An Anatomy of China's Export Growth*

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Preliminary and Incomplete

Abstract

We decompose China's phenomenal export growth since 1992 along various dimensions. Disaggregated data on China's exports reveal that the export structure changed dramatically, with China moving out of agriculture and apparel and into electronics and machinery. Despite the shift into these more sophisticated products, China's manufacturing exports did not become more skill intensive when processing trade is excluded. This is a result of the nature of processing trade in China, much of which involves China's assembly of high value imported inputs into final goods. Trade growth was accompanied by increasing specialization and was mainly due to expanded exports of existing products, as opposed to export discoveries. Using highly disaggregated U.S. trade data at the HS 10-digit level, only 10 to 20 percent of China's export growth resulted from exporting new products; almost all of China's export growth to the U.S. was in existing goods, or the so-called intensive margin. The large increase in exports pushed down China's export prices, though declines were limited in sectors where new varieties were developed.

Key Words:
JEL Classifications:

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1. Introduction

China's real exports increased by more than 450 percent over the last 15 years. This paper decomposes this stunning export growth along various dimensions. In particular, how has China's export structure changed? Has the export sector become more specialized, focusing on particular types of goods, or has it diversified as it has grown? Are China's exports becoming more skill intensive? How important are new goods in export growth? The answers to these questions have important implications for the global welfare consequences of China's export expansion and for future growth of China's export sectors. In addition, countries wishing to emulate China's success may find lessons in China's experience.

We find that China's export structure has transformed dramatically since 1992. There has been a significant decline in the share of agriculture and soft manufactures, such as textiles and apparel, with growing shares in hard manufactures, such as consumer electronics, appliances, and computers. In addition, we see disproportionately high growth in many goods that were very small in 1992. Specifically, goods that accounted for less than 20 percent of exports in 1992, now account for nearly 50 percent of exports. Despite this vast reallocation, export diversification did not increase, exports remained highly concentrated in a small fraction of goods—though the particular goods have changed.

We find that the skill content of China's exports has increased, but most of this is due to processing trade. That is, the skill content of imported inputs used to produce exports has increased; however, we do not find evidence that China's production techniques have become more skill-intensive.

We also ask whether this growth was accomplished by expanding trade of existing goods or by developing new export varieties? Traditional theory highlights the expansion of existing products (the intensive margin) as the only source of export growth. New trade theory gives a dominant role to an expansion of the number of export varieties (the extensive margin), providing an additional channel for welfare gains from trade. China's dramatic export rise offers a unique opportunity to evaluate these predictions.

We find that most of China's export growth was in existing varieties. In particular, despite a forty percent increase in the number of varieties that China exported to the U.S. since 1997, the extensive margin accounts for at most 20 percent of China's export growth. Most of China's export growth has occurred in products that China was already exporting. The large growth in the intensive margin is supportive of predictions consistent with traditional theories, which place endowments, productivity, and terms of trade effects at the center of trade growth.

Finally, we look at price effects and find that growth in the extensive margin has limited the extent of terms of trade effects among products with a low elasticity of substitution.

The rest of the paper is organized as follows. Section 2 describes the data. Section 3 examines the reallocation of exports across industries. Section 4 looks at the skill intensity of exports. Section 5 examines whether there has been increased diversification or specialization as exports have growth. Section 6 decomposes export growth into the intensive and extensive margins. Section 7 examines price effects of trade growth. Section 8 concludes.

2. Data

The most disaggregated export data available for China is at the HS 8-digit level, from China Customs Beijing, which includes 8,900 product codes. The trade data are in current US dollars, which we deflate by the U.S. CPI to generate a constant dollar series. Summary statistics for China's exports are presented in Table 1, showing that China's real exports to the world increased from US$84.94 billion in 1992 to US$525.48 billion in 2005. The share of exports to the US increased from 10 percent to 21 percent over the sample period. To check for the accuracy of the China export data, we also use data on US imports from China, from the US Bureau of the Census, Foreign Trade Division. This data also has the advantage of being available at an even higher level of aggregation, at the HS 10-digit, which includes 18,600 product categories.

As there were major reclassifications in the international HS 6-digit classifications in 1996 and 2002, in some cases we aggregate the data up to HS 6-digit codes and convert them to the same HS 6-digit classifications used in 1992 to avoid problems related to reclassification of codes. This reduces the number of product codes for China's world exports to 5000 products. To examine broader export patterns we divide the data into SITC 1-digit codes, which include agriculture (SITC 1 to 4), chemicals (SITC4), manufactured materials (SITC 5), manufactured materials (SITC 6), machinery (SITC 7) and miscellaneous manufactures (SITC8).

3. Reallocation Across Industries

China has experienced big changes in its export composition. It has moved from the first stage of agriculture and apparel to more sophisticated manufactured goods. Figure 1 shows this by plotting the export share of each one-digit SITC sector in 1992 and 2005. Rapid export growth has been associated with a move out of agriculture and apparel into the machinery and transport sectors. In Figure 2, we focus on changes within the manufacturing sector. In particular, we look at how trade shares have adjusted in all major 2-digit SITC sectors, where major is defined as accounting for at least 3 percent of exports in 1992 and/or 2005. There is a notable move out of apparel, textiles, footwear, and toys and into electrical machinery, telecom, office machines, and to a lesser extent metals.

The strongest overall export growth has been in machinery (SITC 7), and within this broad category it is telecoms, electrical machinery and office machines that have experienced the highest growth and make up the largest shares within machinery. The question arises whether China is producing most of the value-added of these capital intensive goods or is it just assembling duty-free imported inputs for export? This practice is known as processing trade and does account for an increasingly large share of China's exports, from 47 percent in 1992 to 55 percent in 2005. According to Dean, Fung and Wang (2007), imported inputs account for between 52 to 76 percent of the value of processing exports. Figure 3 plots total exports of 2-digit machinery categories as a share of total manufacturing exports, in descending order for 2005, and the lighter bars show the portion that is classified as processing trade by China Customs. This figure reveals that most of the high export growth is indeed processing trade, thus only a small share of the growth in machinery is likely to be due to high value added production in machinery in China.

4. Skill Content of Export Growth

China's export bundle is very different now from what it was in the early 1990s. Rodrik (2006) and Schott (2006) highlight the increasing sophistication of China's exports, as demonstrated by an export pattern that more closely resembles high income countries than would be expected given its income level. Thus, we might expect that China's production techniques have also become more sophisticated. To see whether the skill content of China's export growth has increased over the sample period, we rank industries from low to high skill intensity on the horizontal axis of Figure 4, and plot the cumulative export share on the vertical axis.[1] Because industry skill level data for China were unavailable we based the skill intensity ranking on information from Indonesia, another developed country that is likely to have similar technologies. The skill intensity is measured as the ratio of production workers to total employment from the Indonesian manufacturing census at the 5 digit ISIC level for 1992. Figure 4 shows that in 1992, 55 percent of China's exports were accounted for by 20 percent of the least skill-intensive industries. The shift of the curve to the right indicates that the skill content of China's exports has increased over time. For example, in 1992, 20 percent of the least skill-intensive industries produced 55 percent of China's export share. By 2005, the export share that these industries produced fell to 32 percent.

