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The New England-China Relationship in 2005

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Abstract:

This essay provides an overview of current trade patterns between New England and China. It was prepared for a symposium sponsored by The Boston Athenaeum comparing New England's present-day trade with China to the region's prominence in the U.S.-China trade of the 19th century. The essay concludes that a special trade relationship between New England and China does not exist at the present time. Although New England's exports to China are growing rapidly, they are not growing markedly faster than exports from the rest of the country, and China does not account for an unusually large fraction of New England's exports. Moreover, there is some indication that New England has felt the brunt of competition from Chinese imports more strongly than other regions. In one arena, New England does hold a special position: New England universities are highly regarded in China, and the region's share of Chinese students is above its population share—although in line with its share of foreign students generally.

Keywords: trade, China, New England, foreign students
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The news is full of stories about China. The stories are a mix of anxiety about import competition and China's rising economic power, optimism about the business opportunities that China presents, and skepticism about whether China's growth is sustainable and warrants all this attention. Yes, China is growing very rapidly but it faces social and environmental problems that could prove crippling. Yes, China is shifting from exporting toys and apparel to more information technology equipment, but it still produces only the lower technology types. Yes, China has millions of engineers, but it has hundreds of millions of agricultural laborers.

The tone is different from that in the articles about Japan in 1980s. Japan was both feared and admired. Many books were written about "Japan as No.1," and Japanese business practices were widely emulated. While some people talk about China's potential to challenge the United States, others are highly skeptical. Or they were skeptical until quite recently. Of late, the balance seems to be shifting, and the anxiety level seems to have risen. And there is no hint that we have anything to learn from China. Competitiveness is generally attributed to low labor costs, disregard for western environmental and other standards, and China's vast population.

New England, like rest of the country, has been affected by the emergence of China as a world player. Anecdotally, more and more New England businesses say they are establishing relationships in China. More and more seminars about doing business in China are being offered by New England trade associations and consultants. Data on New England's exports confirm China's growing significance.

This essay provides an overview of current trade patterns between New England and China. It was prepared for a symposium sponsored by The Boston Athenaeum

comparing New England's present-day trade with China to the region's prominence in the U.S.-China trade of the 19th century. After briefly reviewing China's growth over the past twenty-years, the essay examines China's trade relationship with the United States. Impediments to U.S. exports to China are discussed. It then looks at New England's relations with China, including the attraction that New England universities hold for Chinese students. Conclusions and commentary follow.

Although New England's exports to China are growing rapidly, they are not growing markedly faster than exports from the rest of the country, and China does not account for an unusually large fraction of New England's exports. Moreover, there is some indication that New England has felt the brunt of competition from Chinese imports more strongly than other regions. New England universities are highly regarded in China, and the region's share of Chinese students is above its population share – although in line with its share of foreign students generally. All in all, a special relationship between New England and China does not exist at the present time.

Background

The emergence of China as a significant economic power in the modern world dates from 1978, when Deng Xiaoping began to dismantle the stultifying economic policies of his predecessor, Mao Zedong. Growth has been very rapid, albeit volatile, ever since (Figure 1), with real GDP increasing an average of 9 percent per year from 1980 to 2004 and real GDP per capita increasing almost 8 percent.[1] China's GDP has grown from about 6 percent of U.S. GDP in 1980 to 13 percent in 2003 in terms of official currencies; but in purchasing power parity (PPP) terms, which are commonly used to compare standards of living, China's GDP increased from 13 percent of the U.S.

figure in 1980 to 59 percent in 2003.[2] (All numbers refer to the People's Republic of China (PRC) and do not include Hong Kong. Since 1997, Hong Kong has been a Special Administrative Region of China; for the previous 150 years, it was a British colony. Hong Kong retains a high degree of independence, except in the areas of foreign affairs and defense. Hong Kong operates as a distinct economic entity and is treated as such in this essay. Taiwan, which functions as an independent country, although the PRC claims it is part of China, is also treated as a separate entity.)

As China has grown, it has become more open to the world. Both imports and exports have grown relative to GDP, from less than 10 percent in the early 1980s to less than 20 percent in the early 1990s, to 40 percent today (Figure 3). As recently as the early 1990s, merchandise trade volumes were roughly comparable to those in one of its much smaller neighbors – South Korea, Singapore, and Taiwan – and about one-fifth the size of exports and imports in Japan. Since then – and particularly since 1999 – China's trade and its impact on the world economy have ballooned. The total of goods exports and imports in 2003 was roughly comparable to that of Japan.[3] Only Germany and the United States are larger players in world markets. And for certain products, China rivals the United States as a buyer in global markets. China's rapidly growing demand, together with economic recovery in the United States, is generally blamed for sharp increases in commodity prices in 2003 and 2004.

China-U.S. Trade

The United States is very important to China as an export market, accounting for over 20 percent of China's merchandise exports in 2003. It is far less important as a

supplier, accounting for just 8 percent of China's merchandise imports (Hufbauer and Wong, 2004.). Looking at trade from a U.S. perspective, China accounted for 12 percent of U.S. merchandise imports in 2003, ahead of Mexico and Japan and behind only Canada. But only 4 percent of U.S. merchandise exports went to China (*Survey of Current Business*, July 2004.) In 1995, China accounted for 6 percent of U.S. imports and 2 percent of U.S. exports.

