery and chemicals- which differ in terms of their capital intensity. Apparel is the most labor- intensive industry while chemicals is the most capital intensive. Under standard assumptions (see Dixit and Norman [1980]), the four industries' unit-value isoquants delineate three cones of diversification, where cone refers to the set of relative endowment vectors selecting a unique product mix.

Because production of an industry outside of the cone in which a country resides results in negative profit, GDP-maximizing countries specialize in the two industries anchoring their cones, i.e. the two industries whose input intensities are most closely related to their endowments.²

The negative profits that capital-abundant United States would earn in labor-intensive apparel and textiles, for example, can be seen by comparing the amount of capital and labor that can be bought for one dollar in the United States (via the downward sloping isocost curve defined by r_{US} and w_{US}) with the amount of capital and labor needed to produce one dollar's worth of output (via the unit value isoquants). A key message of Figure 1 is that relatively high production costs drive countries out of industries at odds with their comparative advantage.

FIGURE 1
INTER- AND INTRA-NATIONAL SPECIALIZATION IN A MULTIPLE CONE EQUILIBRIUM



In the equilibrium depicted in the left panel of Figure 1, the United States, Latin America and China specialize in distinct bundles of industries, with the United States and China having no

² Leamer [1987] provides generalizations of these implications for higher dimensional settings.

industries in common. If we assume Latin America occupies the middle cone of diversification, the labor-intensive portion of its product mix overlaps with labor-abundant China while the capital-intensive portion of its product mix overlaps with capital-abundant United States.³ As indicated in the figure, the overlap of countries' product mix is a function of the relative similarity of their endowments. Under this scenario, Latin America is in the middle and faces direct competition from above and below from capital- and labor-abundant countries, respectively.

Substantial intra-national factor disparities within China, however, may mean that China, Latin America and the United States compete even more directly than implied in the left panel of Figure 1. Such an equilibrium is presented in the right panel of Figure 1, which distributes China's regions across the middle and labor-intensive cones of diversification to reflect their underlying heterogeneity. Shanghai, for example, is far more skill- and capital-abundant than the labor-abundant inland province of Guizhou, and therefore may produce exactly the same mix of goods as the middle countries of Latin America. Such regional disparities within China are supported by the explicit control of factor movements exercised by the government, which, for example, dampen the movement of labor to labor-scarce regions. These restrictions may prevent the factor-price disparities illustrated in the figure (via isocost lines) from being arbitrated away inside the country, thereby reinforcing the concomitant tendency of regions to produce and export goods of different capital intensity.⁴ At the same time, the existence of a vast inland labor force may prevent wages from the faster growing regions from being bid up as quickly as might occur in a more constrained economy (e.g. Singapore), augmenting the China's competitiveness in world markets.

In this paper I exploit product-level trade data to determine the extent to which countries export similar goods to the United States. Examination of these data provides sharper resolution of export competition than industry-level data: while virtually all countries of the world export all aggregate industries (e.g. one-digit SITC industry categories) to the United States, goods within industries exhibit substantial heterogeneity, and this heterogeneity may be related to countries' endowments. Use of product-level data to assess countries' competitiveness requires a version of the Heckscher-Ohlin model (and Figure 1) that is based on products rather than industries.⁵ Intuition for such a model can be found by replacing the industry identifiers on the isoquants in Figure 1 with product identifiers. Within a particular industry like Electronics, for example, labor-abundant countries might export portable black and white televisions, more capital-abundant countries might export color televisions, and the most capital-abundant countries might export plasma displays.

I focus on manufacturing trade in this paper because that is where Chinese export growth has been concentrated. Consideration of a more general, three-factor setting might dampen expectations of intense competition between China and the relatively land-abundant countries of

³ In a more general, three-factor setting, these overlaps might be less extreme given Latin American land abundance. For a more detailed discussion of the potential effects of Latin American resource abundance on development, see Leamer *et al.* [1999].

⁴ See Deardorff and Courant [1992] for a more detailed discussion of factor lumpiness and trade. Bernard and Schott [2003], Bernard *et al.* [2004] find evidence of endowment-driven intra-national specialization in the United States, the United Kingdom and Mexico, respectively.

⁵ See Schott [2003 and 2004] for a discussion of using industry-based trade theory to think about product-level specialization.

Latin America due to the latter's specialization in natural resources. Indeed, I do find evidence that China competes less directly with, for example, land-abundant Argentina than with relatively land-scarce Mexico. Further research into the role that natural resources might play in promoting or exacerbating Latin America's ability to deflect competition from China is warranted. Leamer *et al.* [1999], for example, explore the idea that permanent agriculture and mineral extraction absorb a natural-resource-rich country's scarce savings, thereby delaying the emergence of manufacturing. When manufacturing does emerge it concentrates on moderate- to high-capital intensive products, and there is some evidence that countries like Argentina and Brazil may be following this path. Such a path may be beneficial for these economies because it avoids competition with resource-scarce countries like China (and India), but it may also avoid the lower income inequality and skill accumulation engendered by the production of manufactures.

III. RELATIVE ENDOWMENTS

This section compares Chinese skill, capital and land abundance to that of countries across several regions of the world. It also offers indirect evidence on the distribution of endowments across regions within China. These comparisons convey two messages. First, they show that in aggregate, China is extremely skill-, capital- and land- scarce relative to most countries. All else equal, this scarcity implies that China should specialize in only the most labor-intensive exports. The second message, however, is that regions within China appear to exhibit at least as much variation in relative development as countries within Latin America. Indeed, the most developed regions within China appear to be roughly comparable in *per capita* GDP terms to the more capital -and skill- abundant countries of Asia and Latin America.

Tables 1 and 2 provide complementary views of China's labor abundance relative to other countries in Asia, the Caribbean, Latin America and the OECD. The country-region assignments used in these tables and throughout the paper are provided in Table 5. Four aspects of how countries are assigned to regions deserve mention. First, Latin America includes all of the countries of Central and South America, plus Mexico. Second, Japan is assigned to the OECD rather than Asia. Third, I define the OECD as the 23 members in place as of 1974 in order to exclude Korea, Mexico and other, more recent entrants (i.e. so that it captures a less controversial proxy of high-income, developed economies).⁶ Finally, the actual set of countries within each region used in computing any given summary statistic may vary depending upon data availability.

Table 1 compares China's relative endowments to the mean relative endowments of other countries, by region. The first four columns of the table report Barro and Lee [2000] education attainments. These columns reveal that highly skilled workers- i.e. those with a more than a secondary school education -are relatively scarce in Asia compared to Latin America, and scarcer still in China. While 13 percent of Latin America's population had attained a post-secondary education by 1999, the numbers are 8 percent and 3 percent for Asia and China, respectively. China also has a higher share of workers without any schooling than Latin America or the Caribbean: 21 percent of its population, versus 18 percent for both the Caribbean and Latin America, have never received formal schooling.

Table 2 reports the location of China in the distribution of other region's relative endowments. A value of 50 in this table, for example, indicates that China's relative endowments are equal to the median of the noted region. China's skill scarcity ranks the country below the median of the Asian, Latin American and Caribbean distributions. As indicated in Table 2, China's post-secondary education attainment places it in the 32nd percentile in Asia (behind Pakistan and India), in the 5th percentile of Latin America (just behind Guyana) and in the 33rd percentile of the Caribbean (between Haiti and Jamaica). It is has relatively more unschooled citizens than 58 percent of Asian countries, 68 percent of Latin American countries and 67 percent of Caribbean countries.

⁶ Even so, the 1974 cohort still includes Ireland and Turkey.

TABLE 1
RELATIVE ENDOWMENTS BY REGION

Region	No Schooling (%)	Primary Attainment (%)	Secondary Attainment (%)	Post-Secondary Attainment (%)	Arable Land Per Person (Hectares)	Capital <i>per capita</i> (\$)
Asia	32	32	27	8	0.14	3,339
Caribbean	18	44	31	7	0.08	6,212
Latin America	18	49	20	13	0.25	5,590
OECD	5	34	40	21	0.38	67,688
China	21	42	36	3	0.10	2,274

Note: Cells report mean (columns 2 through 5) or median (column 6) values across all countries by region for which data is available. Education measures are for 1999 and are from Barro and Lee [2000]. Land abundance data are for 2000 and are from the World Bank's World Development Indicators database. Capital per population data is for 1990 and are from Nehru and Dhareshwar [1993]. Per capita capital values are adjusted for purchasing power parity using World Bank PPP conversion factors; they are expressed in 1987 dollars.

TABLE 2
CHINA'S RELATIVE POSITION IN ASIAN, LATIN AMERICAN AND OECD RELATIVE ENDOWMENT DISTRIBUTIONS

Region	No Schooling	Primary Attainment	Secondary Attainment	Post-Secondary Attainment	Arable Land Per Person (Hectares)	Capital <i>per capita</i> (\$)
Asia	58	84	68	32	52	27
Caribbean	67	50	50	33	75	20
Latin America	68	26	89	5	19	21
OECD	95	64	41	5	26	9

Note: Cells report the percentile of each region's distribution that would be occupied by China if it were part of the region. See the notes to Table 1 for information on the source of each relative endowment variable.

In addition to being relatively skill scarce, China is relatively capital and land scarce. As of 2000, it has 0.10 hectares of arable land per person versus 0.25 hectares per person in Latin America, placing it in the 19th percentile of the Latin American distribution (between El Salvador and Venezuela). Its median Nehru and Dhareshwar [1993] capital *per capita* in 1990 of \$ 2,274 is also relatively low, placing it at the 21st percentile of the Latin American distribution (between Ecuador and Honduras).⁷

Comparable data on the distribution of factors within China is unavailable. In its place, Table 3 compares Chinese provinces, autonomous regions and municipalities along two dimensions in 1999 using data on (non-PPP-adjusted) *per capita* GDP (PCGDP) and illiteracy from the Chinese government quoted in OECD (2001). Regions in the table are sorted according to PCGDP, which ranges from CNY 30,805 (\$ 3,275) in Shanghai to CNY 2475 (\$ 299) in the inland province of Guizhou. As noted in the final row of the table, these figures reveal a maximum to minimum PCGDP ratio of 12. To put this variation in perspective, note that the maximum to minimum ratio of national PCGDP across Latin America countries is \$ 12,801/\$ 2,338=6 for PPP-adjusted

⁷ I compare regions' capital per capita in Tables 1 and 2 using the median rather than the mean because of significant outliers (for Mexico and Uruguay among others) in the Nehru and Dhareshwar [1993] dataset. More recent cross-national comparisons of capital abundance that include China as an observation are unavailable.

PCGDP and \$ 7,550/\$ 712=11 for non-PPP-adjusted PCGDP.⁸ The final column of Table 3 reports Chinese regional illiteracy rates. These range from a high of 66 percent in Tibet to a low of 4 in Chongqing Municipality, or a factor of 17.⁹ Intra-national PCGDP and illiteracy in China have a correlation of -0.33.