However, given the high share of processing trade in China, an increase in the skill content of China's exports does not necessarily imply that there has been any skill upgrading

[1] Chun and Trefler (2005) measure changes in the skill content of exports for all countries using U.S. industry level skill data to rank the skill intensity of industries, assuming no factor intensity reversals. Our results also hold using U.S. skill data.

in China's production techniques. Instead, China could be importing intermediate inputs with higher skill content that it then assembles for exporting. We assess this possibility by plotting the cumulative of export shares against the skill intensity with non-processing manufacturing exports only. That is, we exclude any exports that have been classified as processing trade. From Figure 5, we see that there is hardly any shift in the curve indicating no change in the skill content of China's non-processing exports.

Processing exports make up a large share of China's manufacturing exports and by excluding processing exports we are excluding around 54 percent of China's manufacturing exports (see Table 1). Although imported inputs account for a large share of the value of processing exports, there still remains a significant amount of value added in China in processing exports and there could be skill-upgrading in that portion. To examine this possibility, we compare the change in the skill content of imported manufacturing inputs for processing trade to the skill content of imported inputs for non-processing trade. Using US industry skill data to rank the skill intensity of imports, we find a much larger increase in the skill content of processed imports than of non-processing imports. This suggests that the increase in China's skill content in its exports is likely due to the increase in the skill content of imported inputs embodied in these exports.

5. Diversification versus Specialization

China's exports may have become more specialized or more diversified, with the increased churning from agriculture and textiles into machinery, electronics and assembly. Traditional trade theory highlights the combination of increased trade and specialization as a key factor in promoting higher living standards. Imbs and Warziarg (2003), however, find that countries tend to diversify production as they grow from low levels of income, and that they only begin to specialize once they reach a relatively high level of income. This is consistent with countries moving from exploiting natural resources to developing new industrial sectors as they grow. Hausman and Rodrik (2003) argue that diversification may be an important stage in development because by exploring more sectors, a country is more likely to find the ones in which it is a competitive producer.

We examine whether China's exports display increased or decreased specialization in Figure 6, by plotting the inverse cumulative export shares for all products at the HS 6-digit level. By graphing it as an inverse function, with products ranked from largest to smallest, we can focus on the top 500 products - Figure 7 magnifies the image in Figure 6, showing the cumulative trade shares when we keep only the 500 categories, which account for nearly 80 percent of total exports. The downward shift in the curve in Figure 7 implies that specialization among these 500 products has increased. The pattern is very similar, with a slightly greater increase in specialization, if we only include manufacturing exports.

An alternative way to measure changes in specialization is to calculate the Gini coefficient of export equality in each period, defined as

$$Gini \equiv 1 - \frac{1}{n} \sum_i (cshare_{i-1} + cshare_i),$$

where there are n products, i is a product's rank (1 is smallest and n is largest), and $cshare_i$ is the cumulative share of exports of the ith product. The Gini coefficient uses the trapezoid approximation to calculate the area between a 45 degree line and the cumulative distribution, weighting each industry as an equal share of the population of industries $(1/n)$. A Gini coefficient of zero indicates that exports shares are equally distributed across all industry groups; an increase in the Gini coefficient implies an increase in specialization.

Table 2 reports the Gini coefficient for the 1992 and 2005 for the whole sample of products and some sub-samples. The Gini coefficient remained unchanged over the sample period at 0.85 when all products are included. However, when a sub-sample of the largest goods accounting for 70 percent of exports are included, the Gini coefficient increases from 0.46 to 0.55. Similarly, when we only include the top 100 products, which account 45 percent of exports in 1992 period and nearly 50 percent in 2005, the Gini coefficient increased from 0.35 to 0.50. Thus, over the period we see enhanced specialization for the products that accounted for the largest export shares.

6. Intensive vs. Extensive Margin

Recent work highlights a strong positive association between the number of export varieties a country produces and its living standard (see reference). Hummels and Klenow (2005) find that larger and richer countries export more varieties of goods, using data for 1995. Although this is suggestive that there is high growth in the number of export varieties as countries grow, one needs to analyze changes over time to see if this is true, as forces that generate product distribution across countries may be quite different from the forces at work within countries. For example, it could be that countries that are able to produce more varieties may simply be the ones to grow faster. Broda and Weinstein (2006) examine changes in the growth in varieties in U.S. imports from 1972-2001. They find that 30 percent of growth was the result of an expansion in the extensive margin, and that China was the largest contributor to growth in U.S. varieties, however most of this growth was in the earlier period from 1972 to 1990.

A new variety is generally defined as exports in a new product code, that is a product code for which there are positive exports one period and zero exports in an earlier period. One of the main problems using this approach is that there have been major reclassifications in the trade data in 1996 and 2001 at the HS 6-digit level, thus a good might be classified as a new variety just because there has been a new product code or previous codes were split. For example, in one year cherry tomatoes were reclassified into a new product code rather than being part of the tomatoes category. In this case, cherry tomatoes would appear to be counted as a new variety even though they were exported in previous periods. In contrast, flat screen televisions received a new classification and these are in fact new varieties. There have been various approaches developed to address these reclassification issues.

6.1. Export shares

One approach to avoiding reclassification issues is to use HS 6-digit concorded data, but in general these categories might be too aggregated to be able to identify new products: by 1992, China was exporting in over 90 percent of categories. To address this problem, we follow Kehoe and Ruhl (2002), by splitting exports into deciles by value in 1992 and we calculate their share of exports in 2005. If export growth is mainly from new goods, we would expect rapid growth in the bottom deciles, where trade was negligible in 1992. Figure 8 shows the share of exports in 2005 that is accounted for by the products falling into each decile. The categories that accounted for the bottom twenty percent of trade by value more than doubled, while the categories in the other deciles contracted or remained constant. This points to a sizeable role for the extensive margin, as the least traded goods grew the fastest.

One problem with this method is that exports tend to be concentrated in a small number of categories. This can be clearly seen in Figure 9, where we divide exports into deciles according to the number of categories of trade in 1992. For example, the tenth decile is the top ten percent of product categories when products are ranked by value. The distribution in 1992 is highly skewed, reflecting that only 10 percent of categories accounted for nearly 80 percent of trade. The decline in the share of the top decile shows that there was a sizeable reallocation of trade, but it was not the bottom 50 percent of products that gained. Over 75 percent of the decline in the trade share of the top decile was accounted for by an increase in the trade share of the four deciles just below the top. In sum, the results imply that there was a significant reorientation in exports, and that the reshuffling of export products during the expansion was mainly in the mid-upper rank products. These are products that were in the bottom 20 percent by value but in the mid-to-high range by product rank.[2]

[2] These figures and the estimates of the extensive and intensive margin are very similar if we use only manufacturing trade.