Including services would not change the picture very much. U.S. trade in services with China is small, although growing rapidly. In 2003, U.S. services exports to China were estimated to be $7 billion versus imports of $5 billion.[4] This compares with goods exports of $28 billion and imports of $152 billion in that year. (The U.S. estimate of its bi-lateral trade deficit with China is considerably larger than China's estimate of its surplus with the United States. One reason for the disparity is that some Chinese goods are transshipped through Hong Kong and U.S. statistics attribute the value added in Hong Kong to China. In addition, U.S. trade figures, like those of most countries, include insurance and freight costs in the cost of imports, but not in the value of goods exported. Taking all this into account, however, still leaves the United States with a very large merchandise trade deficit with China – $110 billion in 2003 rather than $124 billion, according to researchers at the Federal Reserve Board.[5])

China's Imports from Asia

Although China runs a very large bi-lateral trade surplus with the United States, its surplus with the world as whole is considerably smaller (Figure 3), and it has been running deficits with most of its Asian neighbors.[6] China's purchases from other Asian

countries are varied – foodstuffs and raw materials, intermediate goods to be assembled and often re-exported, investment goods to build new capacity, and consumer products for China's newly affluent.

This deficit with other Asian countries prompts the question: Why is China buying so much from its neighbors and not more from the United States? Superficially, it would appear that China buys many products from its Asian neighbors that it could buy from the United States. For example, electrical machinery, machinery, chemicals, and instruments are all U.S. specialties; and all are major Chinese imports from Japan and Korea.

Part of the explanation is that a large portion of China's imports from the more advanced Asian countries represents components and materials that are processed for export. Businesses based in Hong Kong, Taiwan, Japan, and South Korea have all invested heavily in China in order to take advantage of China's low labor costs and increase their competitiveness in world markets, including and, most especially, the United States. Investors from Hong Kong were especially important when China first began to open up to world markets, and Hong Kong remains the largest source of foreign direct investment in China. In many cases, these Hong Kong investors had family ties to the mainland. The same is true of Taiwan.

Globally oriented businesses owned by investors from other Asian countries account for a large fraction of China's imports from these countries. Components are imported from the home country, assembled and then exported to third countries. To a significant degree, production in China has substituted for production in other Asian countries, and exports from China to the United States have displaced what probably

would have been increasing exports from these countries to the United States. Between 1999 and 2004, exports to the United States from Hong Kong, Taiwan, Singapore, and Japan were essentially unchanged, whereas they had increased 14 percent over the previous five years and 24 percent over the preceding five.[7] Korea is an exception. Korean exports to the United States have continued to grow rapidly, even as Korean firms invest in China. However, the composition of Korea's exports to the United State is shifting away from products that compete head-on with China's U.S. exports. Korea is selling more telecommunications equipment and motor vehicles in the United States and less office equipment; meanwhile, Korean firms build plants to produce office equipment in China, and China's exports of office equipment to the United States increase.

But the rest of Asia is also selling to China's domestic market. China buys resource-based products, such as rubber and rice from Thailand, oil from Indonesia, and steel from Japan and Korea.[8] The more advanced Asian countries also supply machinery, power plants, and high technology equipment to build China's production capacity, as well as automobiles, cameras, and games to meet the demands of growing numbers of more affluent consumers.

The physical proximity of Hong Kong, Taiwan, Japan, and South Korea is undoubtedly an advantage in exporting to China. Even more important are familial and cultural ties. China's neighbors are more knowledgeable about Chinese ways of doing business, more fluent in its languages, and probably more willing to spend significant time in China developing business and political contacts. Particularly in the case of Hong Kong and Taiwan, longstanding ties of family and friendship have often laid the

foundation for business relationships and help to ensure that contractual agreements will be honored.

Impediments to U.S. Exports

Many U.S. analysts also believe that the dollar-yuan exchange rate is a serious impediment to U.S. exports. They believe that the Chinese currency has been seriously undervalued relative to the dollar, making U.S. products more costly and uncompetitive. From 1995 to 2005, the Chinese government effectively pegged the yuan (the unit of account) to the dollar[9] On July 21, 2005 China responded to U.S. calls to revalue by increasing the value of yuan relative to the dollar by 2 percent and by announcing that henceforth the yuan would be tied to a basket of currencies, rather than the U.S. dollar alone. U.S. authorities and commentators welcomed the change as a step towards greater flexibility; however, the magnitude of the increase was much smaller than U.S. manufacturers had sought.[10]

Although the combination of China's huge bilateral trade surplus with the United States and substantial private capital inflows into China suggests that the yuan has been undervalued, not everyone shares this view. China did not run a large overall surplus until recently and some of the recent capital inflows are thought to be speculative flows, made in anticipation of a revaluation.[11] Different approaches to modeling China's exchange rate come to different conclusions as to its equilibrium value.[12] A critical issue in the analysis is whether China maintains its controls on capital flows. China has a very high personal savings rate. Currently, restrictions on capital outflows bottle up most of these savings in China. But if China were to relax its capital controls while also allowing its

currency to float freely, the outcome could be capital outflows and a possible decline in the value of the yuan.

Large capital outflows would be damaging to China's banks, which are already seriously impaired – some would say insolvent – because of an accumulation of bad loans on their balance sheets.[13] On the other hand, a substantial increase in the value of the yuan could also be troublesome for the banks. Not only might a revaluation adversely affect the competitive position of some banking customers, but a substantial revaluation would undermine one of China's options for strengthening the banks. China has already taken a number of steps to strengthen the banks, including using some of its dollar foreign exchange reserves to increase bank capital and close the gap between assets and liabilities. Some knowledgeable observers believe that the government intends to apply more reserves to this purpose.[14] If the yuan were to appreciate relative to the dollar, the value of China's dollar reserves – and their potential contribution to bank capital – would decline in terms of the domestic currency.