TABLE 3
INTER-REGIONAL RELATIVE ENDOWMENT DISPARITIES WITHIN CHINA

Province, Region or Municipality	PCGDP (CNY mill)	Illiteracy (%)
Shanghai Municipality	30,805	8.7
Beijing Municipality	19,846	6.5
Tianjin Municipality	15,976	8.0
Zhejiang	12,037	15.7
Guangdong	11,728	9.2
Fujian	10,797	18.5
Jiangsu	10,665	16.8
Liaoning	10,086	7.2
Shandong	8,673	20.2
Heilongjiang	7,660	9.8
Hebei	6,932	11.4
Hubei	6,514	15.0
Xinjiang Uygur Autonomous Region	6,470	9.8
Hainan	6,383	14.6
Jilin	6,341	6.8
Neimongu (Mongolia) Autonomous Region	5,350	16.4
Hunan	5,105	11.1
Henan	4,894	16.3
Chongqing Municipality	4,826	4.0
Shanxi	4,727	9.1
Anhui	4,707	20.3
Qinghai	4,662	30.5
Jiangxi	4,661	13.2
Ningxia Hui Autonomous Region	4,473	23.3
Sichuan	4,452	24.3
Yunnan	4,452	16.8
Xizang (Tibet) Autonomous Region	4,262	66.2
Guangxi Zhuang Autonomous Region	4,148	12.4
Shaanxi	4,101	18.3
Gansu	3,668	25.6
Guizhou	2,475	24.5
Max / Min	12.4	16.5

Notes: The official CNY per USD exchange rate for 1999 is 8.27. Using this exchange rate, PCGDP ranges from \$ 3,725 to \$ 299. Regions are sorted according to PCGDP.

Source: China Statistical Yearbook, 2000. Quoted from OECD [2001].

⁸ *Per capita* GDP data are from the World Bank web site. China's PCGDP in 2001 according to the World Bank is \$ 4,135 (roughly equivalent to El Salvador) in PPP terms and \$ 878 in nominal terms.

⁹ Illiteracy in the over-15-year-old population in Latin America ranges from 33 percent (Nicaragua) to 1 percent (Guyana) in 2001 according to the World Bank. The same dataset has China illiteracy at 14% in 2001.

IV. RELATIVE EXPORT PERFORMANCE

Comparison of relative endowments across countries and within China in the previous section reveals that China may be a more direct competitor of some of the more developed developing countries than China's aggregate endowment measures indicate. In this Section I examine product-level trade data to assess China's relative position in U.S. import markets. This analysis exploits product-level U.S. import data available from the U.S. Census Bureau and compiled by Feenstra et al. [2002]. These data record the customs value of all U.S. imports by exporting country from 1972 to 2001 according to thousands of finely detailed categories, which I refer to as "products" or "goods".¹⁰ I refer to imports at higher levels of aggregation, such as the one-digit Standard International Trade Classification, Revision 3 (SITC1) system, as "industries".

Table 4 lists the ten mutually exclusive SITC1 industries and reports the number of product categories in each industry in both 1972 and 2001. Industries 0 through 4 comprise resource products, while industries 5 through 8 encompass manufacturing goods. Two of the manufacturing industries, Manufactured Materials (SITC1=6) and Miscellaneous Manufactures (SITC1=8) -which include textiles and apparel, respectively- account for the largest share of products in both periods. Machinery (SITC1=7), on the other hand, experiences the largest increase in the number of product categories over the sample period. Because of their idiosyncrasy, I exclude products from industry 9 (Not Elsewhere Classified) from the analysis.

My comparison of Chinese and other countries' trade patterns proceeds under the assumption that U.S. trading partners' exports to the U.S. accurately reflects their domestic production as well as their exports to other markets. This assumption is partially justified by the relative openness of the U.S. economy and its attractiveness as an export destination. Nevertheless, the existence of tariff and non-tariff barriers (e.g. the Multifiber Arrangement), as well as more general trade costs such as transportation, can be influential in determining which of a country's goods are exported, and to which trading partner they are sent (see, for example, Deardorff [2004]). Unfortunately, comparable product-level trade data for other destination countries, such as those in the European Union, is unavailable.

¹⁰ Imports are classified according to seven-digit Tariff Schedule of the US (TS7) codes from 1972 through 1988 and according to the ten-digit Harmonized System (HS10) codes from 1989 through 1994.

TABLE 4
PRODUCTS BY SITC1 INDUSTRY

SITC1 Industry	SITC2 Examples	Product Examples	Number of Products (1972 / 2001)
0 Food	Meat, Dairy, Fruit	Live Sheep	703 / 1898
1 Beverage/Tobacco	Wine, Cigarettes	Carbonated softdrinks	75 / 167
2 Crude Materials	Rubber Cork, Wood, Textile Fibers	Silkworm cocoons suitable for reeling	646 / 812
3 Mineral Fuels	Coal, Coke, Petroleum	Uleaded gasoline	49 / 98
4 Animal/Vegetable Oils	Lard, Soybean Oil	Edible tallow	58 / 77
5 Chemicals	Organic Chemicals, Dyes, Medicines, Fertilizer, Plastics	Chloroform	757 / 2036
6 Manufactured Materials	Leather, Textile Yarn, Paper, Steel	Diaries and address books of paper or cardboard	2862 / 4426
7 Machinery	Generators, Computers, Autos	Ultrasonic scanning apparatus	648 / 3076
8 Misc Manufacturing	Apparel, Footwear, Scientific Equipment, Toys	Boy's shorts cotton playsuit parts, not knit	1869 / 3704
9 Not Elsewhere Classified	Special Transactions, Coins, Gold	Sound recordings for State Department use	50 / 86

Note: Products refer to ten-digit Harmonized System categories.

A. Market Share and Product Penetration

This section summarizes the U.S. market share and product penetration of China and other countries from Africa, Asia, the Caribbean, Latin America and the OECD (see Table 5 for country-region assignments). The most striking finding is the large jump in both the breadth and volume of China's manufacturing exports between 1972 and 2001. Indeed, China's growth has been much quicker than that of any other U.S. trading partner in both dimensions. Among Latin American countries, Mexico is most similar to China in terms of market share and product penetration.

TABLE 5
U.S. TRADING PARTNERS BY REGION

Country	Region	Country	Region	Country	Region
Algeria (DZA)	AF	Fiji (FJI)	AS	Guatemala (GTM)	LA
Angola (AGO)	AF	Hong Kong (HKG)	AS	Guyana (GUY)	LA
Benin (BEN)	AF	India (IND)	AS	Honduras (HND)	LA
Burkina Faso (BFA)	AF	Indonesia (IDN)	AS	Mexico (MEX)	LA
Burundi (BDI)	AF	Kiribati (KIR)	AS	Nicaragua (NIC)	LA
Cameroon (CMR)	AF	Korea (KOR)	AS	Panama (PAN)	LA
Cen Aft Rep (CAF)	AF	Lao (LAO)	AS	Paraguay (PRY)	LA
Chad (TCD)	AF	Macao (MAC)	AS	Peru (PER)	LA
Congo (COG)	AF	Malaysia (MYS)	AS	Suriname (SUR)	LA
Cote d'Ivoire (CIV)	AF	Mongolia (MNG)	AS	Uruguay (URY)	LA
Djibouti (DJI)	AF	Myanmar (MMR)	AS	Venezuela (VEN)	LA
Egypt (EGY)	AF	Nepal (NPL)	AS	Bahrain (BHR)	ME
Eq. Guinea (GNQ)	AF	New Caledonia (NCL)	AS	Cyprus (CYP)	ME
Ethiopia (ETH)	AF	Pakistan (PAK)	AS	Iran (IRN)	ME
Gabon (GAB)	AF	Papua New Guinea (PNG)	AS	Israel (ISR)	ME
Gambia, The (GMB)	AF	Philippines (PHL)	AS	Jordan (JOR)	ME
Ghana (GHA)	AF	Singapore (SGP)	AS	Kuwait (KWT)	ME
Guinea (GIN)	AF	Sri Lanka (LKA)	AS	Lebanon (LBN)	ME
Guinea-Bissau (GNB)	AF	Taiwan (TWN)	AS	Oman (OMN)	ME
Kenya (KEN)	AF	Thailand (THA)	AS	Qatar (QAT)	ME
Liberia (LBR)	AF	Viet Nam (VNM)	AS	Saudi Arabia (SAU)	ME
Madagascar (MDG)	AF	Bahamas (BHS)	CAR	Syrian (SYR)	ME
Malawi (MWI)	AF	Barbados (BRB)	CAR	UAE (ARE)	ME
Mali (MLI)	AF	Dom Rep (DOM)	CAR	Yemen (YEM)	ME
Mauritania (MRT)	AF	Guadeloupe (GLP)	CAR	Bermuda (BMU)	NA
Mauritius (MUS)	AF	Haiti (HTI)	CAR	Greenland (GRL)	NA
Morocco (MAR)	AF	Jamaica (JAM)	CAR	Australia (AUS)	OECD
Mozambique (MOZ)	AF	Neth Antilles (ANT)	CAR	Austria (AUT)	OECD
Niger (NER)	AF	St. Kitts and Nevis (KNA)	CAR	Belgium (BEL)	OECD
Nigeria (NGA)	AF	Trinidad (TTO)	CAR	Canada (CAN)	OECD
Rwanda (RWA)	AF	Bulgaria (BGR)	CEU	Denmark (DNK)	OECD
Senegal (SEN)	AF	Czech Republic (CZE)	CEU	Finland (FIN)	OECD
Seychelles (SYC)	AF	Hungary (HUN)	CEU	France (FRA)	OECD
Sierra Leone (SLE)	AF	Poland (POL)	CEU	Germany (DEU)	OECD
Somalia (SOM)	AF	Romania (ROM)	CEU	Greece (GRC)	OECD
South Africa (ZAF)	AF	Yugoslavia (YUG)	CEU	Iceland (ISL)	OECD
Sudan (SDN)	AF	Albania (ALB)	EU	Ireland (IRL)	OECD
Tanzania (TZA)	AF	Gibraltar (GIB)	EU	Italy (ITA)	OECD
Togo (TGO)	AF	Malta (MLT)	EU	Japan (JPN)	OECD
Tunisia (TUN)	AF	Argentina (ARG)	LA	Netherlands (NLD)	OECD
Uganda (UGA)	AF	Belize (BLZ)	LA	New Zealand (NZL)	OECD
Zaire (ZAR)	AF	Bolivia (BOL)	LA	Norway (NOR)	OECD
Zambia (ZMB)	AF	Brazil (BRA)	LA	Portugal (PRT)	OECD
Zimbabwe (ZWE)	AF	Chile (CHL)	LA	Spain (ESP)	OECD
Afghanistan (AFG)	AS	Colombia (COL)	LA	Sweden (SWE)	OECD
American Samoa (ASM)	AS	Costa Rica (CRI)	LA	Switzerland (CHE)	OECD
Bangladesh (BGD)	AS	Ecuador (ECU)	LA	Turkey (TUR)	OECD
Cambodia (KHM)	AS	El Salvador (SLV)	LA	UK (GBR)	OECD
China (CHN)	AS				

Note: Countries sorted alphabetically by region. Region affiliations are mutually exclusive: AF=Africa; AS=Asia; CAR=Caribbean; CEU=Central Europe; LA=Latin America; ME=Middle East; NA=North America. OECD definition excludes post-1973 entrants (e.g. Mexico and Korea).