6.2. Net variety growth

To utilize the more disaggregated trade data at the 8- and 10-digit levels, we examine the contribution of new varieties to export growth using two complementary methods. The first is the Feenstra index of net export variety growth and provides a indication of the importance of new varieties in trade. The second is a decomposition of export growth into new, disappearing, and existing varieties and offers more information on the magnitude of export creation and destruction. We present the definitions and discuss the strengths and weaknesses of each measure below.

The Feenstra index of net variety growth is the expenditure share in the base period on goods available in both the first and last period relative to the expenditure share in the last period on goods available in both periods minus one. Let V_{ti} be the value of trade at time t in product i ($V_{ti} = p_{ti}q_{ti}$), then

$$Feenstra\ index\ of\ net\ variety\ growth = \frac{\sum_{i\in I_{t,t-1}} V_{t-1i} / \sum_{i\in I_{t-1}} V_{t-1i}}{\sum_{i\in I_{t,t-1}} V_{ti} / \sum_{i\in I_{t}} V_{ti}} - 1,$$

where $I_{t,t-1}$ is the set of products available in period t and period $t-1$; I_j is the full set of products available in period j, $j \in t-1, t$. The index will be equal to zero if there is no growth in varieties relative to the base period and greater than one if the number of varieties has grown. This measure has the nice feature that if HS trade classifications are simply split, and their share of total trade remains unchanged, the index remains unchanged. However, if growth classifications are split (or reclassified) to a greater extent than shrinking classifications are merged, the index will tend to overstate the extensive margin. A disadvantage of the index for measuring the relative importance of new varieties in export growth is that if there is a lot of churning, with an equal amount of export creation and destruction, it will report net variety growth of nil. From the exporter's perspective, this would understate the importance of new goods in export growth.

To get an idea of how important churning is, we also calculate the shares of trade growth due to new, disappearing, and existing goods. The decomposition of trade growth is as follows:

$$\frac{\sum_i V_{it} - \sum_i V_{it-1}}{\sum_i V_{it-1}} = \frac{\sum_{i \in I_{tt-1}} V_{ti} - \sum_{i \in I_{tt-1}} V_{it-1}}{\sum V_{it-1}} - \frac{\sum_{i \in I_{t-1}^D} V_{it-1}}{\sum V_{it-1}} + \frac{\sum_{i \in I_t^N} V_{ti}}{\sum V_{it-1}}, \tag{6.1}$$

where I_{t-1}^D is the set of products that disappeared between $t-1$ and t, and I_t^N is the set of new products available in year t. This is an identity where total growth in trade relative to the base period is decomposed into three parts: (i) the growth in products that were exported in both periods, the intensive margin; (ii) the reduction in export growth due to products no longer exported, disappearing goods; and (iii) the increase in export growth due to the export of new products. The share of trade growth due to the extensive margin is defined as the new-goods share less the disappearing-goods. This decomposition provides an estimate of the extent of churning, but it is less robust to reclassifications than the Feenstra index because reclassified products that grow on net will be mistakenly attributed to the extensive margin.

Figure 10 plots the Feenstra index of net variety growth and the share of trade growth attributed to the extensive margin on an annual basis for China's exports to the US at the 10-digit level from 1993 to 2005. What is striking about this figure is the large peak in the growth in the extensive margin around 1996, where there were major reclassifications, and in the following year there is a big fall in variety growth using both measures. This might reflect that some new classifications were used in the middle of 1996 and old classifications were not retired until the following year. Although the size of the reclassification effect is somewhat smaller on the Feenstra index, reclassifications still clearly play an important role in calculations of the extensive margin using both measures. This is because growth codes tend to be split to a far greater extent than shrinking categories are merged.

To get an idea of the growth in the extensive margin, it is more insightful to consider changes over a longer horizon since value of exports in new product codes are generally small when they are first introduced. But if one just compares year to year changes they would no longer be grouped in the new goods category. In order to minimize the reclassification issues, we report the growth in extensive margin from 1997 to 2005 in Table 3. Using an earlier period as a base yields wide variations in estimates, and comparable US and China data give vastly different results. Panel A of Table 3 shows estimates using China's 8-digit data. In the first row, where we use data on exports to the world from 1997-2005 in all 8-digit categories, we see large net variety growth of 33 percent, with the extensive margin accounting for an estimated 19 percent of export growth. The second row reports export growth to the United States and the margins are roughly similar. It seems that the China HS 8-digit data underwent large reclassifications from year to year. In order to eliminate the potential problem associated with these reclassifications, we also calculate the margins for product codes that existed over the whole period. In this case, we find that the extensive margin to the U.S. falls markedly, to just 2 percent. This implies that part of the large variety growth found with the full sample is likely a result of reclassifications pushing up the extensive margin.

Panel B of Table 1 reports the extensive margin using U.S. data at the 10-digit level. The data have more than twice as many codes (over 14,000 for U.S. China trade), allowing the extensive margin to be larger. Using all of the 10-digit exports from China to the U.S., net variety growth is negative and the extensive margin share of trade growth is estimated at 17 percent. However, including only codes that exist in both periods, the net variety growth and the extensive margin's share of trade growth are similar, estimated at about 3 percent from 1997-2005. Note that there is still significant growth in the number of new export varieties, which increased by more than 40 percent but these varieties account for small share of export growth.

Estimates of the extensive margin should be interpreted with caution, given that there is a lot of variation depending on whether all product codes are used and whether the base period is before or after the major reclassifications that took place in 1996. The estimates with the more disaggregated U.S. data from 1997 onwards indicate that a large portion of China's export growth took place along its intensive margin.

7. Extensive Margin and Prices

As China increases its supply of goods on world markets this is likely to put downward pressure on world prices of these goods, and thus lead to a deterioration of its terms of trade, particularly if the growth is in the intensive margin. One way to offset price decreases is to differentiate products. The success of this strategy depends on the elasticity of substitution between goods within industries. If goods are close substitutes, then the introduction of a new differentiated product on world markets is still likely to lead to downward pressure on substitute goods within that industry; however, if the new good has a low elasticity of substitution with other varieties then its introduction will either have no effect on substitute goods or increase prices on average. Thus, we hypothesize that a high extensive margin should offset price declines of substitute goods and this effect is stronger the lower the elasticity of substitution.