Even a sizable appreciation of the yuan would likely leave China with a large trade surplus with the United States because China's costs of production are so low. Morris Goldstein, a Senior Fellow at the Institute for International Economics, estimated that an appreciation of 20 percent would have reduced the 2003 U.S. merchandise trade deficit with China by only $20 billion - from $124 billion to $104 billion.[15]

U.S. businesses are also very concerned about possible theft of intellectual property in their dealings with the Chinese; and this has probably been a deterrent to developing the relationships that would lead to export opportunities. Chinese authorities have made some response to international pressure to crack down on violations of

intellectual property rights; but according to Hufbauer and Wong, "China remains the principal exporter of counterfeit and pirated goods, both to the United States and the world."[16]

Hufbauer and Wong attribute poor enforcement of intellectual property rights to a "weak legal system, coupled with provincial corruption and favoritism for Chinese firms." But a more fundamental issue may be that theft of intellectual property is often not considered really wrong in the country doing the stealing. In New England, we celebrate the founding of the region's textile industry in the early 19th century by Francis Cabot Lowell, who re-created from memory the power looms he had seen in England and Scotland, despite British prohibitions on the export of this technology.[17] It has been suggested that Chinese enforcement of intellectual property rights will increase as Chinese firms develop more new products and acquire more intellectual property of their own.[18]

China's Asian neighbors also face the risk that their products will be copied and their technologies stolen; but at least in the case of ethnic Chinese investors, familial ties may provide some protection.[19] A further difference may be that, while China is an important market for the United States, the United States has other, even more important markets where it does not want to face the prospect of competing against Chinese counterfeits of its own products. China may also loom larger as a market for countries like South Korea, Taiwan and even Japan; and so they may conclude that the potential rewards outweigh the risks.

Additionally, U.S. government policy limits U.S. exports to China by restricting sales of weapons and certain highly sophisticated commercial products that could have

military applications. The United States does not want to contribute to China's military prowess, because China is seen as a potential rival and the United States might someday find itself in a military conflict, possibly over Taiwan. The United States is also concerned that China may re-export – or more likely, re-engineer and then export as its own design – dual-use products to Iran, North Korea, and other countries that the United States considers threats. Products of concern include nuclear technology, satellite technology, advanced semiconductor manufacturing equipment, and encryption technology.[20] Securing licenses to export dual-use products to China is time-consuming and burdensome. For many of these technologies, however, other suppliers exist; and these countries may not share U.S. security concerns.

U.S. security concerns have also meant that Chinese businesspeople planning to visit the United States can encounter difficulty acquiring visas. Even before intensified post- 9/11 restrictions, Chinese visitors were subjected to extra scrutiny for fear that they might share information with the Chinese military. Difficulties securing visas mean that some potential purchasers cannot attend trade shows in the United States, meet with potential suppliers, inspect equipment, or get training in its use.[21]

Composition of U.S. Exports to China

The composition of U.S. merchandise exports to China is broadly similar to U.S. exports worldwide, with some noteworthy differences (Figure 4). Computers and electronic products is the largest category of exports both to China and worldwide, accounting for over 20 percent of total exports. Chemicals, machinery, and transportation equipment are also large, each accounting for over 10 percent of exports to China and the world. However, transportation equipment represents a substantially larger share of

Investing in China

One hears a great deal in news accounts and casual conversations about U.S. firms investing in China. In some cases, the intent is said to be serving U.S. markets more cheaply; in other cases serving China's domestic market; and in still others, supplying customers who have re-located to China and whose markets could be in China, the United States, or third countries.

For all the talk, U.S. foreign direct investment (FDI) in China has not been all that great – at least not compared with what the United States invests in other countries. In 2003, the value of U.S. direct investment in China, on a historical cost basis, was $11.9 billion or about 0.7 percent of the value of its investment in all countries.* This compares with investment positions of $272 billion in the United Kingdom, $192 billion in Canada, $174 billion in the Netherlands, and $73 billion in Japan. U.S. investment in Hong Kong was a relatively substantial $44 billion and Hong Kong is a large investor in China; so it is possible that some U.S. investors are investing in China by way of Hong Kong. In terms of current capital outflows for direct investment, China accounted for 1.5 percent of U.S. outflows to all countries.** There has been no clear uptrend. Manufacturing accounted for 57 percent of U.S. investment in China, compared with just 21 percent of U.S. investment in all countries. The largest categories were computers and electronics products and transportation equipment.

China *is* the recipient of considerable FDI investment, although China's numbers are commonly believed to be inflated by the "round-tripping" of Chinese capital through Hong Kong and various tax havens.*** In 2004 China ranked second to the United States as a destination for FDI and accounted for roughly 10 percent of world FDI.**** In 2003, China actually surpassed the United States as a destination, although both Luxembourg and France ranked higher still. Hong Kong is the most important source of FDI to China by far. The United States ranked third as a source in 2003, accounting for about 9 percent of China's FDI.***** It was followed by South Korea, Taiwan, Japan and Singapore, which collectively accounted for 25 percent of FDI in China.

As discussed earlier, China's success in export markets owes much to the investments by its Asian neighbors. U.S. investments have historically been more oriented to industries serving the Chinese market, such as beverages and motor vehicles.