Table 6 reports the overall import value market share of five regions exporting to the United States, by industry, at ten-year intervals from 1972 and 2001. The import value market share of region r in year t and industry i is

$$MS_{ri}^t = \frac{\sum_{c \in r} Imports_{ci}^t}{\sum_c Imports_{ci}^t}, \quad (1)$$

where c indexes countries and $c \in r$ captures the set of countries in region r . Note that because the five regions summarized in the table do not capture all U.S. trading partners, market shares for each year do not sum to unity. Aggregate market shares across all industries are reported in the final row of the table. Tables 7 and 8 report similar figures for China and the countries of Latin America. Note that results for Asia in Table 6 *include* China.

TABLE 6
U.S. IMPORT VALUE MARKET SHARE BY REGION AND YEAR

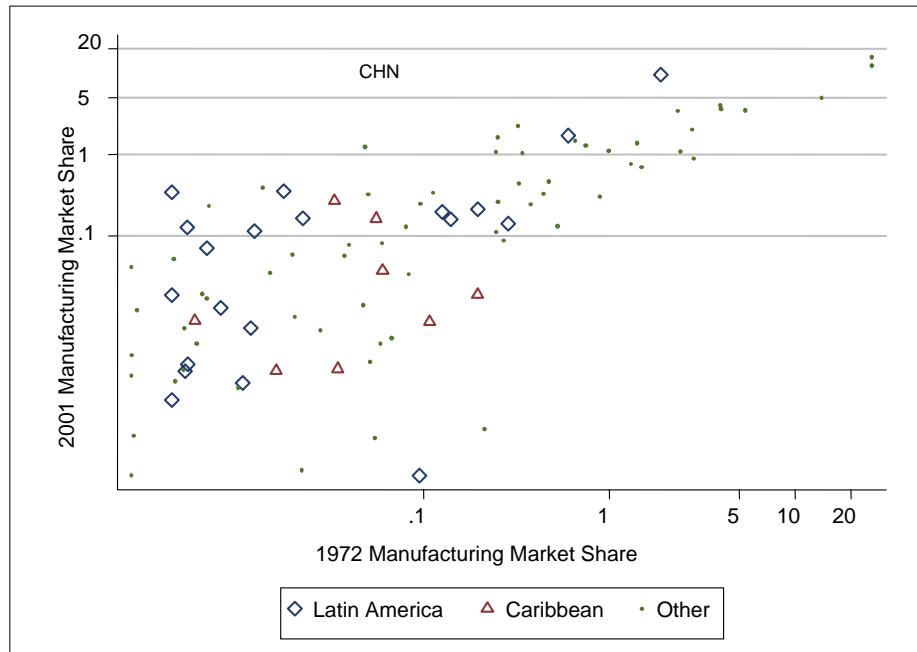
SITC1 Industry	Africa				Asia				Carribean				Latin America				OECD			
	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01
0 Food	9	8	2	2	10	11	17	18	4	4	2	1	38	42	37	31	37	33	40	46
1 Beverage	0	1	2	1	1	3	2	2	1	2	1	3	3	8	11	20	92	85	81	72
2 Materials	4	7	5	3	9	13	10	10	3	3	2	1	11	13	15	16	70	63	68	68
3 Mineral Fuels	8	21	19	14	3	7	3	2	16	7	3	2	25	17	26	25	36	19	27	37
4 Animal/Vegetable Oils	6	2	1	1	60	69	31	29	0	0	0	0	15	11	12	5	19	17	56	64
5 Chemicals	1	1	0	1	2	4	8	8	5	1	2	1	6	6	5	5	85	85	82	80
6 Manufactured Materials	3	5	3	2	10	14	19	23	0	0	0	0	5	7	9	12	79	70	65	54
7 Machinery	0	0	0	0	5	11	18	26	0	0	0	0	2	5	8	17	93	83	73	56
8 Misc Manufacturing	0	2	0	1	30	47	53	48	1	1	2	2	4	7	8	15	63	41	34	31
Overall	3	9	3	2	10	14	22	25	3	3	1	1	10	12	12	17	73	53	59	51

Note: Cells display the market share of each region's exports to the U.S. Asia results include China.

Tables 6 through 8 convey several messages. First, they show that exports from developed economies, proxied here by the OECD, dominate the U.S. market, though less so over time. While the OECD accounted for 73 percent of the value of U.S. exports in 1972, this share falls to the 50 percent range in the subsequent three decades. Second, they show that Asia's market share has grown more quickly than Latin America's. Both regions start the sample period with a market share of 10 percent, but Asia rises to 25 percent while Latin America rises only half as much, to 17 percent. Finally, they reveal that China and Mexico have been the main contributors to Asia's and Latin America's overall market share growth, respectively. China's overall market share increased steadily from just above 0 percent in 1972 to 9 percent in 2001, driven by a very large gain in Miscellaneous Manufacturing. Mexico's market share, on the other hand, rose from 3

percent in 1972 to 12 percent in 2001 predominantly as a result of large gains in Machinery. The relative gain in Chinese market share between 1972 and 2001 is highlighted in Figure 2.

FIGURE 2
U.S. TRADING PARTNERS' 2001 *VERSUS* 1972 MARKET SHARE
Log Scale



Note: Figure displays U.S. trading partners' 1972 and 2001 manufacturing market shares, where manufacturing encompasses all products in SITC industries 5 through 8 (see Table 4).

TABLE 7
CHINA'S U.S. IMPORT VALUE MARKET SHARE, BY YEAR AND INDUSTRY

		SITC Industry (See Table 4)									
	Year	0	1	2	3	4	5	6	7	8	All
China	1972	0	0	0	0	0	0	0	0	0	0
	1981	1	0	3	0	0	1	1	0	2	1
	1991	2	0	2	1	0	2	3	2	15	4
	2001	3	0	3	0	0	3	9	7	26	9

Note: Shares rounded to nearest integer.

TABLE 8
LATIN AMERICAN U.S. IMPORT VALUE MARKET SHARE, BY YEAR AND INDUSTRY

Country	Year	SITC Industry (See Table 4)										Country	Year	SITC Industry (See Table 4)									
		0	1	2	3	4	5	6	7	8	All			0	1	2	3	4	5	6	7	8	All
Argentina	1972	2	0	0	0	1	1	0	0	0	0	Honduras	1972	2	0	0	0	--	0	0	0	0	0
	1981	3	0	1	0	1	1	1	0	0	0		1981	2	1	0	0	0	0	0	0	0	0
	1991	2	1	0	0	5	0	0	0	0	0		1991	1	0	0	0	--	0	0	0	0	0
	2001	1	1	0	1	1	0	0	0	0	0		2001	1	1	0	0	--	0	0	0	1	0
Belize	1972	0	0	0	--	--	0	0	0	0	0	Mexico	1972	10	1	3	0	1	2	2	2	3	3
	1981	0	0	0	--	--	0	0	0	0	0		1981	9	4	3	8	0	3	2	4	4	5
	1991	0	0	0	0	--	0	0	0	0	0		1991	11	5	5	9	4	3	4	7	4	6
	2001	0	0	0	0	--	0	0	0	0	0		2001	12	14	4	8	2	2	7	16	10	12
Bolivia	1972	0	--	0	0	--	0	0	0	0	0	Nicaragua	1972	1	0	0	--	0	0	0	0	0	0
	1981	0	--	0	--	--	0	0	0	0	0		1981	1	0	0	--	--	0	0	0	0	0
	1991	0	0	0	0	--	0	0	0	0	0		1991	0	0	0	0	--	0	0	--	0	0
	2001	0	0	0	0	--	0	0	0	0	0		2001	0	0	0	--	0	0	0	0	0	0
Brazil	1972	10	1	1	0	12	1	1	0	1	2	Panama	1972	1	--	0	0	0	0	0	0	0	0
	1981	13	2	2	0	9	2	2	1	2	2		1981	1	0	0	0	--	0	0	0	0	0
	1991	5	4	3	0	3	1	2	1	2	1		1991	1	0	0	0	--	0	0	0	0	0
	2001	2	2	5	1	1	1	2	1	1	1		2001	0	0	0	0	--	0	0	0	0	0
Chile	1972	0	0	0	0	0	0	0	0	0	0	Peru	1972	3	0	1	0	0	0	1	0	0	1
	1981	1	0	1	0	0	0	1	0	0	0		1981	1	0	1	1	--	0	1	0	0	0
	1991	2	1	1	0	0	0	1	0	0	0		1991	1	0	1	0	0	0	0	0	0	0
	2001	4	1	2	0	0	0	1	0	0	0		2001	1	0	0	0	0	0	1	0	0	0
Colombia	1972	3	0	0	0	0	0	0	0	0	1	Paraguay	1972	0	0	0	--	1	0	0	--	0	0
	1981	4	0	1	0	0	0	0	0	0	0		1981	0	0	0	--	1	0	0	0	0	0
	1991	3	0	2	2	0	0	0	0	0	1		1991	0	0	0	--	0	0	0	0	0	0
	2001	2	0	2	3	0	0	0	0	0	0		2001	0	0	0	0	0	0	0	0	0	0
Costa Rica	1972	2	0	0	--	0	0	0	0	0	0	El Salvador	1972	1	0	0	--	0	0	0	0	0	0
	1981	2	0	0	--	0	0	0	0	0	0		1981	1	0	0	0	--	0	0	0	0	0
	1991	2	0	0	0	0	0	0	0	1	0		1991	1	0	0	--	0	0	0	0	0	0
	2001	2	0	0	--	--	0	0	0	1	0		2001	0	0	0	--	0	0	0	0	1	0
Ecuador	1972	2	0	0	0	--	0	0	0	0	0	Suriname	1972	0	--	1	--	--	2	0	0	0	0
	1981	3	0	0	1	0	0	0	0	0	0		1981	0	--	1	0	--	0	0	0	0	0
	1991	4	0	0	1	0	0	0	0	0	0		1991	0	--	0	--	--	0	0	0	0	0
	2001	2	0	1	1	0	0	0	0	0	0		2001	0	0	1	--	--	0	0	0	0	0
Guatemala	1972	2	--	0	--	--	0	0	0	0	0	Uruguay	1972	0	--	0	--	0	0	0	0	0	0
	1981	2	0	0	0	--	0	0	0	0	0		1981	0	0	0	0	--	0	0	0	0	0
	1991	2	0	0	0	--	0	0	0	0	0		1991	0	0	0	--	--	0	0	0	0	0
	2001	2	0	0	0	0	0	0	0	1	0		2001	0	0	0	--	0	0	0	0	0	0
Guyana	1972	0	0	0	--	--	0	0	0	0	0	Venezuela	1972	1	--	3	24	0	0	0	0	0	2
	1981	0	0	0	--	0	0	0	0	0	0		1981	0	0	1	6	--	0	0	0	0	2
	1991	0	0	0	0	--	0	0	0	0	0		1991	0	0	1	14	0	0	1	0	0	2
	2001	0	0	0	0	--	0	0	0	0	0		2001	0	0	1	11	0	1	1	0	0	1

Note: Shares rounded to nearest integer. Periods "--" denote no exports in an industry.