Taking a subset of goods that China exported to the US every year between 1997 and 2005, we construct an average export price index using a chain weighted Tornqvist index. The average prices of these goods have fallen by one percent per year over this period. To see whether this effect is offset in industries that have experienced a high growth in the extensive margin, we construct export price indices for this subset of overlapping goods for each SITC 3-digit category as follows:

$$Pindex_{kt} = \Pi_i \left(\frac{p_{it}}{p_{it-1}} \right)^{w_{it}} \quad \text{where } w_{it} = 0.5 * (share_{it} + share_{it-1})$$

and regress this on the Feenstra index ($Findex$) of variety, which varies considerably across different SITC 3-digit categories (see Table 1),

$$Pindex_{kt+1} = \alpha_k + \alpha_t + \beta_0 * Findex_{kt} + \beta_1 * Findex_{kt} * sigma_k + \beta_2 * Qindex_{kt} + \varepsilon_{kt}. \quad (7.1)$$

The Feenstra index is interacted with the elasticities of substitution ($sigma$), which have been estimated by Broda and Weinstein (2005). We hypothesize that $\beta_o \geq 0$ and $\beta_1 < 0$. We also include a quantity index ($Qindex$) to control for changing world demand - this is a weighted average of the quantity growth of total US imports at the 3-digit SITC level, where the weights are value shares in period $t-1$. We also include industry and time fixed effects. Because there are large outliers in the construction of the Feenstra index and the estimation of the sigmas, we estimate equation 7.1 with robust estimation to ensure that a small number of outlier observations are not driving the results.[3]

$$Pindex_{kt+1} = \alpha_k + \alpha_k + 0.05 * Findex_{kt} - 0.004 * Findex_{kt} * sigma_k + 0.03 * Qindex_{kt} + \varepsilon_{kt}. \quad (7.2)$$

Both coefficients on the $Findex$ have the predicted signs and are precisely estimated with a $p - value$ of less than 0.01. An increase in the extensive margin could result in higher average prices of substitute goods in that industry by leading to quality upgrading, for example. And the negative coefficient on the interactive term implies that goods in high elasticity of substitution industries suffer a price decline. This suggests that price declines have been offset in low elasticity of substitution industries with high growth in the extensive margin.[4]

8. Conclusions

Our analysis generates three stylized facts about China's export growth since 1992:

- Churning was important. China's exports of appliances and electronics expanded rapidly, while agriculture, textiles and apparel become less important. Much of recent export growth was driven by products that made up a small share of trade in 1992.
- There is little evidence that the value added of China's exports has become more skill intensive when processing trade is excluded.
- Export product specialization increased marginally.

[3] Using the rreg command in STATA, an intial screening is performed based on Cook's distance >1 to eliminate gross outliers before calculating starting values, followed by an iterative process: it performs a regresssion, calculates weights based on absolute residuals, and regresses again using those weights, beginning with Huber weights followed by biweights as suggested by Li (1985).

[4] The results are not sensitive to the inclusion of the quantity index.

- At least 80% of trade growth was in the intensive margin since 1997, but development of new goods helped offset terms of trade losses is goods with low elasticity of substitution.

Trade reorientation, with rapid growth in a number of relatively small sectors was crucial for export growth. The development of new products also played a role, though growth in existing products is far more important. In contrast, there is no evidence of increased product diversification in China's recent success. The movement of resources into their most productive uses and enhanced specialization are driving export growth. Not too surprisingly, export growth has mainly been associated with production intensive in unskilled labor, China's most abundant resource.

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Table 1: Summary Statistics

A. Trade Data

		1992	1995	1997	1999	2001	2003	2005
China's Total Exports	$USbil	84.94	136.50	160.34	163.81	211.19	334.53	525.49
China's Total Processing Exports	$USbil	39.92	67.92	87.59	93.23	117.04	184.56	287.24
	share (%)	0.47	0.50	0.55	0.57	0.55	0.55	0.55
China's Exports to US (Chinese Data)	$USbil	8.59	22.67	28.70	35.25	43.08	70.59	112.34
	share (%)	0.10	0.17	0.18	0.22	0.20	0.21	0.21
China's Exports to US (US Data)	$USbil	25.73	41.79	54.87	68.73	81.17	116.32	167.91

B. Other Variables

	Obs.	Mean	Std. Dev.	Min.	Max.
Feenstra Index_{tk}	1215	1.069	1.007	0.010	22.680
Price Index_{tk}	1215	0.990	0.016	0.972	1.027
Sigma_{k}	152	3.192	4.326	1.050	33.550

Note: variables are at the SITC 3-digit level.

Table 2: Gini Coefficient for China's Exports

Period	**All**	**Top 70%**	**Top 100**
1992	0.85	0.46	0.35
2005	0.86	0.55	0.50

Table 3: Variety Growth in China's Exports, 1997-2005

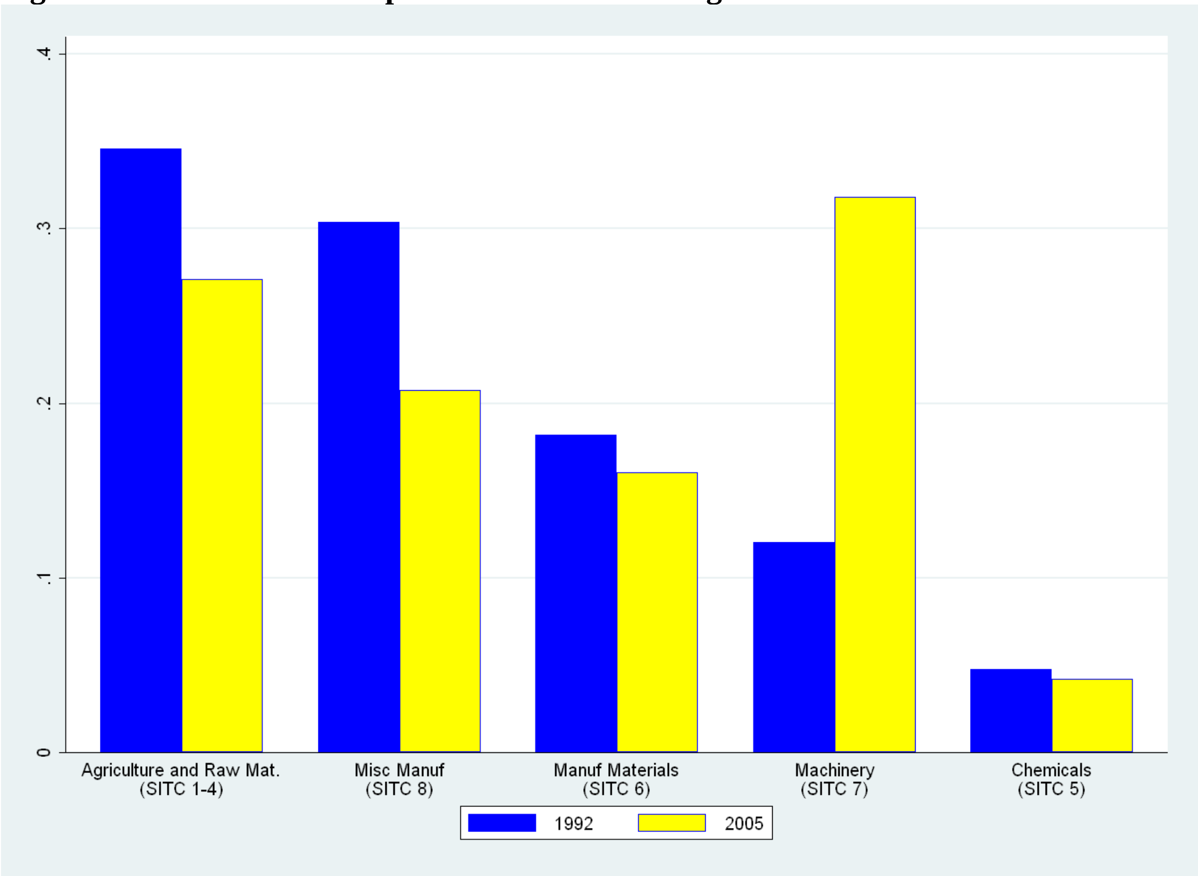
A: Estimates of the Extensive Margin using 8-digit Chinese Data