* Maria Borga and Daniel R. Yorgason, "Direct Investment Positions for 2003: Country and Industry Detail," U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, July 2004, Table 1.2

** Jeffrey H. Lowe, "U.S. Direct Investment Abroad, Detail for Historical-Cost Position and Related Capital and Income Flows, 2003," U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, September 2004, Table 16.

*** Louise de Rosario, "China's FDI merry-go-round," *fDi Magazine*, April 2, 2003. http://www.fdimagazine.com/news/fullstory.php/aid/215/China%92s_FDI_meery-go-round.html (Accessed July 19, 2005).

**** UNCTAD Press Release, "World FDI flows grew an estimated 6% in 2004, ending downturn", January 11, 2005. www.unctad.org (Accessed April 14, 2005)

***** Hong Kong was first by a wide margin; the Virgin Islands ranked second. "China Stats: 30 Years of CBR, 30 Years of Change," *The ChinaBusinessReview*, May-Jun 2004. http://www.chinabusinessreview.com/public/0405/chinastats.html (Accessed May 16, 2005) Round-tripping is thought to contribute to the prominence of the British Virgin Islands, as well as the Cayman Islands, which also ranks high as a source of investment funds.

world exports, since the world figures are buoyed by extensive U.S. trade in motor vehicles and parts with Canada and Mexico.

The most surprising differences are the relatively large shares of waste and resource products in U.S. exports to China. Waste paper and scrap metals made up 7 percent of U.S. exports to China, compared with less than 1 percent worldwide.[22] Crops and processed foods made up another 17 percent of exports to China, compared with 7 percent to the world. Soybeans and cotton are important exports to China.

The prominence of waste and agricultural products in our exports to China may actually fit U.S. comparative advantage. U.S. agriculture is very productive, and historically the United States has had a trade surplus in agricultural products. And

perhaps it should not be so surprising that the United States, a high-consuming, affluent nation, generates large quantities of waste paper and scrap metals that have greater value in China than they do recycled here. Nevertheless, this pattern seems inconsistent with the conventional wisdom that the U.S. advantage lies in high technology and other capital goods.

New England Exports to China

New England's exports to China have grown very rapidly in recent years; growth was particularly rapid in 2004 (Figure 5 and Table 1.) Even so, China accounted for only 3.6 percent of the region's exports in 2004. This compares with 4.2 percent of U.S. exports (Figure 6). Of the various regions of the country, the Pacific is the most engaged with China, with 7 percent of its exports going to China in 2004.

The composition of New England's exports to China is somewhat more oriented to computers and electronic equipment than exports nationally and less oriented to crop production and processed foods (Figure 7). Machinery is a sizable export category, as is waste and scrap. Although transportation equipment, largely in the form of aircraft engines and parts, is one of New England's larger exports worldwide, it does not figure prominently among New England's exports to China.

Among the New England states, Maine, New Hampshire and Massachusetts have the largest shares of exports going to China. Computers and electronic products are the largest export categories in New Hampshire and Massachusetts, whereas paper is most important in Maine and accounts for roughly two-thirds of that state's exports to China.

Connecticut's relatively low exports to China are consistent with the importance of aircraft engines and parts in the state's industrial mix and, as noted above, the relatively low value of New England's exports of transportation equipment to China.

The picture changes somewhat if exports are compared with overall state economic activity, measured here by gross state product (refer back to Table 1.)[23] Vermont is a very active exporter, given its small size; so focusing on China's share of total exports understates Vermont's engagement with China. Vermont also provides an illustration of how rapidly trade relationships with China are changing: Vermont's exports of computers and electronic equipment to China jumped from less than $9 million in 2003 to $55 million in 2004. Massachusetts exports of computers and electronic equipment also rose dramatically in 2004 – from $204 million to $350 million.

Import Competition from China

While China remains a relatively small export destination for New England, although one with considerable potential, New England manufacturers have felt significant competitive pressure from Chinese imports. Robert Scott (2005) of the Economic Policy Institute (EPI) recently produced a report estimating net job gains and losses from trade with China by industry and state.[24] Scott concludes that the net impact is negative and that the effect on New England is somewhat more adverse than on the country as a whole.

The EPI report looks at U.S. exports to China by industry and, using an input-output approach, estimates the jobs associated with those exports and their supplier industries. It then does the same for production displaced by imports. The report assumes that a dollar of imports from China displaces a dollar of domestic output. It allocates the

effect of imports according to the industry's presence in each state. The report ignores the possibility that Chinese imports may be displacing imports from other countries, such as Hong Kong, Taiwan, or even Mexico, and not U.S. domestic production.

The report also ignores the positive economic effects of low-priced imports on the competitiveness of U.S. businesses that use them as inputs and on the real incomes of U.S. consumers. Nor does it recognize the positive effect that increased competition may have on U.S. productivity. The report does acknowledge the role of macroeconomic policies in maintaining full employment; and it concedes that, in a full employment economy, trade deficits affect the distribution, not the number, of jobs, shifting production from manufacturing to non-traded sectors such as construction.

Given the EPI's approach and given the large U.S. trade deficit with China, it is not surprising that the report finds net job losses from trade with China. Over the 14 years from 1989 to 2003, Scott estimates these job losses at 1.5 percent of 2003 employment (or 0.1 percent per year.) While this picture may be overly bleak for the reasons noted, the analysis calls attention to the industries most likely to have been affected by competition from Chinese imports and to the states in which these industries are located. The report does not look at actual economic conditions in the states. Rather, it shows the potential for job displacement. Countervailing forces may have been at work; and to the degree that states did suffer losses in these industries, they may have adapted successfully.