The distribution of market shares across industries and time in Tables 6 through 8 provides rough confirmation of endowment-driven comparative advantage. Land-abundant Latin America has relatively high market shares in resource-based products, and has seen substantial gains in Beverages and Materials. Labor-abundant Asia, on the other hand, has relatively high market shares in manufacturing products (except for Animal/Vegetable Oils due to resource-abundant Malaysia and the Philippines), particularly Manufactured Materials and Miscellaneous Manufacturing. China's largest growth in market shares have also been in these two industries.

Table 9 reports 1972 and 2001 manufacturing market shares for the trading partners experiencing the largest cumulative percentage point gains in manufacturing market shares over the sample period. This list is topped by China and Mexico, which experience cumulative percentage point gains of 45 and 26, respectively.¹¹ Somewhat surprisingly, it includes both Ireland and Russia as well as several other developing countries in Asia. The shading in Table 9 documents the sector in each country which experienced the largest market share gain. Ireland is the only country for which this happened in Chemicals (which includes pharmaceuticals); for most other countries it occurs in either Machinery or Miscellaneous Manufactures.

TABLE 9
U.S. TRADING PARTNERS WITH THE LARGEST GAINS IN MANUFACTURING MARKET SHARE,
1972 TO 2001

	1972				2001				
	SITC Industry				SITC Industry				
Country	5	6	7	8	5	6	7	8	Cumulative Gain
China	0	0	0	0	3	9	7	26	45
Mexico	2	2	2	3	2	7	16	10	27
Ireland	1	0	0	0	17	0	0	1	17
Russia					2	3	0	0	5
Israel	1	1	0	1	1	5	1	1	5
India	0	2	0	0	1	3	0	2	4
Malaysia	0	1	0	0	0	0	4	1	4
Thailand	0	1	0	0	0	1	1	2	3
Korea	0	2	0	6	1	3	5	2	3
Indonesia	0	0	0	0	0	1	0	2	3

Note: Table lists the U.S. trading partners with the top ten gains in manufacturing import value market share between 1972 and 2001. Final column reports total gain in market share (i.e. the sum of columns six through nine less the sum of columns two through five). Shaded cells indicate the industry in each country which experienced the largest percentage point gain.

¹¹ These gains are computed by summing the 1972 to 2001 percentage point gains in each manufacturing industry. This summation does not control for the relative importance of each industry to a country's exports. I do not rank countries according to their percent growth in either market share or penetration because of the very small denominators exhibited by some countries and industries in 1972.

Tables 10 through 12 summarize U.S. import product penetration by industry and region. Each cell of the Table 10 reports the share of potential export products actually exported to the United States by *at least* one country in the region. Penetration equals 100 percent for a region-industry pair if at least one country in the region exports every product category in the industry to the United States, and zero if no country exports any products in the industry to the United States.¹² As above, results are also reported at ten-year intervals between 1972 and 2001. Tables 11 and 12 report penetration for China and the individual countries in Latin America. Here, as above, results for Asia *include* China.

TABLE 10
PRODUCT PENETRATION BY REGION AND YEAR

SITC1 Industry	Africa				Asia				Caribbean				Latin America				OECD			
	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01
0 Food	21	19	15	21	45	56	51	54	24	25	21	17	50	52	55	61	90	92	92	91
1 Beverage	27	23	19	28	40	47	44	39	24	40	31	35	44	68	58	62	80	87	87	84
2 Materials	29	30	26	32	35	46	48	55	10	11	12	12	48	51	56	59	89	91	93	94
3 Mineral Fuels	22	45	24	44	22	40	40	60	37	34	29	41	49	62	63	67	96	96	99	94
4 Animal/Vegetable Oils	16	17	17	21	34	35	38	51	5	6	9	9	28	44	42	58	79	92	89	96
5 Chemicals	7	9	9	15	17	38	53	78	7	6	6	9	22	33	43	49	98	99	99	98
6 Manufactured Materials	10	16	16	28	46	60	70	84	6	10	9	10	34	43	59	68	96	94	98	98
7 Machinery	12	18	16	27	56	74	78	88	13	17	12	17	51	60	65	73	100	99	100	99
8 Misc Manufacturing	14	21	23	39	73	87	88	91	16	31	27	30	45	56	59	70	98	97	95	96

Note: Cells display share of products in the industry that are exported to the U.S. by at least one country from the region. Asia results include China.

Table 10 reveals that product penetration for the OECD is close to 100 percent in most industries in both years of the sample period. The penetration of countries from other regions, though substantially lower in 1972, has increased over time. Together, these trends indicate that countries with very different relative endowments are increasingly exporting the same products to the United States. On its face, this broad increase in export overlap is puzzling from the standpoint of the factor proportions framework because it implies *declining* specialization across products over time by countries with very different relative endowments. Schott [2004] provides a partial resolution to this puzzle by demonstrating that specialization instead occurs *within* rather than across products. Further evidence in favor of this explanation is presented below.

Table 10 also reveals that Asia has relatively high product penetration in manufacturing industries and relatively low product penetration in resource industries *vis à vis* Latin America. Table 11 indicates that China, in particular, has experienced very rapid product penetration in manufacturing. This trend is also manifest in Table 13, which ranks countries based on their cumulative percentage

¹² As noted above, the total number of potential products by industry and year is reported in the final two columns of Table 4.

point gains in manufacturing industry product penetration between 1972 and 2001. China's gains are the largest of any trading partner, by far. Seven of the ten countries on the list are from Asia. The three exceptions are Mexico (number 4), Brazil (number 9) and Italy (number 10). As indicated by the shading in the table, which highlights the industry in which each trading partner had the largest percentage point gain in penetration, five of the countries, including China and Brazil, experienced the largest gains in Machinery. Four others had relatively strong gains in Manufactured Materials or Miscellaneous Manufacturing. Here, India stands out in achieving its greatest increase in Chemicals.

TABLE 11
CHINESE PRODUCT PENETRATION, BY INDUSTRY AND YEAR

Country	Year	SITC Industry (See Table 4)								
		0	1	2	3	4	5	6	7	8
China	1972	15	3	7	2	3	4	7	1	16
	1981	31	19	17	6	6	19	23	16	45
	1991	25	15	24	13	8	28	37	47	66
	2001	33	14	36	31	23	62	63	72	81

Note: Cells display share of products in the industry that are exported to the U.S. by China. Shares rounded to nearest integer.

TABLE 12
LATIN AMERICAN PRODUCT PENETRATION, BY COUNTRY AND YEAR

		SITC Industry (See Table 4)												SITC Industry (See Table 4)									
Country	Year	0	1	2	3	4	5	6	7	8	Country	Year	0	1	2	3	4	5	6	7	8		
Argentina	1972	13	19	12	2	5	6	6	12	8	Honduras	1972	7	9	5	2	--	1	1	1	1		
	1981	9	14	10	19	5	5	6	11	7		1981	6	17	7	4	2	0	1	2	4		
	1991	11	20	8	17	9	6	13	12	11		1991	7	12	5	2	--	1	2	1	8		
	2001	13	16	12	18	25	9	12	14	15		2001	6	13	7	2	--	1	2	3	12		
Belize	1972	3	4	1	--	--	1	0	0	0	Mexico	1972	31	33	25	20	7	13	22	41	33		
	1981	2	1	2	--	--	0	0	0	1		1981	33	46	26	43	24	19	26	47	42		
	1991	2	2	2	1	--	0	0	0	1		1991	30	31	34	45	20	32	36	54	42		
	2001	2	2	1	1	--	0	0	1	1		2001	37	35	40	40	42	37	55	65	58		
Bolivia	1972	1	--	2	2	--	0	1	0	3	Nicaragua	1972	5	11	6	--	2	1	1	1	2		
	1981	1	--	2	--	--	0	2	1	4		1981	4	13	1	--	--	0	0	0	1		
	1991	1	1	4	1	--	0	1	0	4		1991	3	7	2	1	--	0	0	--	1		
	2001	1	2	4	1	--	0	1	1	6		2001	6	8	3	--	1	0	1	1	5		
Brazil	1972	16	21	17	12	16	8	14	21	14	Panama	1972	5	--	3	16	2	1	1	3	2		
	1981	14	37	18	19	21	14	21	36	21		1981	6	6	3	6	--	1	2	4	5		
	1991	12	20	23	15	20	16	30	36	23		1991	4	11	2	5	--	2	2	2	9		
	2001	15	20	24	32	19	20	32	41	30		2001	6	10	3	6	--	2	2	4	8		
Chile	1972	5	7	4	2	2	1	1	3	1	Peru	1972	7	7	8	2	2	1	2	1	4		
	1981	8	5	8	2	2	2	3	3	2		1981	9	6	9	6	--	2	9	3	8		
	1991	18	13	11	7	4	2	7	4	9		1991	9	4	6	5	1	2	6	2	8		
	2001	18	13	15	9	5	5	7	6	8		2001	14	10	13	5	4	2	10	4	15		

TABLE 12 (CONTINUED)

		SITC Industry (See Table 4)												SITC Industry (See Table 4)									
Country	Year	0	1	2	3	4	5	6	7	8	Country	Year	0	1	2	3	4	5	6	7	8		
Colombia	1972	10	16	7	10	2	3	9	4	16	Paraguay	1972	3	3	1	--	2	1	0	--	1		
	1981	7	14	5	8	2	2	7	5	14		1981	1	5	1	--	2	0	1	0	0		
	1991	12	10	7	9	7	4	11	6	23		1991	0	2	2	--	1	0	1	0	1		
	2001	13	11	11	14	9	6	12	9	27		2001	1	2	2	1	1	0	1	0	1		
Costa Rica	1972	9	7	2	--	2	0	1	1	4	El Salvador	1972	5	1	1	--	2	0	1	1	4		
	1981	10	8	5	--	2	1	2	4	8		1981	3	7	2	2	--	0	2	5	5		
	1991	13	4	6	2	1	2	4	5	14		1991	6	5	2	--	1	1	2	1	9		
	2001	11	2	7	--	--	3	4	11	14		2001	8	4	3	--	1	1	3	2	16		
Ecuador	1972	10	8	3	6	--	1	2	0	4	Suriname	1972	2	--	1	--	--	0	0	0	0		
	1981	7	8	4	4	3	1	2	1	6		1981	1	--	2	2	--	0	0	0	0		
	1991	9	7	5	3	1	0	2	1	7		1991	1	--	0	--	--	0	0	0	0		
	2001	14	12	6	8	1	2	4	4	12		2001	1	2	1	--	--	0	0	1	0		
Guatemala	1972	7	--	6	--	--	1	2	0	5	Uruguay	1972	1	--	4	--	2	1	2	0	2		
	1981	11	5	6	2	--	1	4	2	6		1981	3	1	5	2	--	1	3	1	5		
	1991	11	9	7	3	--	1	6	1	16		1991	4	5	4	--	--	0	2	1	5		
	2001	11	9	7	2	1	2	5	2	19		2001	5	7	4	--	1	1	2	1	4		
Guyana	1972	2	4	2	--	--	0	0	1	0	Venezuela	1972	12	--	4	47	2	2	2	4	4		
	1981	2	3	3	--	3	1	0	0	2		1981	3	6	3	34	--	2	3	7	3		
	1991	2	2	2	1	--	0	0	0	1		1991	9	8	6	38	1	6	11	9	13		
	2001	2	3	4	1	--	0	0	1	2		2001	6	10	6	39	1	5	9	10	9		

Note: Cells display share of products in the industry that are exported to the U.S. by the noted country. Shares rounded to nearest integer. Periods "--" denote no exports in an industry country.