	Number of Codes	Type	Partner	Time Period	Feenstra	Decomposition of Export Growth: Intensive	New	Disappearing	Extensive
1	7951	All	World	1997-2005	0.33	0.74	0.26	0.07	0.19
						[5501]	[1624]	[826]	
2	6357	All	US	1997-2005	0.29	0.76	0.25	0.04	0.21
						[3641]	[1980]	[736]	
3	4826 76% of codes	Exist	US	1997-2005 81% of trade	0.02	0.98	0.02	0.00	0.02
						[3641]	[935]	[250]	

B: Estimates of the Extensive Margin using 10-digit U.S. Data

	Number of Codes	Type	Partner	Time Period	Feenstra	Decomposition of Export Growth: Intensive	New	Disappearing	Extensive
1	14169	All	US	1997-2005	-0.03	0.83	0.29	0.12	0.17
						[7576]	[5122]	[1471]	
2	11444 81% of codes	Exist	US	1997-2005 84% of trade	0.02	0.97	0.03	0	0.03
						[7576]	[3506]	[362]	

Figure 1: Reallocation of Exports Across SITC 1-Digit Industries



Note: Column headings include the following industries:

SITC 1-4: Beverages, tobacco, raw materials, mineral fuels, oils and fats.

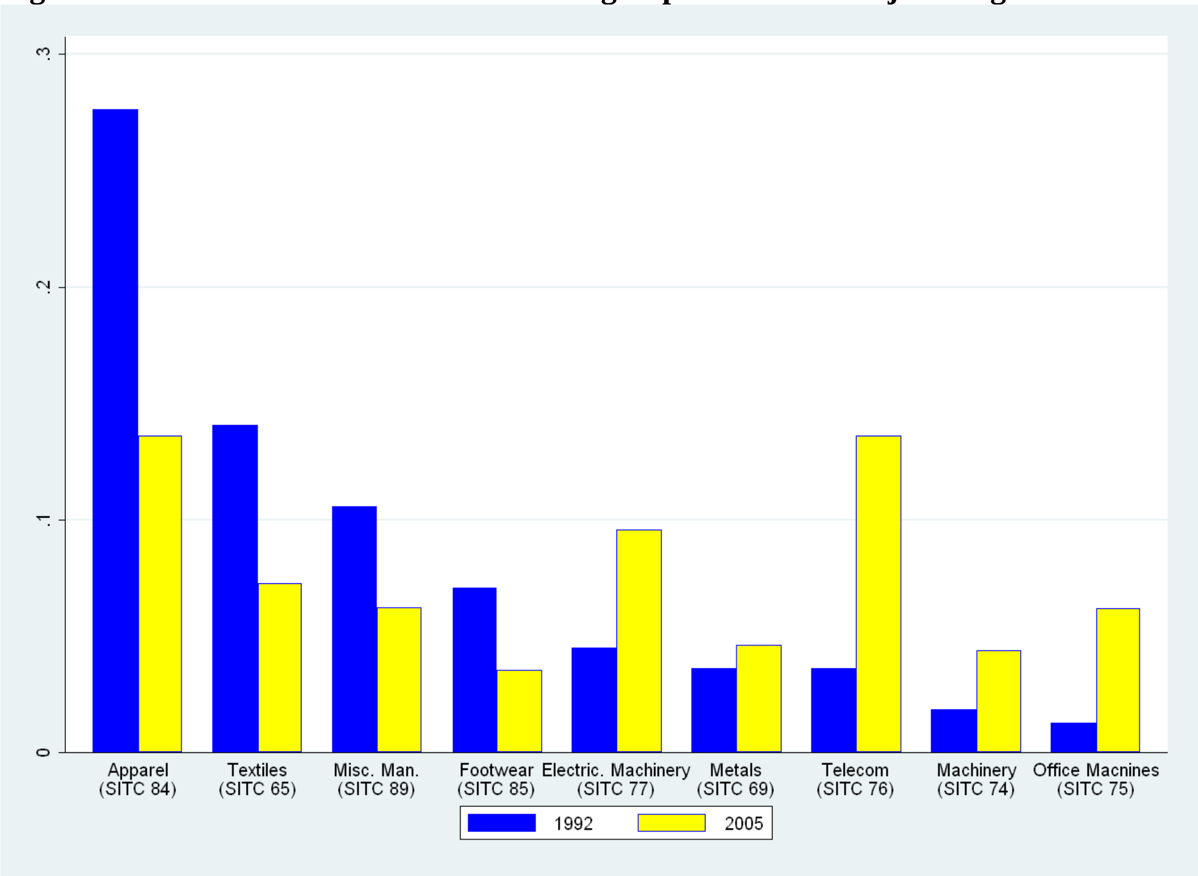
SITC 5: Chemicals, dyes, pharmaceuticals, and perfumes.

SITC 6: Leather, rubber, cork and wood products, textiles, metallic and non-metallic manufactures.

SITC 7: Industrial machinery, office machinery, telecommunications equipment, electrical machinery, transportation equipment.