Perhaps the EPI report's most valuable contribution is to highlight how China has moved up the technology ladder. The composition of U.S. imports from China has expanded from largely low-technology items to include increasingly sophisticated

products. Accordingly, even states known for their knowledge intensive economies appear potentially vulnerable to competition from China.

Most of New England fared poorly in the EPI analysis. The New England states had relatively large manufacturing sectors at the beginning of the period, with significant employment in industries where Chinese imports grew rapidly. In the EPI calculations, five of the New England states experienced greater job losses than the country as a whole. Maine actually ranked first among all states, with estimated job losses totaling 2.5 percent of total employment over the 14 year period. Rhode Island, New Hampshire, Massachusetts and Vermont all had slightly higher losses than the nation. Connecticut had smaller losses. (It should be noted that the EPI report estimated job losses through 2003. Estimates incorporating more recent developments would probably show different state rankings, as imports of Chinese textiles and apparel – products no longer prominent in New England - rose very rapidly as import quotas were phased down.[25])

Maine's ranking was primarily attributable to leather goods, which accounted for roughly two-thirds of EPI's estimated job losses in Maine. In fact, Maine's leather goods employment did fall sharply, from almost 12,000 in 1989 to 2,700 in 2003. This was about in line with the EPI estimate, but the actual losses occurred later than EPI estimated. Overall manufacturing employment actually fell substantially more than EPI's estimate of the losses attributable to Chinese imports. Total employment in Maine still increased, albeit more slowly than nationally. Thus, while it is plausible that imports from China contributed to the decline of Maine's leather goods industry, other forces were more important in shaping the state's overall economic fortunes.

Maine's vulnerability to imports of leather goods from China is consistent with the image of China as a source of labor-intensive, relatively low-skill manufactured products. Similarly, in Rhode Island, EPI estimated significant job losses from imports of miscellaneous manufacturing products, such as jewelry, toys and sporting goods. The picture was rather different for Massachusetts, New Hampshire and Vermont.

In Massachusetts, EPI estimated sizable job losses from Chinese imports in the early and mid-1990s not only in the relatively low-technology leather and miscellaneous manufacturing industries but also in electrical and electronic equipment, a high-technology industry. With the passage of time, the losses in electrical and electronic equipment increased and sizable losses were also estimated for computer equipment. New Hampshire and Vermont experienced losses throughout the period in electrical and electronic equipment.

The picture is one of a country that is moving up the technology ladder very rapidly. China's early exports to the United States were dominated by leather goods, miscellaneous manufacturing, apparel and other low-technology products. Increasingly, however, China is moving into high-technology products like computers, communications equipment, semiconductors, and audio and video equipment. In most cases, exports to the United States of low-tech products do not diminish; they continue to grow, but exports of higher-technology products grow even faster. Of course, within the high-technology categories, products vary considerably in their technical sophistication, and it is likely that the extent of head-on-head competition between the New England states and China is less than EPI estimates. Nevertheless, it does not fit with conventional

thinking about comparative advantage that China should have a large trade surplus with the United States in what are considered high-technology industries.

In this regard, the Census Bureau tracks U.S. trade in "advanced technology products." In 2004, the U.S. had total exports of $201 billion and imports of $238 billion.[26] Exports to China were $9 billion, imports from China were $46 billion; most imports were information and communication products. While running a sizeable deficit in "advanced technology products" with China, a developing country, the United States had surpluses, or at least balances, with many developed countries.

Aircraft and chemicals are among the only manufacturing industries where China does not have a large trade surplus with the United States. Both are important to Connecticut, helping to explain why that state fares comparatively well in the EPI analysis.

Chinese Students

In one arena, New England does have a special relationship with China. Elite New England research universities are very highly regarded by the Chinese. In a ranking of the "Top 500 World Universities" by the Institute of Higher Education at Shanghai Jiao Tong University, Harvard ranked first, with MIT fifth and Yale eleventh.[27] Boston University, Brown, and Tufts also ranked in the top 100. The top Chinese university was in the next 100. Not surprisingly, many Chinese know of Harvard. The author heard one Massachusetts businessman comment that, on a recent trip to China, he met very few Chinese who had heard of Massachusetts or Boston. But they did know Harvard. He ended up identifying where he came from as "the place where Harvard is located."

The number of Chinese coming to study in the United States rose from about 14,000 in 1985-86 to 40,000 in 1995-96 to almost 65,000 in 2002-03. The following year, the number of Chinese students fell to 61,765.[28] China accounts for about 11 percent of all foreign students in the United States and ranks second to India as a source of foreign students. Over 80 percent of Chinese students are in graduate programs.

In 2003-04, New England had 4,900 students from China at its colleges and universities, or about 8 percent of all Chinese students in the United States. This was roughly comparable to New England's share of all foreign students in the United States and slightly higher than New England's share of all students, domestic and foreign, enrolled in professional and graduate programs (7.6 percent in 2001). It was well above the region's share of all student enrollments and its population share (both about 5 percent.)[29]

Almost 60 percent of the Chinese students in New England are in Massachusetts. This is more than Massachusetts' share of the regional population, but on par with its share of the region's professional and graduate students. Another 25 percent were in Connecticut, consistent with Connecticut's population share and more than its share of graduate enrollments. Table 2 shows the New England universities that have the largest numbers of foreign students. China accounts for 11 percent of foreign students in New England; so presumably this fraction would apply, on average, to the institutions shown in the table. In the case of Harvard and MIT, calls to the universities established that Harvard had about 350 students from China in 2003-04, making up 1.8 percent of all students, and MIT had 320, or 2.9 percent of all students. Thus, students from China

make up a noticeable fraction of the region's student population, but the numbers are not absolutely large.