TABLE 13
U.S. TRADING PARTNERS WITH THE LARGEST GAINS IN MANUFACTURING PRODUCT
PENETRATION, 1972 TO 2001

	1972					2001				
	SITC Industry					SITC Industry				Cumulative Gain
Country	5	6	7	8		5	6	7	8	
China	4	7	1	16		62	63	72	81	250
Korea	2	15	21	30		27	49	63	56	127
India	7	20	12	23		42	43	37	49	109
Mexico	13	22	41	33		37	55	65	58	106
Thailand	1	5	2	10		8	29	32	48	99
Taiwan	7	24	40	44		28	50	71	59	93
Indonesia	2	1	1	3		8	22	21	40	84
Malaysia	1	3	4	5		8	16	35	29	75
Brazil	8	14	21	14		20	32	41	30	66
Italy	26	45	71	65		40	70	75	80	58

Note: Table lists the U.S. trading partners with the top ten gains in manufacturing product penetration between 1972 and 2001. Columns two through nine report percent of potential manufacturing products exported by each country in each year across SITC1 industries 5 through 9. Final column reports total product penetration percentage point gain (i.e. the sum of columns six through nine less the sum of columns two through five). Shaded cells indicate the industry in each country which experienced the largest percentage point gain.

B. Export Product Similarity

This section examines the similarity of developing countries' export products to both China and the OECD. These comparisons serve two purposes. First, gauging the similarity of countries' exports with China provides a measure of how directly countries compete with China. Second, comparison of countries' exports with those of the OECD offers one indication of their relative sophistication.

Four findings stand out. First, China's overall export overlap is greater with other Asian economies than with countries in the Caribbean, Latin America or the OECD. Second, China's export similarity with most Latin American and Caribbean countries is driven by Miscellaneous Manufacturing exports, particularly apparel. Third, by region China competes most directly with Mexico in Latin America, the Dominican Republic in the Caribbean, Taiwan in Asia and Italy in the OECD. Finally, China's export similarity with the OECD increases substantially over the sample period, jumping from a rank of 46 in 1972 to 5 in 2001.

I measure countries' export overlap via Finger and Kreinin's (1979) export similarity index (ESI), which incorporates information about both market share and product penetration. For any two U.S. trading partners c and d in year t , Finger and Kreinin define their export similarity to be

$$ESI_{cd}^t = \sum_p \min(s_{pc}^t, s_{pd}^t), \quad (2)$$

where s_{pc}^t is the share of country c 's exports in product p in year t . This bilateral measure is computed using all product categories and is bounded by zero and unity: $ESI_{cd}^t = 0$ if countries c and d have no products in common in year t and $ESI_{cd}^t = 1$ if their exports are distributed identically across products. In addition to exhibiting countries' and regions' ESI with China and the OECD, I also report the contribution of each manufacturing industries' products to the overall index.

Before reporting results for individual countries, I note in Table 14 each region's overlap with China. To compute China's ESI with a region, I aggregate the exports of all countries in a region up to the region level, so that $s_{pr}^t = MS_{pr}^t$ as in equation 1. Export similarity with China is increasing across all regions, and by 2001 is highest for Asia and lowest for Africa.

TABLE 14
REGIONAL EXPORT SIMILARITY WITH CHINA

Region	Export Similarity with China			
	1972	1981	1991	2001
Africa	3	2	6	4
Asia	11	25	50	60
Caribbean	1	8	13	7
Latin America	3	7	18	21
OECD	4	7	14	19

Note: Table displays each region's export similarity index (see text) with China. Asia excludes China.

China's export overlap with the individual countries of these regions countries is reported in Tables 15 through 18. Results are reported across six blocks of columns. The first block reports the *ESI* of each country with China at ten-year intervals from 1972 to 2001. The next block reports the percent of each *ESI* that is due to manufacturing products. The final four blocks report the share of each *ESI* that is due to individual manufacturing industries. Thus, the second block of columns are sums of the percentages in the final four; a value of 100 in the second block of columns would indicate that the noted country and China have no overlap in resource exports (SITC industries 0 through 4).

As indicated in the first four columns of Table 15, China has become most similar to Mexico among Latin American countries between 1972 and 2001. Indeed, China is more similar to Mexico than to any other non-Asian developing country in that year. Most of the China-Mexico *ESI* in 2001 is due to Machinery products, which account for 58 percent of the export similarity index, and Miscellaneous Manufactures, which accounts for an additional 24 percent. China's has relatively little export overlap with the countries of the Caribbean (Table 16), and the overlap that does exist with these countries is also primarily driven by Miscellaneous Manufacturing.

TABLE 15
LATIN AMERICAN EXPORT SIMILARITY WITH CHINA

Country	ESI for All Products				Percent Due to Manufacturing				Percent Due to SITC 5				Percent Due to SITC 6				Percent Due to SITC 7				Percent Due to SITC 8			
	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01
Argentina	4	6	7	5	18	20	63	72	3	2	3	4	3	2	9	15	0	3	15	20	13	13	36	33
Belize	1	2	3	2	0	60	55	47	0	5	0	0	0	5	3	0	0	0	0	7	0	50	52	40
Bolivia	3	4	3	4	92	57	47	84	0	9	3	0	84	37	13	8	0	0	3	5	8	11	28	70
Brazil	2	5	10	12	67	67	88	89	4	10	2	2	46	31	20	14	0	4	19	33	17	22	47	40
Chile	2	3	4	3	44	33	75	63	0	9	0	3	38	12	11	16	0	0	2	9	6	12	61	34
Colombia	2	4	11	5	65	73	58	72	0	0	0	2	40	17	6	14	0	0	1	4	25	56	51	52
Costa Rica	1	4	11	8	50	71	88	83	0	0	0	1	13	2	5	4	0	0	10	40	38	68	73	38
Ecuador	2	2	5	3	33	25	12	53	0	0	0	0	13	19	4	9	0	0	0	6	20	6	8	38
Guatemala	1	2	10	6	33	30	83	83	22	5	0	2	0	5	4	7	0	0	0	2	11	20	79	73
Guyana	0	3	3	2	0	14	32	45	0	0	0	0	0	0	0	5	0	0	4	5	0	14	28	36
Honduras	1	2	7	5	0	63	79	88	0	4	0	0	0	4	4	6	0	0	0	8	0	54	75	73
Mexico	3	5	15	21	63	61	70	93	0	2	1	1	20	12	9	9	3	4	30	58	40	43	31	24
Nicaragua	1	3	2	3	29	55	41	63	0	0	0	0	14	0	6	0	0	0	0	0	14	55	35	63
Panama	1	4	6	5	22	22	71	71	0	0	0	2	0	3	2	2	0	0	10	17	22	19	59	50
Peru	1	4	5	4	36	42	58	73	0	0	0	2	18	30	12	17	0	0	2	5	18	12	44	49
Paraguay	1	1	3	2	33	80	81	71	0	50	4	0	8	20	0	5	0	0	0	24	25	10	77	43
El Salvador	1	4	9	5	33	66	82	85	0	0	0	0	11	16	9	13	0	0	1	2	22	50	71	70
Suriname	1	2	1	1	20	0	13	33	0	0	0	0	20	0	0	0	0	0	0	33	0	0	13	0
Uruguay	4	3	5	3	33	81	90	81	23	3	0	3	3	9	6	6	0	0	4	16	8	69	81	56
Venezuela	1	3	4	2	20	0	19	61	0	0	0	6	0	0	7	17	0	0	5	28	20	0	7	11

Note: The first set of columns reports countries' export similarity index (see text) with China. Subsequent columns break out the contribution of aggregate manufacturing as well as disaggregate manufacturing industries to the index.

TABLE 16
CARIBBEAN EXPORT SIMILARITY WITH CHINA

	ESI for All Products				Percent Due to Manufacturing				Percent Due to SITC 5				Percent Due to SITC 6				Percent Due to SITC 7				Percent Due to SITC 8			
Country	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01
Neth Antilles	1	7	1	1	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	9
Bahamas	0	2	0	1	0	0	25	38	0	0	0	0	0	0	0	8	0	0	25	8	0	0	0	23
Barbados	1	1	3	3	60	71	64	57	0	0	0	0	0	0	4	10	10	0	12	23	50	71	48	23
Dom Rep	1	7	11	8	13	85	92	86	0	0	1	1	0	5	4	5	0	0	7	13	13	80	80	66
Guadeloupe	0	1	1	2	50	67	42	50	0	0	0	0	25	8	17	0	0	0	8	35	25	58	17	15
Haiti	2	9	11	4	80	93	93	81	0	1	1	0	25	7	13	26	0	0	5	5	55	85	75	51
Jamaica	1	3	7	2	29	68	87	42	0	8	0	0	0	0	1	0	0	0	3	4	29	60	82	38
St. Kitts	0	2	6	5	33	79	85	77	0	5	0	0	33	11	5	10	0	0	15	37	0	63	64	31
Trinidad	1	9	4	1	22	1	11	33	0	0	0	0	0	0	0	8	0	0	3	8	22	1	8	17

Note: The first set of columns reports countries' export similarity index (see text) with China. Subsequent columns break out the contribution of aggregate manufacturing as well as disaggregate manufacturing industries to the index.

China's overlap with other Asian economies (Table 17), by contrast, is relatively high. China is more similar to Taiwan, Thailand, Hong Kong, Indonesia, Malaysia and Korea in 2001 than it is to Mexico, and much of this similarity is driven by manufacturing. Machinery exports contribute most to China's 2001 similarity with Taiwan, Thailand, Malaysia and Korea, while Miscellaneous Manufacturing is most important for Hong Kong and Indonesia. Miscellaneous Manufacturing is also the dominant contributor to China's 2001 *ESI* with the smaller countries of Asia.