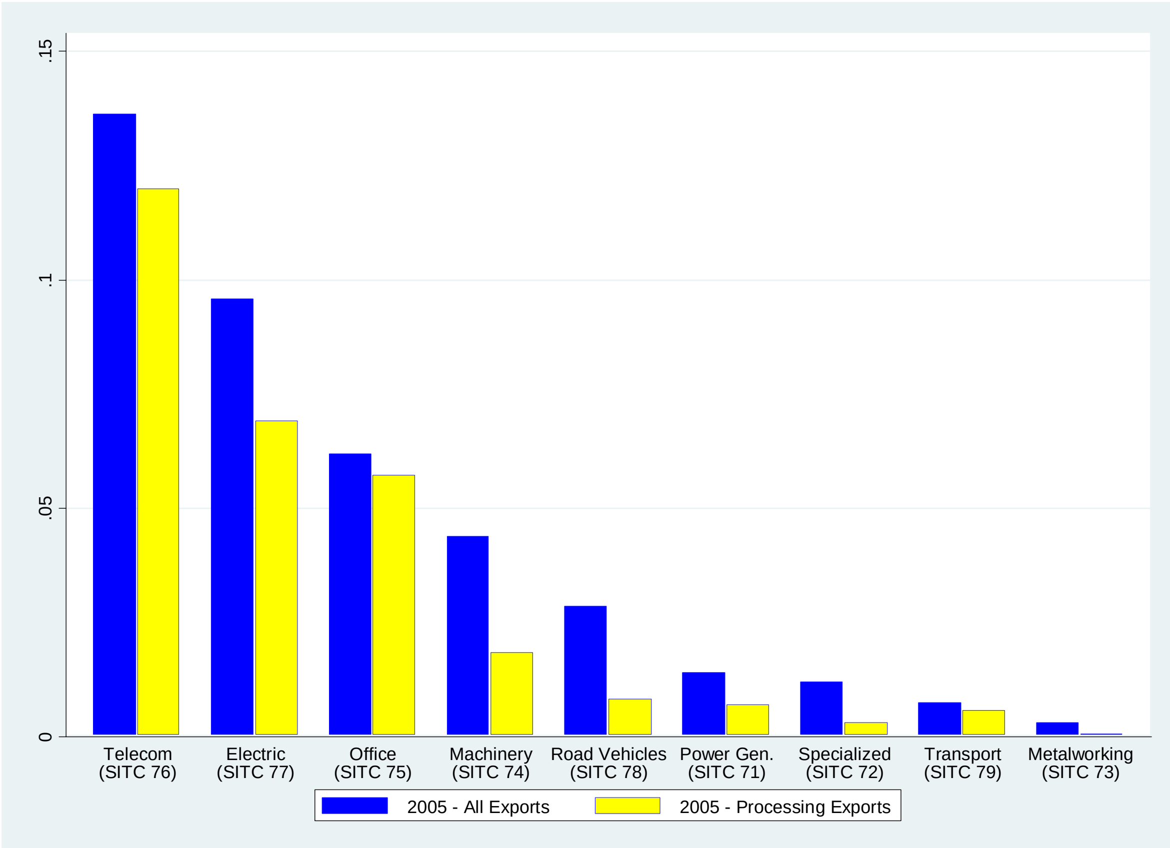
SITC 8: Prefabricated buildings, furniture, travel goods, clothing, footwear, professional and scientific equipment.

Figure 2: The Reallocation of Manufacturing Exports Across Major 2-digit Sectors*



* A sector is defined as major if the sector's share of total trade is above 3% in 1992 and/or 2005. These sectors account for about 70 percent of manufacturing exports.

Figure 3: Machinery Exports and Processing Trade



Note: Column headings include the following industries:

SITC 71: Boilers, turbines, internal combustion engines, and power generating machinery.

SITC 72: Agricultural machinery, civil engineering and contractors' equipment, printing and bookbinding machinery, and textile and leather machinery.

SITC 73: Lathes, machines for finishing and polishing metal, soldering equipment, metal forging equipment, and metal foundry equipment.

SITC 74: Heating and cooling equipment, pumps, ball bearings, valves for pipes, and non-electrical machines.

SITC 75: Typewriters, photocopiers, and data processing machines.

SITC 76: Television receivers, radio receivers, and sound recorders.

SITC 77: Equipment for distributing electricity, electro-diagnostic apparatus, and semiconductors.

SITC 78: Automobiles, trucks, trailers, and motorcycles.

SITC 79: Railroad equipment, aircraft, ships, boats, and floating structures.

Figure 4: Skill Intensity of China's Manufacturing Exports

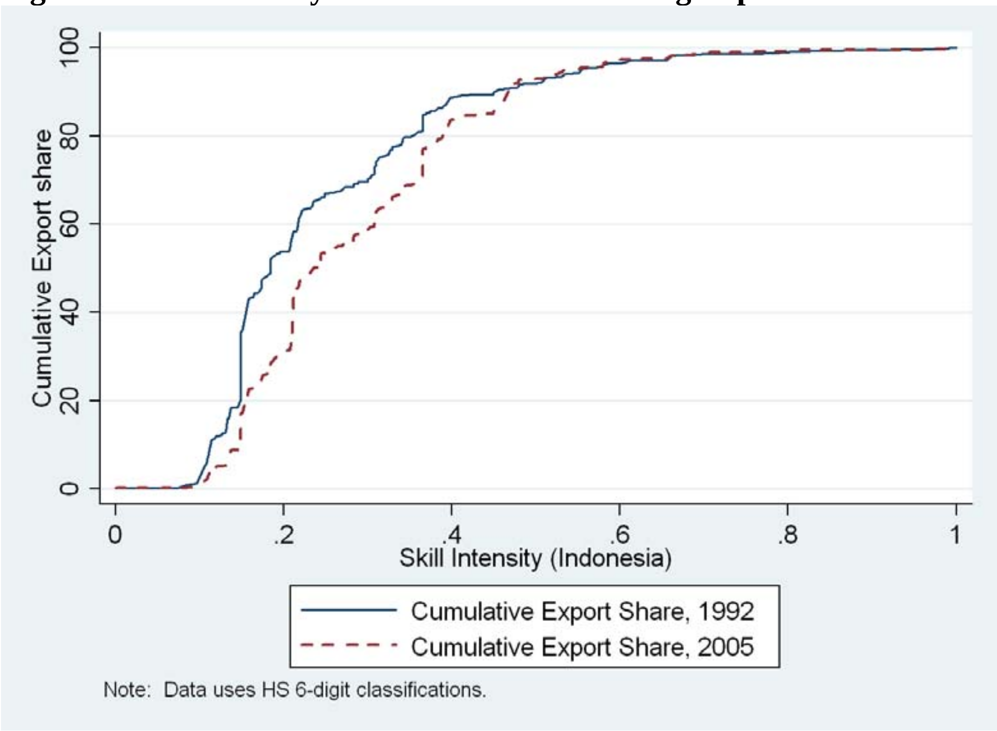


Figure 5: Skill Intensity of China's Manufacturing Exports Excluding Processing Trade