A number of educators and commentators have expressed concern that the recent decline in foreign enrollments may indicate that U.S. institutions are losing their appeal for foreign students. Real and perceived difficulties securing visas in the post- 9/11 world are thought to be a deterrent to foreign students coming to the United States. At the same time, other countries are courting students. England, Australia, New Zealand, and Canada are all said to be competing more aggressively for students, particularly from the Asian countries. In addition, universities in China have risen in stature and are being seen as more acceptable alternatives for students who might otherwise have looked to the United States.[30] In this regard, Chinese universities are seeking to recruit Chinese with advanced degrees from U.S. institutions back to teach at home.

Historically, most Chinese who studied in the United States wanted to stay after receiving their degrees.[31] China's recent economic gains, however, mean that opportunities in China are more promising than before; so more students may consider returning after completing their U.S. studies. A countervailing force is that China's increasing prosperity means that more Chinese possess the means to study abroad, and U.S. elite institutions will likely continue to be a draw.

The growth – until recently – in the number of Chinese studying in the United States and the tendency of Chinese students to stay in this country after graduation helps to explain the rapid growth in the number of Chinese immigrants.[32] Between 1990 and 2000, the number of Chinese immigrants in New England doubled. Nationally, growth was almost as fast. New England's share of Chinese immigrant adults, at 5½ percent, is

slightly larger than its share of the U.S. population. Despite the rapid growth, however, Chinese immigrants still account for only ½ percent of New England's adult population.

A very high proportion of Chinese immigrants have advanced degrees. About 30 percent of the adult Chinese in New England have an advanced degree compared with just 11 percent of native-born New Englanders (Figure 8). The difference is particularly striking for doctoral degrees; 11 percent of Chinese have doctoral degrees, compared with 1 percent of the native-born. Thus, the Chinese contribution to the region's intellectual capital outweighs their numbers. At the same time, Chinese immigrants are less likely to have completed high school: about 30 percent of the Chinese immigrants in New England have not completed high school compared with 14 percent of native-born adults.

Conclusion and Commentary

China has suddenly blossomed on the world economic scene. Its rise has been dramatic and seems to have caught the United States off-balance. Rapid economic growth over the past 25 years has transformed China from a country with a vast population but an insignificant economic weight to a Goliath, whose demands have contributed to higher commodity prices around the world and whose productive capacity has driven down prices for many consumer and business products.

The United States has taken advantage of China's increasing economic capabilities by buying her products. China has displaced other developing countries as the primary supplier of labor-intensive products. In the case of its Asian neighbors, this displacement is attributable, at least in part, to the efforts of companies in Hong Kong, Taiwan, and Korea to maintain a competitive edge in world markets by taking advantage

of China's labor resources. While U.S. consumers have benefited from lower-cost products and many U.S. businesses have benefited from lower-cost inputs, U.S. producers of apparel, footwear, toys, and other labor-intensive manufactured products have come under intense competition from China. Moreover, increasingly, manufacturers of computer and communication equipment and other goods that have been classified as high-technology products, even if they are on the lower end of the high-technology scale, have found themselves facing pressure from Chinese imports.

Nor does it seem that U.S. producers have taken full advantage of the opportunities in China. China buys what U.S. companies produce – but primarily from other sources. Until recently, China's total imports were roughly equal to its exports. Key suppliers were its Asian neighbors. Of course, businesses in other Asian countries have been building production capacity in China to supply global markets, and a substantial portion of China's imports from these countries represents parts and materials to be processed into exports. But Asia is also supplying the capital goods that are helping to turn China into an economic powerhouse – the industrial, telecommunications and power generation equipment, the computers, and the instruments that the United States considers to be its own comparative advantage.

U.S. sales of high-technology products to China are growing rapidly, but other countries are more active. And a significant fraction of U.S. sales to China consist of resource-based products, such as soybeans, cotton and forest products – not what one might expect from the world's technology leader. Waste products – paper and scrap steel – are also sizable U.S. exports to China. In advanced-technology products, the United States runs a large trade deficit with China.

New England does not have a special relationship with China, except that Chinese students, like students around the world, are drawn to New England universities. New England's exports to China are rising rapidly, but they are not particularly large compared with other regions' exports. On the import side, New England producers appear to have been somewhat more adversely impacted by competition from Chinese imports than producers in other regions.

On the other hand, New England could develop a stronger relationship in the future. For all the talk in this country about China, the United States is just starting to wake up to what is happening – just starting to recognize the opportunities and the challenges China represents. China is, indeed, a very large market, with a growing demand for many of the products that New England sells. Indeed, China's willingness to buy may be greater than our willingness to sell. The U.S. federal government restricts sales of many high-technology products. And U.S. producers have been either unwilling or unable to do what some of our Japanese and Korean competitors are doing to break into the Chinese market. As more and more U.S. companies are successful, however, others will likely follow their lead.