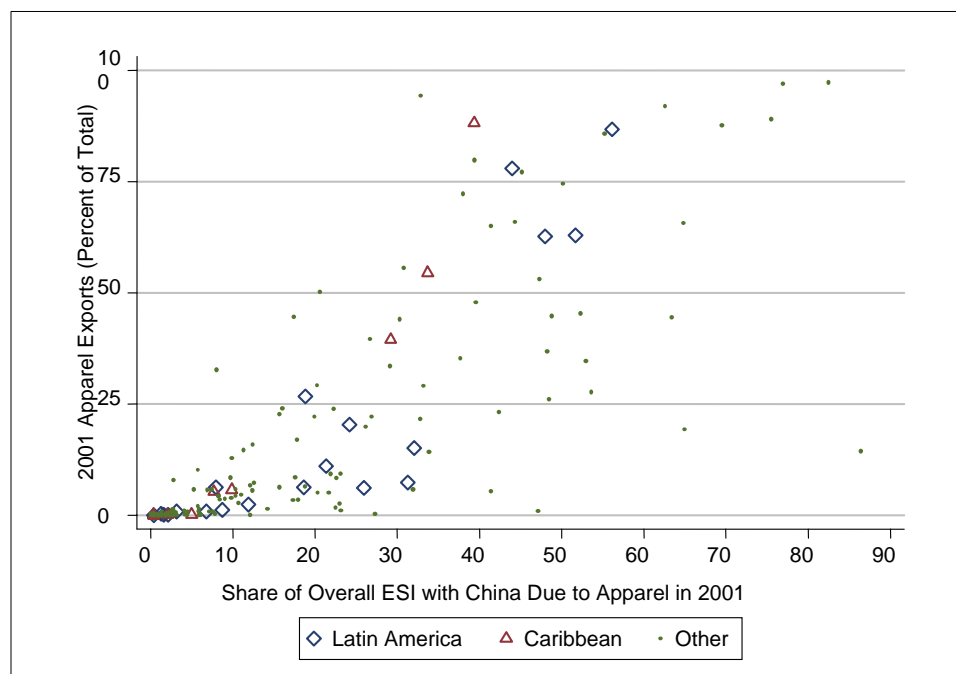
Countries' relatively high Miscellaneous Manufacturing overlap with China is noteworthy given the planned January 2005 end of apparel and textile quotas associated with the expiration of the global Multifiber Arrangement. Indeed, apparel (SITC 84) exports represent more than 50 percent of total U.S. exports for a wide range of developing countries, six of them - the Dominican Republic, Guatemala, Honduras, Haiti, Nicaragua and El Salvador - in Latin America or the Caribbean. This information is presented graphically in Figure 3, which plots countries' apparel export share *versus* the share of their overall *ESI* with China that is due to apparel. A significant increase in Chinese exports following the expiration of the Multifiber Arrangement may have a substantial impact on these economies.

TABLE 17
ASIAN EXPORT SIMILARITY WITH CHINA

Country	ESI for All Products				Percent Due to Manufacturing				Percent Due to SITC 5				Percent Due to SITC 6				Percent Due to SITC 7				Percent Due to SITC 8			
	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01
Afghanistan	7	5	1	1	84	94	60	42	0	0	0	0	43	58	40	8	0	0	0	0	41	37	20	33
American Samoa	1	1	1	1	83	75	0	33	0	0	0	8	17	8	0	0	0	0	0	17	67	67	0	8
Bangladesh	1	3	10	5	14	64	90	94	0	0	0	0	14	8	5	6	0	0	0	0	0	56	85	88
Fiji	1	1	3	3	30	56	72	54	0	0	0	0	10	22	3	4	0	0	0	0	20	33	69	50
Hong Kong	7	21	33	28	90	94	96	95	1	0	1	1	34	10	7	9	1	3	18	31	53	80	69	54
Indonesia	5	3	25	27	57	73	83	96	6	0	0	1	39	50	7	10	0	0	7	31	13	23	68	54
India	7	17	14	17	64	62	88	91	0	2	3	4	52	31	22	23	0	2	5	15	12	27	58	49
Cambodia	11	1	--	4	100	73	--	95	0	0	--	0	6	0	--	5	0	0	--	0	94	73	--	91
Kiribati	1	1	2	3	0	50	79	60	0	0	0	0	0	33	16	4	0	0	11	16	0	17	53	40
Korea	4	16	28	23	76	94	97	95	0	1	0	1	15	19	8	9	2	3	20	57	59	71	70	28
Lao	2	2	1	1	85	95	64	86	0	0	0	0	20	24	0	29	0	0	27	0	65	71	36	57
Sri Lanka	3	14	14	9	20	76	96	93	8	1	0	0	8	1	9	12	0	0	0	6	4	73	88	76
Macao	3	18	20	6	100	95	96	95	59	8	2	0	4	3	1	2	0	1	2	8	37	84	92	85
Myanmar	10	4	4	4	100	33	63	91	0	0	0	0	9	6	9	5	0	0	0	0	91	28	54	86
Mongolia	2	0	0	3	0	25	100	93	0	0	0	0	0	0	0	0	0	0	0	0	0	25	100	93
Malaysia	4	5	22	24	73	82	88	94	0	0	0	0	62	31	6	3	3	4	38	71	8	47	44	20
New Caledonia	0	1	1	2	75	43	67	61	0	0	0	0	0	14	8	9	0	0	8	26	75	29	50	26
Nepal	9	6	9	5	29	94	63	85	0	0	0	0	11	48	7	13	0	0	2	0	18	45	53	72
Pakistan	8	12	10	7	88	87	89	93	1	0	0	0	77	60	22	24	0	0	0	1	10	27	67	68
Philippines	2	12	23	20	70	85	93	94	0	0	0	0	20	4	7	5	0	2	15	48	50	79	70	40
Papa NG	2	1	1	1	54	29	43	40	0	0	0	0	4	7	14	0	0	0	14	20	50	21	14	20
Singapore	3	11	13	15	80	66	91	91	0	1	0	1	24	9	2	1	4	5	53	77	52	51	36	13
Thailand	7	13	25	29	81	80	91	93	0	0	0	0	58	25	9	11	0	0	17	43	23	55	64	40
Taiwan	7	16	34	31	74	91	96	95	6	1	1	1	22	16	12	13	3	6	23	49	43	69	61	33
Viet Nam	9	1	--	8	6	63	--	79	0	0	--	0	3	0	--	9	0	0	--	1	2	63	--	68

Note: The first set of columns reports countries' export similarity index (see text) with China. Subsequent columns break out the contribution of aggregate manufacturing as well as disaggregate manufacturing industries to the index. Periods "--" denote no exports in an industry.

FIGURE 3
APPAREL EXPORTS TO THE UNITED STATES *VERSUS* APPAREL OVERLAP WITH CHINA, 2001



Notes: Apparel is SITC 84. Y-axis displays apparel exports as a share of its total exports to the United States. X-axis displays the share of each countries overall. Export Similarity Index with China (Tables 15 through 18) that is due to the subset of products in apparel.

Table 18 reports China's export overlap with the individual countries in the OECD. This table reveals that China's overall exports are most similar to those of Italy and Japan and, unsurprisingly, least similar to those of Iceland and Norway. The export similarity with Italy is driven by Miscellaneous Manufacturing while the similarity with Japan is due to Machinery, predominantly electronics. More generally, Machinery exports account for most of China's overlap with the OECD.

China's export similarity with the OECD as a whole increased substantially between 1972 and 2001, jumping from a rank of 46 among non-OECD countries in 1972 to a rank of 5 in 2001. The ten countries with the highest OECD export similarity are listed in Table 19. Mexico tops the list in both years and experiences a near doubling of its OECD *ESI* between 1972 and 2001. Brazil is the only Latin American or Caribbean country other than Mexico to appear in the top five in each decade.

Finally, Tables 20 and 21 report regional and Latin American overlap with the OECD, respectively.

TABLE 18
OECD EXPORT SIMILARITY WITH CHINA

Country	ESI for All Products				Percent Due to Manufacturing				Percent Due to SITC 5				Percent Due to SITC 6				Percent Due to SITC 7				Percent Due to SITC 8			
	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01	72	81	91	01
Australia	2	2	7	8	74	61	55	79	0	4	2	4	63	30	11	13	0	9	20	35	11	17	23	27
Austria	4	4	7	9	89	88	86	85	3	5	1	5	24	21	14	13	3	12	33	41	59	51	36	27
Belgium	2	3	5	8	75	73	80	84	5	9	4	8	35	24	20	14	0	12	31	41	35	27	24	21
Canada	1	3	9	13	70	61	56	87	0	3	3	3	20	18	10	16	10	12	27	39	40	27	15	29
Switzerland	3	4	6	10	87	88	83	86	3	14	5	6	17	19	16	13	3	14	36	41	63	42	27	26
Germany	2	5	10	12	86	85	86	89	9	19	7	7	27	25	15	15	5	17	38	47	45	25	26	20
Denmark	3	4	7	13	79	76	82	89	0	16	3	4	38	22	17	9	3	14	29	38	38	24	33	39
Spain	5	6	10	16	70	70	88	90	0	3	2	4	22	20	13	15	0	6	18	27	48	41	55	45
Finland	2	2	4	7	88	81	78	81	0	5	3	1	31	24	11	10	0	14	33	53	56	38	31	17
France	4	6	9	12	80	78	86	87	5	10	5	8	18	18	15	13	2	10	30	35	55	40	38	31
UK	4	5	12	14	88	86	66	89	5	8	4	5	15	22	13	12	2	16	28	51	66	41	20	21
Greece	4	17	5	6	82	17	77	79	0	0	0	2	39	2	11	14	0	0	2	14	42	15	64	50
Ireland	2	3	5	7	78	76	83	82	0	3	2	3	28	24	11	3	6	9	36	67	44	41	34	10
Iceland	1	3	2	3	40	31	31	54	0	0	0	4	20	0	6	4	0	0	6	25	20	31	19	21
Italy	5	10	14	22	87	67	91	93	2	4	2	3	30	17	14	13	0	5	18	23	54	42	57	54
Japan	4	5	11	19	79	86	90	93	2	6	3	4	31	37	10	7	2	18	54	66	43	24	23	16
Netherlands	3	16	6	9	70	15	73	82	10	3	5	5	23	5	13	12	3	3	33	45	33	4	22	19
Norway	2	2	6	5	73	56	35	78	0	0	2	4	27	19	7	13	0	13	14	42	47	25	12	18
New Zealand	1	2	3	6	40	62	59	74	0	0	0	2	20	14	15	14	0	5	15	31	20	43	30	28
Portugal	4	6	11	12	80	67	89	89	0	5	1	1	48	22	18	19	0	3	11	23	32	38	59	47
Sweden	2	3	6	9	84	88	83	87	11	13	2	2	32	25	15	14	0	22	42	48	42	28	25	22
Turkey	3	6	7	8	60	43	90	89	0	0	0	1	36	33	19	22	0	0	4	12	24	10	66	53

Note: The first set of columns reports countries' export similarity index (see text) with China. Subsequent columns break out the contribution of aggregate manufacturing as well as disaggregate manufacturing industries to the index.