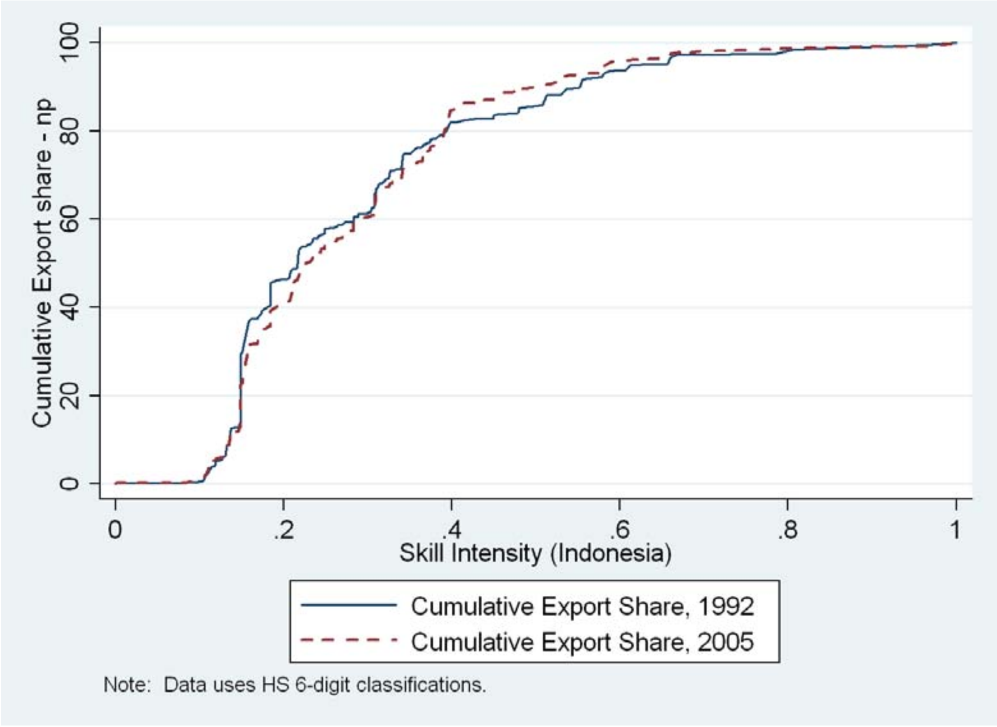


Figure 6: Cumulative Share of Exports by Rank

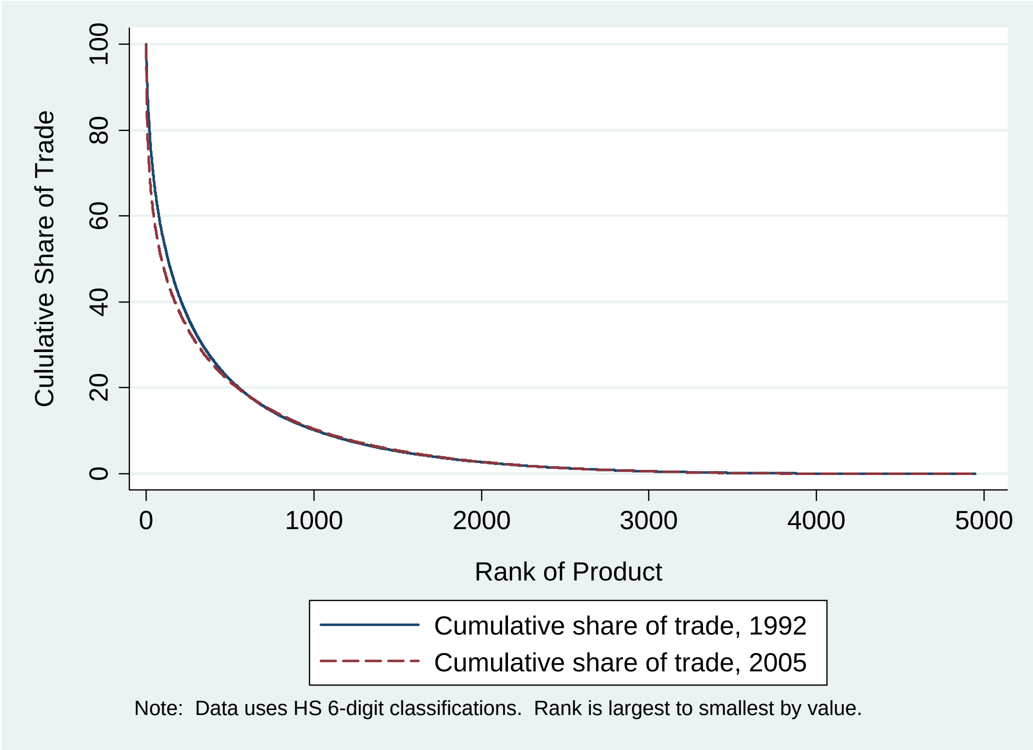


Figure 7: Cumulative Share of Exports by Rank, Top 500 Products

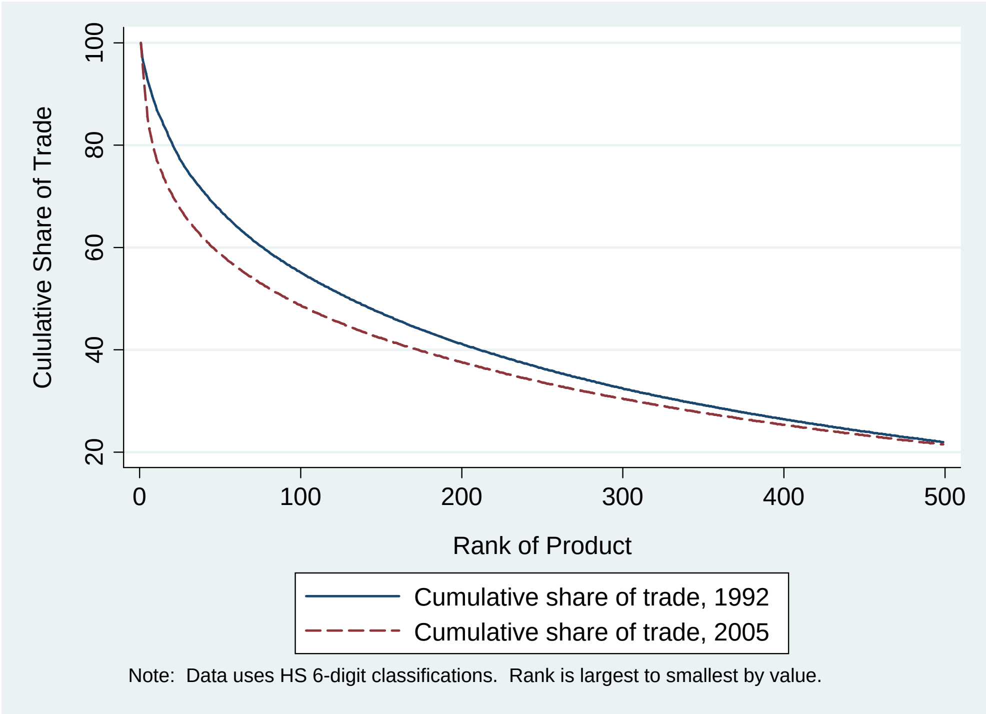


Figure 8: Reallocation of Exports By Value