As a small, technologically sophisticated region, New England's real significance in U.S.-China relations may lie more in its potential to contribute to maintaining U.S. technological and economic leadership than in its direct contribution to reducing the trade deficit. While public attention focuses on our lop-sided trade balance with China and the number of jobs lost to import competition, the more fundamental issue is the rise of a new economic power and the implications of this ascent.

A new economic power could be a very positive development for the world. Not only will the Chinese people gain from their country's economic advance, but the increased competition posed by China could foster productivity gains and higher standards of living around the world. The rise of Japan was a spur to innovation and increased efficiency in the United States during the 1980s, although it was painful for the industries facing Japan's challenge. The emergence of the United States as an economic super power in the 19th century was accompanied by advances in living standards in many countries, including the countries that it displaced at the top of the economic hierarchy. The U.S. advance gave rise to new technologies and production techniques that were adopted around the world.[33]

At the same time, few of us are so altruistic that we are comfortable seeing our relative economic position slip – even if our absolute well-being increases. In addition, economic power brings political influence, and most of us in the United States view our influence as more benevolent than China's is now – or is likely to be in the future.

China will continue to make rapid economic strides. Its technological sophistication is fast increasing, and other countries, such as Japan and Korea are racing to keep ahead. The United States should strive to maintain its lead as well. Historically, New England has played an important role in our country's major technological advances. We possess some of the world's finest research institutions. And we have demonstrated an ability to turn research results into commercially valuable products. So, New England may play an important role in the future in helping the United States stay on top, as China moves rapidly up the technological ladder.

[1] Calculated from data in the World Development Indicators (WDI) database, The World Bank, accessed July 14, 2005.
[2] Calculated from data in the World Development Indicators (WDI) database, The World Bank, accessed July 14, 2005. Because China's population is so vast, per capita GDP on a PPP basis was still only 13 percent of that in the United States in 2003. PPP exchange rates are based on the relative values of a representative basket of the same goods and services calculated in local currencies. The basket includes both non-traded and traded items. PPP comparisons are considered better indicators of the "economic strength and well-being" of different countries than comparisons based on market exchange rates, according to the description of GDP methodology in the notes and definitions of the CIA's *The World Factbook* (http://www.cia.gov/cia/publications/factbook/docs/notesanddefs.html. Accessed August 2, 2005).
[3] Based on data in the WDI database. If services are included China was clearly behind Japan in 2003.
[4] Hufbauer and Wong (2004) Table 2a, p.4
[5] Schindler and Beckett (2005) Table 9, p.32 The adjustments that Schindler and Beckett make for transshipment and the inclusion of insurance and freight in import costs reduce but do not eliminate the discrepancy between the U.S. and Chinese estimates of the trade deficit.
[6] In 2003, China ran merchandise trade deficits with Japan and all of developing Asia. Within developing Asia, China ran large deficits with Korea and Taiwan and smaller deficits with many other countries, but it had a very large surplus with Hong Kong. Source: International Monetary Fund, *Direction of Trade Statistics*, March 2005, pp. 94-95. The trade figures for Taiwan are missing from the 2005 *Direction of Trade Statistics*, but the balance can be inferred from the totals and earlier volumes that included data on Taiwan.
[7] These are nominal figures. Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, July 2004 and BEA International Economic Accounts Data, www.bea.gov/bea/international/bp , accessed April 29, 2005.
[8] Peter S. Goodman, "Made in China – with neighbors' imports," *Washington Post*, February 5, 2004, through Asian Labour News, February 6, 2004, www.asiaonlabour.org/archives/000782.php, accessed April 29, 2005
[9] According to Wang (2004) "China has officially had a managed floating exchange rate system although the currency has been de facto fixed to the U.S. dollar since 1995" (p.21).
[10] The National Association of Manufacturers had others had claimed the yuan was undervalued by 40 percent Hufbaurer and Wong (2004), p.6.
[11] Hufbaurer and Wong (2004), p.6
[12] Hufbauer and Wong (2004) report others' estimates of the degree of undervaluation, which range from 10 to 15 percent to 40 percent (p. 8). Wang (2004) shows that modeling approaches that focus on the saving-investment balance could lead to the conclusion that the renminbi is overvalued or undervalued. (p.25)
[13] According to IMF figures, China's banks had nonperforming loans amounting to 18 percent of total loans in 2003. Source: IMF *Global Financial Stability Report*, April 2005. http://www.imf.org/external/pubs/ft/gfsr/2005/01/pdf/statppx.pdf. (Accessed July 19, 2005.) Various private organizations and economists have estimated that nonperforming loans are even larger; estimates of 40 percent of total loans are commonly mentioned. See, for example, the article by Bruce Einhorn in *BusinessWeek Online*, January 12, 2004. http://www.businessweek.com/bwdaily/dnflash/jan2004/nf20040112_6778_db010.htm (Accessed July 13, 2005). Many of these bad loans were made to state-owned enterprises, which are still very important employers in China and which historically performed many social functions in addition to fulfilling their production responsibilities. China's banks also lack experience in evaluating credit quality and they face conflicting incentives.
[14] James Brooke and Keith Bradsher, "Dollar's Fall Tests Nerve of Asia's Central Bankers," *The New York Times*, December 4, 2004. http://www.nytimes.com/2004/12/04/business/worldbusiness/04banker.htm. (Accessed December 6, 2004.)
[15] As reported in Hufbauer and Wong (2004), Box 3, p.11.
[16] Hufbauer and Wong, (2004) p. 23.