TABLE 19
COUNTRIES WITH THE HIGHEST EXPORT SIMILARITY TO THE OECD

Export Similarity Index with the OECD							
1972		1981		1991		2001	
Mexico	17	Mexico	22	Mexico	28	Mexico	32
Taiwan	13	Brazil	17	Korea	22	Korea	27
Israel	12	Korea	15	Taiwan	20	Taiwan	22
Hong Kong	11	Israel	14	Brazil	19	Brazil	20
Korea	11	Taiwan	13	Hong Kong	18	China	19
Argentina	10	Hong Kong	13	Singapore	17	Israel	18
Brazil	10	Singapore	12	Israel	17	Czech Rep	17
Czech Rep	9	Venezuela	11	Malaysia	14	Hong Kong	17
Yugoslavia	9	Malaysia	10	China	14	Singapore	16
Poland	9	Guatemala	10	Thailand	12	Poland	14

Note: Cells report countries' export similarity index (see text) *vis à vis* the aggregate OECD.

TABLE 20
REGIONAL EXPORT SIMILARITY WITH THE OECD

Export Similarity with the OECE				
Region	1972	1981	1991	2001
Africa	11	14	6	10
Asia	18	23	26	27
Caribbean	9	13	10	10
Latin America	19	25	30	35

Note: Table displays each region's export similarity index (see table) with the OECD. Asia excludes China.

TABLE 21
LATIN AMERICAN EXPORT SIMILARITY TO THE OECD

Country	Export Similarity Index with the OECD			
	1972	1981	1991	2001
Argentina	10	10	11	14
Belize	2	3	3	3
Bolivia	2	2	3	5
Brazil	10	17	19	20
Chile	5	6	6	7
Colombia	7	6	7	9
Costa Rica	3	4	5	8
Ecuador	6	7	4	6
El Salvador	3	3	2	3
Guatemala	4	10	3	5
Guyana	2	4	2	4
Honduras	5	3	3	4
Mexico	17	22	28	32
Nicaragua	4	2	1	2
Panama	6	7	5	8
Paraguay	2	3	3	4
Peru	3	10	5	6
Suriname	1	2	2	2
Uruguay	5	6	4	6
Venezuela	6	11	7	8

Note: Cells report countries' export similarity index (see text) *vis à vis* the aggregate OECD.

C. Export Price Similarity

This section compares Chinese manufacturing export prices to those of other developing countries. I find that Chinese export prices are generally lower than the export prices of countries in Latin America, Asia and the Caribbean.

An extremely useful feature of the Feenstra *et al.* [2002] data is the inclusion of both quantity and value information for a large number of goods and countries, rendering possible the calculation of unit values. I compute the unit value of product P from country c , u_{pc} , by dividing import value (V_{pc}) by import quantity (Q_{pc}), $u_{pc} = V_{pc} / Q_{pc}$.¹³ Examples of the units employed to classify

¹³ For some years and products, there are multiple country observations of value and quantity. In those cases, I define the unit value to be a value-weighted average of the observations. Availability of unit values ranges from 77 percent of product-country observations in 1972 to 84 percent of observations in 1994.

products include dozens of shirts in apparel, square meters of carpet in textiles and pounds of folic acid in chemicals. Because units vary by products within industries, industry-level unit values cannot be computed.¹⁴

I define the unit value ratio between country c and China in product p in year t as

$$UVR_{pc}^t = \frac{u_{pc}^t}{u_{pCHINA}^t}. \quad (3)$$

Figure 4 summarizes the distribution of unit value ratios across regions by industry in 1991 and 2001 via a box and whisker plot.¹⁵ Unit value ratios are expressed in base 2 logs to preserve symmetry around zero, e.g. so that values of 1 and -1 equal unit value ratios of 2 and 0.5, respectively. The upper and lower ends of each box in the figure mark the interquartile range of the data, and the hands extend to roughly the fifth and ninety-fifth percentiles. The line in the center of the interquartile range represents the median, and a comparison of medians across industries and regions provides a sense of how different region member's unit values are from those of China.

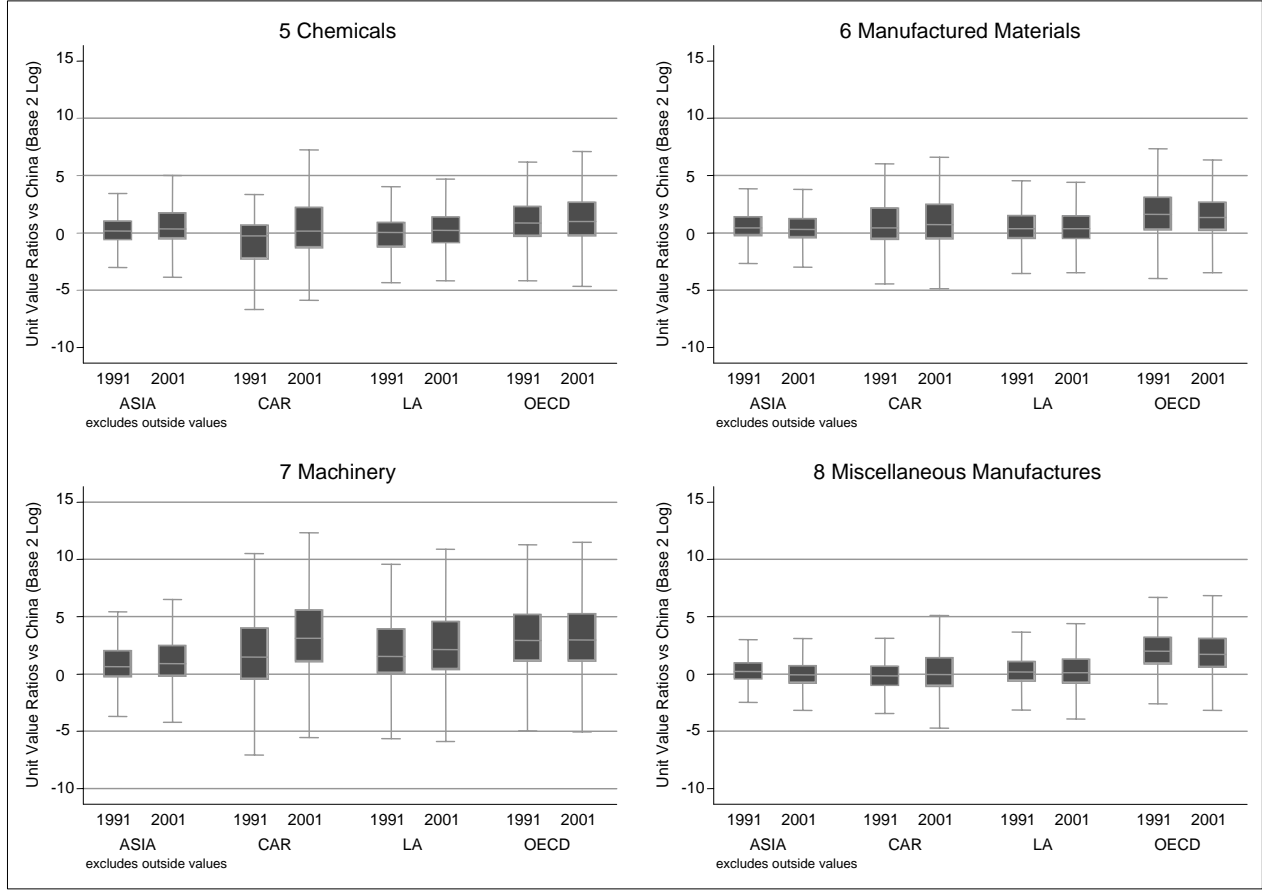
Table 23 provides an alternate summary of the unit value data by reporting the mean log base 2 unit value ratio across countries by industry, region and year between 1991 and 2001. T-tests indicate that almost all of the ratios reported in the table are statistically different from zero at the 10 percent level; those that are not are outlined. The only ratios less than zero occur in the early years in the sample for Chemicals with respect to Latin America and the Caribbean.

Several interesting trends are evident in Figure 4 and Table 23. Among regions, OECD countries generally have the highest price premia *vis à vis* China, while among industries unit value premia are greatest in Machinery, whose product categories arguably admit the most heterogeneous set of varieties. Both OECD and Asian unit value premia have declined over time in Manufactured Materials and Miscellaneous Manufacturing, while the reverse is true for Caribbean and Latin American countries.

¹⁴ It is important to note that the unit values in this dataset are not perfect. A study by the U.S. General Accounting Office (1995) identified underlying product heterogeneity and classification error as two major sources of unit value error in an in-depth analysis of eight products.

¹⁵ I compare 2001 prices to 1991 prices instead of 1972 prices for two reasons. First, because there is far less overlap between China and other countries in 1972 than in 1991, there are relatively few unit value ratios available in 1972. Second, the system used to categorize products changed fundamentally in 1989.

FIGURE 4
DISTRIBUTION OF COUNTRIES' 1972 AND 2001 UNIT VALUE RATIOS VIS À VIS CHINA,
BY REGION AND INDUSTRY



Note: Figures display distribution of unit value ratios across products within one-digit SITC industries by region and year. Unit value ratios and the ratio of all of noted region's member countries unit values to China's unit values, expressed in base 2 logs. Region acronyms are LA for Latin America and CAR for Caribbean.

The relatively high unit value ratios for Latin American and Asian products may be a reflection of their goods' attributes. Previous research finds a significant positive relationship between countries' manufacturing export unit values and their relative endowments. Table 22, for example, displays results from Schott [2004] that regress country-product unit values on exporter capital abundance by manufacturing industry i ,

$$\log(UVR^t_{pic}) = \alpha_p^t + \beta_i K / L_c^t + \varepsilon^t_{pic}, \quad (4)$$

where K/L_{ct} is country c 's capital per labor in year t . Coefficient estimates are positive and statistically significant at the 1 percent level across all four industries. They are also economically significant: in Machinery in 1972, for example, a 10 percent increase in capital per labor is associated with a 5.4 percent increase in unit value. The unit value to K/L gradient is steepest for Machinery, which contains many differentiated goods, and shallowest for chemicals, which likely contains relatively fewer differentiated goods. These results suggest that unit value differences

across countries reflect comparative advantage: countries relatively abundant in human and physical capital are able to embed higher quality or additional features in their exports, raising their relative price. From this perspective, it is not surprising that China's exports command relatively low prices.