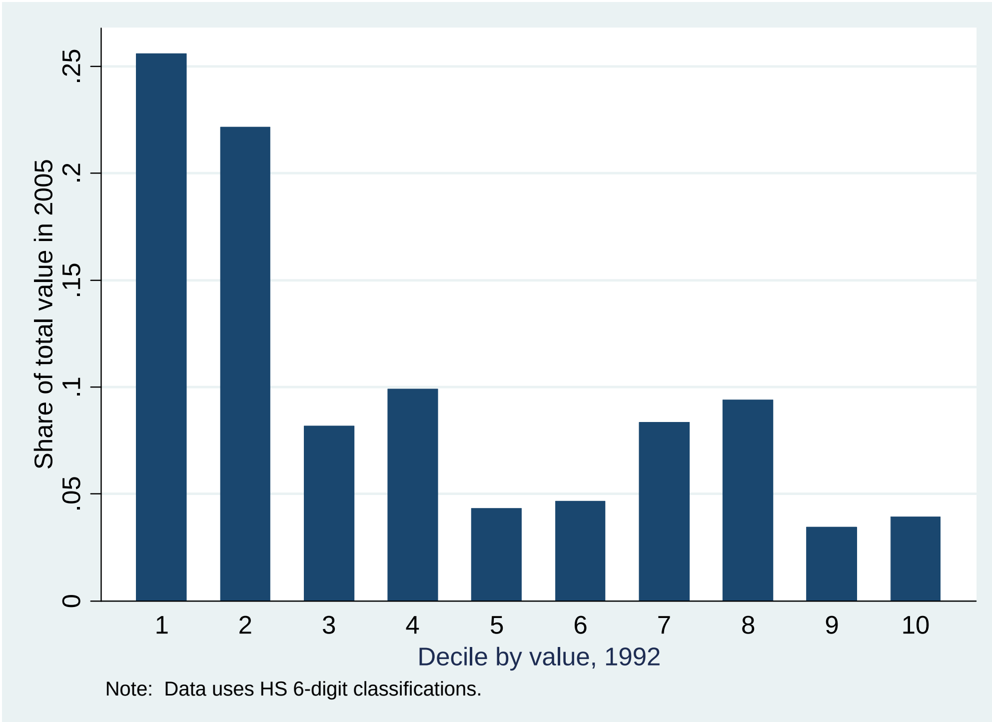


Figure 9: Reallocation of Exports by Product Shares

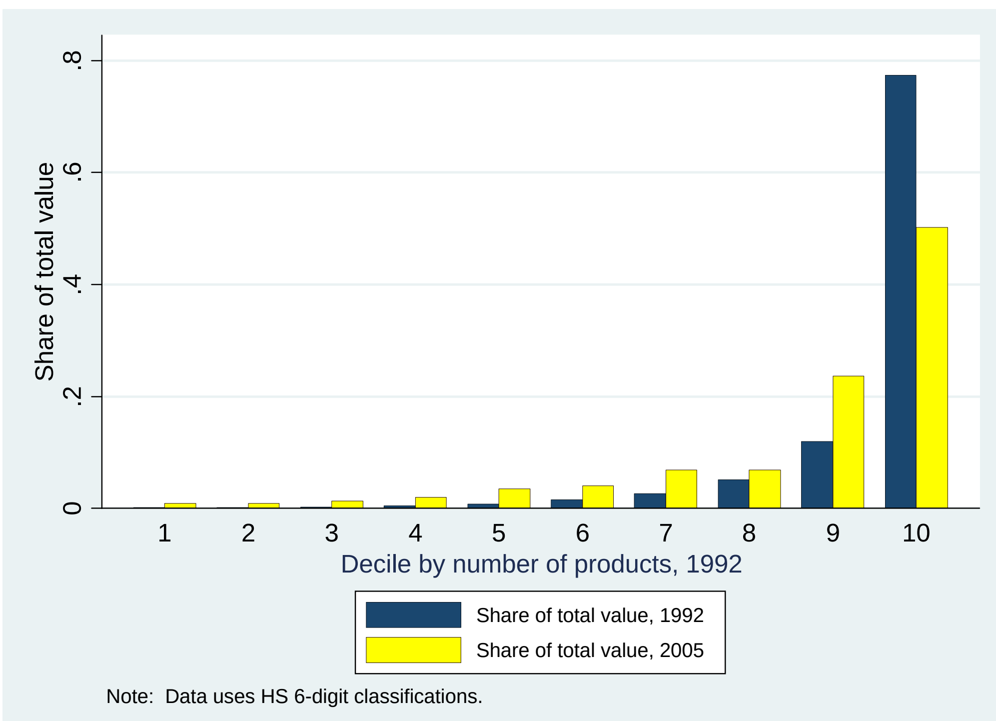
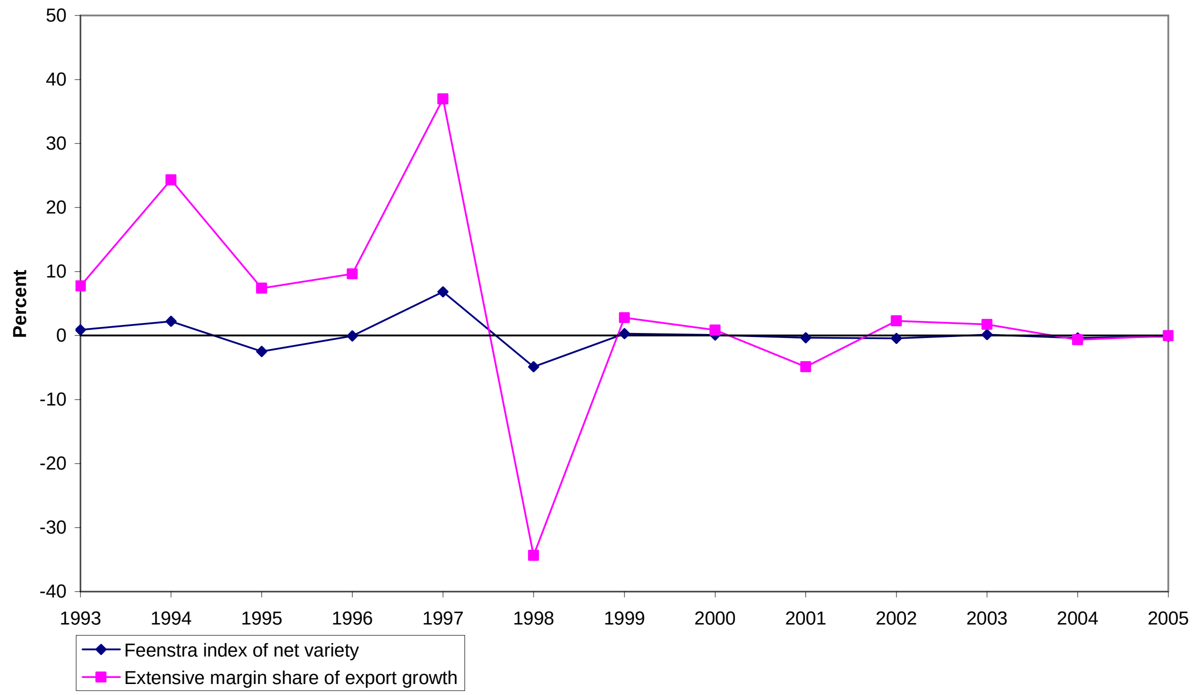


Figure 10: Growth in Extensive Margin of US Imports from China, 1992-2005



Note: HS 10-digit US imports from China.