TABLE 22
UNIT VALUES AND RELATIVE ENDOWMENTS 1972 TO 1994, BY SITC1 INDUSTRY

	Chemicals	Manufactured Materials	Machinery	Miscellaneous Manufactures
	SITC 5	SITC 6	SITC 7	SITC 8
Regressor	Log(Unit Value)	Log(Unit Value)	Log(Unit Value)	Log(Unit Value)
Log(K/L)	0.209 *** 0.076	0.282 *** 0.041	0.539 *** 0.118	0.413 *** 0.051
Product-Year Dummies	Yes	Yes	Yes	Yes
Product-Country-Year Observations	61,771	313,115	144,982	429,478
Number of Unique Products	1,543	5,706	2,932	7,523
Number of Unique Countries	59	59	59	59
R ²	0.59	0.71	0.78	0.78

Note: Table displays OLS coefficients from a panel regression of exporter-product unit values on log exporter capital per labor across products by SITC1 industry from 1972 to 1994. Sample is restricted to the set of products exported by both high- and low-wage countries, i.e. those with at least 70 percent and less than 30 percent of U.S. *per capita* GDP in each year, respectively. Robust standard errors adjusted for exporter clustering are listed below each coefficient. Results for fixed effects are suppressed. *** refers to statistical significance at the 1 percent levels. Reprinted from Schott [2004].

A competing explanation for the unit value premia displayed in Figure 4 and Table 23, however, is that China's relatively low prices reflect greater productive efficiency. This second explanation is consistent with China's explosive export growth, and it raises the question of how much of the manufacturing market Latin American, Caribbean and Asian countries can retain as China's capacity and access to foreign markets increases. Indeed, the current labor cost advantages of China are likely to be long-lived given the vast labor force that sits just outside its most developed provinces. This labor force may prevent wages in less labor-abundant provinces from rising as output grows and labor markets get tight.

TABLE 23
MEAN UNIT VALUE RATIOS *vis à vis* CHINA, BY REGION, INDUSTRY AND YEAR

		Mean Log Unit Value Ratio <i>vis à vis</i> China										
	Industry	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Asia	5 Chemicals	0.19	0.30	0.36	0.36	0.36	0.35	0.44	0.45	0.51	0.56	0.73
	6 Manuf Mat	0.60	0.62	0.63	0.62	0.64	0.62	0.64	0.56	0.54	0.58	0.54
	7 Machinery	0.88	0.85	0.84	0.99	1.06	1.14	1.13	1.18	1.17	1.24	1.29
	8 Misc Manuf	0.34	0.29	0.31	0.34	0.36	0.27	0.21	0.19	0.14	0.12	0.12
Caribbean	5 Chemicals	-0.73	-0.40	0.29	-0.20	-0.29	0.06	0.20	0.67	0.48	0.09	0.68
	6 Manuf Mat	0.70	1.02	0.87	0.73	0.92	1.23	1.57	1.39	1.13	1.39	1.24
	7 Machinery	2.13	2.59	2.84	3.56	3.70	3.36	3.34	3.59	3.31	3.60	3.58
	8 Misc Manuf	0.09	0.15	0.29	0.43	0.50	0.56	0.52	0.54	0.52	0.42	0.48
Latin America	5 Chemicals	-0.14	-0.25	-0.26	-0.15	-0.10	-0.16	-0.13	0.05	0.26	0.13	0.32
	6 Manuf Mat	0.51	0.56	0.60	0.57	0.61	0.58	0.65	0.70	0.64	0.59	0.63
	7 Machinery	2.03	2.16	2.24	2.31	2.03	2.30	2.36	2.32	2.56	2.58	2.72
	8 Misc Manuf	0.36	0.41	0.37	0.45	0.46	0.38	0.40	0.48	0.43	0.39	0.46
OECD	5 Chemicals	1.01	1.13	1.19	1.18	1.10	1.14	1.15	1.28	1.28	1.29	1.37
	6 Manuf Mat	1.75	1.86	1.75	1.67	1.75	1.66	1.70	1.66	1.66	1.56	1.57
	7 Machinery	3.20	3.30	3.36	3.43	3.24	3.36	3.27	3.20	3.20	3.22	3.28
	8 Misc Manuf	2.14	2.13	2.11	2.11	2.16	2.13	2.09	2.11	2.03	1.96	2.01

Note: Table displays mean log base 2 Asian to Chinese unit value ratios within noted two-digit SITC industries for 1991 and 2001. All ratios except for those which are outlined are statistically different from zero in a one-sided t-test at the 10% level. Observations for each region-industry range from 934-16,851, 63-1562, 593-7,496, and 3,789-23,910, respectively, for Asia, Caribbean, Latin America and the OECD.

The industry with the largest number of unit value ratio observations in Table 23 is Miscellaneous Manufacturing. Table 24 breaks down the results for this industry by two-digit SITC industry. Though most cells of this table also indicate the relative cheapness of Chinese exports, the results for apparel (SITC 84) are somewhat surprising: they indicate that Chinese apparel products are statistically significantly *higher* than Asian and Latin American apparel products in 2001. The magnitude of these differences, however, is relatively small compared to others in the table. One explanation for this trend is that quota agreements under the Multifiber Arrangement may have forced China to upgrade the quality of its apparel in a manner similar to how U.S. automobile voluntary export restraints lead to quality upgrading in Japanese auto exports (Feenstra [1988]). Though other developing countries have been similarly bound by this arrangement, further research into whether its effects on China were stronger is warranted.

TABLE 24
MEAN MISCELLANEOUS MANUFACTURING UNIT VALUE RATIOS VIS À VIS CHINA,
BY REGION, INDUSTRY AND YEAR

		Mean Log Unit Value Ratio Vis a Vis China										
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Asia	81 Plumbing/Heating	0.49	0.62	0.68	0.92	0.86	0.95	0.86	1.03	0.86	0.91	1.08
	82 Furniture	1.23	1.07	1.19	1.12	1.16	1.32	1.24	1.16	1.12	1.01	1.01
	83 Travel Goods	0.49	0.41	0.55	0.72	0.66	0.61	0.43	0.30	0.46	0.42	0.47
	84 Apparel	0.10	0.06	0.01	0.03	0.00	-0.11	-0.25	-0.30	-0.33	-0.37	-0.36
	85 Footwear	0.37	0.35	0.36	0.35	0.32	0.30	0.32	0.31	0.37	0.38	0.38
	87 Professional Equip	1.28	1.67	1.31	1.52	2.02	2.06	1.81	2.19	1.98	2.07	2.01
	88 Photographic App	0.71	0.45	0.89	0.9387	0.85	0.90	1.10	1.28	0.91	1.16	1.20
	89 Misc Manuf	0.76	0.71	0.79	0.75	0.89	0.76	0.85	0.83	0.83	0.82	0.82
Caribbean	81 Plumbing/Heating	2.06	2.12	3.13	4.35	3.89	4.71	2.59	3.31	2.03	2.30	2.59
	82 Furniture	1.56	2.08	2.17	2.26	2.01	2.07	2.00	1.94	1.86	1.91	2.27
	83 Travel Goods	0.65	0.68	0.97	1.33	1.45	1.71	2.09	2.20	1.92	1.96	1.52
	84 Apparel	-0.33	-0.26	-0.20	-0.18	-0.26	-0.35	-0.47	-0.41	-0.31	-0.50	-0.37
	85 Footwear	0.89	0.59	0.33	0.70	1.19	0.93	0.79	0.86	1.10	0.96	0.94
	87 Professional Equip	3.81	4.09	4.60	5.47	5.72	3.16	4.87	4.51	4.24	3.98	4.14
	88 Photographic App	5.86	4.37	5.09	5.56	4.70	4.88	4.93	4.40	5.05	5.16	4.15
	89 Misc Manuf	1.17	1.01	1.50	1.78	2.05	2.48	2.40	2.61	2.28	2.52	2.31
Latin America	81 Plumbing/Heating	1.76	1.98	1.67	2.42	2.24	2.16	1.65	2.23	1.84	1.61	1.70
	82 Furniture	1.63	1.63	1.68	1.56	1.68	1.63	1.84	1.68	1.57	1.73	1.58
	83 Travel Goods	0.86	0.67	0.84	0.76	0.52	0.69	0.68	0.68	0.96	0.79	0.89
	84 Apparel	-0.01	-0.03	-0.11	-0.02	-0.08	-0.20	-0.24	-0.21	-0.20	-0.27	-0.16
	85 Footwear	0.57	0.72	0.55	0.50	0.55	0.63	0.74	0.83	0.88	0.78	0.86
	87 Professional Equip	1.98	3.19	2.91	3.24	2.84	2.93	3.26	3.71	4.00	3.48	3.86
	88 Photographic App	1.63	1.65	1.40	2.04	2.42	2.36	2.32	3.32	2.42	2.74	2.36
	89 Misc Manuf	0.91	1.17	1.30	1.13	1.39	1.28	1.41	1.44	1.23	1.29	1.39
OECD	81 Plumbing/Heating	3.14	3.32	3.16	3.37	3.32	3.35	3.17	3.56	3.55	3.18	3.55
	82 Furniture	2.93	2.86	2.87	2.72	2.88	2.84	2.75	2.79	2.74	2.51	2.54
	83 Travel Goods	2.37	2.19	2.28	2.35	2.42	2.43	2.33	2.37	2.52	2.40	2.51
	84 Apparel	1.88	1.79	1.72	1.71	1.69	1.61	1.46	1.43	1.43	1.32	1.36
	85 Footwear	1.91	1.94	1.73	1.63	1.72	1.68	1.72	1.67	1.74	1.70	1.75
	87 Professional Equip	3.78	4.14	4.08	3.98	3.94	3.79	3.78	4.23	3.96	3.73	3.84
	88 Photographic App	2.43	2.37	2.52	2.72	2.85	2.91	2.95	3.19	2.73	2.98	3.11
	89 Misc Manuf	1.95	2.01	2.14	2.06	2.25	2.31	2.42	2.28	2.23	2.21	2.12

Notes: Table displays mean unit value ratios across products within one-digit SITC industries by region and year. Unit value ratios are the ratio of all of noted region's member countries' unit values to China's unit values, expressed in base 2 logs. All ratios except for those which are outlined are statistically different from zero in a one-sided t-test at the 1% level. Observations for each region-industry range from 176-10,200, 6-1085, 79-4740, and 356-10,855, respectively, for Asia, Caribbean, Latin America and the OECD. The largest number of observations in Apparel (84) in each country and year.

V. CONCLUSIONS

China's extreme labor abundance hides substantial intra-regional diversity. That diversity, and China's size, have contributed toward export growth that has been unlike any of the United States' other trading partners over the last three decades. Across developing countries, China's exports to the United States are most similar to those of the fast-growing economies of East Asia. Among Latin American countries, it is most similar to Mexico.

Within export markets China generally commands lower prices for its exports than other developing countries, and this cost advantage may be a key contributor to its export growth. If China is able to maintain this cost advantage, and other developing countries are unable to vertically differentiate their product mix, it may prove to be a substantially disruptive force in international trade in the coming decade. This disruption may accelerate with the expiration of apparel and textile quotas under the Multifiber Arrangement in January 2005.

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