[17] See the website of the Federal Reserve Bank of Boston's New England Economic Adventure (http://www.economicadventure.org) for a brief summary of the story of Francis Cabot Lowell.
[18] This point was made by Allan A. Ryan, Jr., Esq. in his presentation at the symposium on The New England-China Trade – Then & Now. Mr. Ryan has experience protecting the intellectual property of the Harvard Business School.
[19] Taube and Ogutcu (2002),p. 13
[20] See the address by Kenneth I. Juster, Under-Secretary of Commerce for Industry and Security, at the U.S.-Taiwan Business Council and the Fabless Semiconductor Association Conference on "Taiwan and China Semiconductor Industry Outlook-2003" on September 15, 2003 for a discussion of export controls as they relate to China. www.bxa.doc.gov/News/2003/taiwankeynote.htm (Accessed May 4, 2005)
[21] Andrew C. Schneider, Kiplinger Business Forecasts, "Visa Delays to Continue for Business" December 3, 2004. http://www.compassweb.com/cob/kiplinger/200412/visa_delays.html (Accessed May 4, 2005)
[22] China accounted for 30 percent of U.S. exports of waste and scrap, compared to 4 percent of total exports.
[23] It is important to recognize that comparing exports to Gross State Product overstates exports' contribution to economic activity, since Gross State Product measures value added, whereas exports measure gross output.
[24] Scott (2005)
[25] Under the World Trade Organization (WTO) Agreement on Textiles and Clothing WTO-member countries phased out import quotas on these products in four stages, occurring in January of 1995, 1998, 2001 and 2005. With the elimination of quotas in January 2005, imports from China, which were already growing rapidly, surged. This surge caused the United States to impose new quotas on Chinese imports in May.
[26] U.S. Census Bureau, Foreign Trade Statistics, "U.S. Trade with World (Total) in Advanced Technology Products – Monthly and Cumalative Data," and the corresponding tables for China and other countries. http://www.census.gov/foreign-trade/statistics/product/atp/2003/12/ctryatp/atp0001.html (Accessed, January 14, 2005).
[27] Copyright @2004 Institute of Higher Education, Shanghai Jiao Tong University, http://ed.sjtu.edu.ch/rank/2004/top500 (Accessed December 28, 2004) The focus of the rankings was Nobel Laureates, winners of Fields Medals and citations. The criteria used were acknowledged to be biased against institutions specializing in the humanities and social sciences.
[28] U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2003*, Chapter 6: International Comparisons in Education, and the Institute of International Education, *Opendoors2004 Fast Facts*, (www.opendoors.iienetwork.org.) An additional 33,541 students from Taiwan and Hong Kong were studying in the United States in 2003/04.
[29] Shares of Chinese and foreign students are from the Institute of International Education's *Open Doors Report2004* and *Opendoors2004 Fast Facts*, as found on the IIE's web site (www.opendoors.iienetwork.org). Shares of student enrollments are from U.S. Department of Education, National Center for Education Statistics, *Disgest of Education Statistics, 2003*, Table 200 http://nces.ed.gov//programs/digest/do3/tables/dt200.asp (Accessed May 9, 2005.) These are for 2001. Population shares are from the U.S. Census Bureau, *Statistical Abstract of the United States 2004-2005*, Table 17; these are for 2003.
[30] See, for example, Fareed Zkaria, "Rejecting the Next Bill Gates," *Washington Post*, Tuesday, November 23, 2004, Page A29 www.washingtonpost.com/wp-dyn/articles/A6008-2004Nov22.html. (Accessed May 10, 2005.)
[31] According to The National Science Foundation as quoted by Richard Monastersky in "Is there a Science Crisis? Maybe Not" in *The Chronicle of Higher Education*, July 9, 2004, "76 percent of international students getting Ph.D.'s intend to stay in the United States now." http://chronicle.com/free/v50/i44/44a01001.htm (Accessed May 10, 2005). In an issue brief from July 1997, Beth Aronstamm Young and Yupin Bae, state that over 90 percent of doctoral students from PRC were likely to stay in the United States after graduation. This issue brief was published in *Open Doors 1997/1998*: Report on International Educational Exchange, 1998. Todd M. Davis, ed. New York: Institute of International Education. http://www.opendoorsweb.org/Lib%20Pages/For%20Studs/beth_young.htm (Accessed May 10, 2005)

[32] This discussion of immigrants and their educational attainment is from materials developed by Julia Reade, Policy Analyst at the Federal Reserve Bank of Boston, using data from the 5% IPUMS sample in the 2000 decennial Census.
[33] The American System of Manufacturers, involving interchangeable parts and the use of machines to make machines, led to substantial increases in productivity and lower production costs. Coupled with changes in the organization of production, these permitted the mass production approaches that dominated 20th century manufacturing in the developed world. See www.economicadventure.org.

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Table 1. Exports to China in 2004

	Annual rate of growth 1999-04 %	Share of World Exports %	Relative to 2003 GSP %	Memo: World Exports Relative to 2003 GSP %
United States	21.5	4.2	0.32	7.5
New England	24.6	3.6	0.23	6.4
Connecticut	25.6	2.4	0.12	5.0
Maine	25.7	4.6	0.27	5.9
Massachusetts	21.4	4.0	0.29	7.3
New Hampshire	36.0	4.5	0.21	4.7
Rhode Island	33.5	3.6	0.12	3.3
Vermont	67.9	2.5	0.40	15.9

Source: calculations based on data from TradeStats Express (http://tse.export.gov)

Table 2. New England Institutions with Largest Foreign Enrollments 2003/04

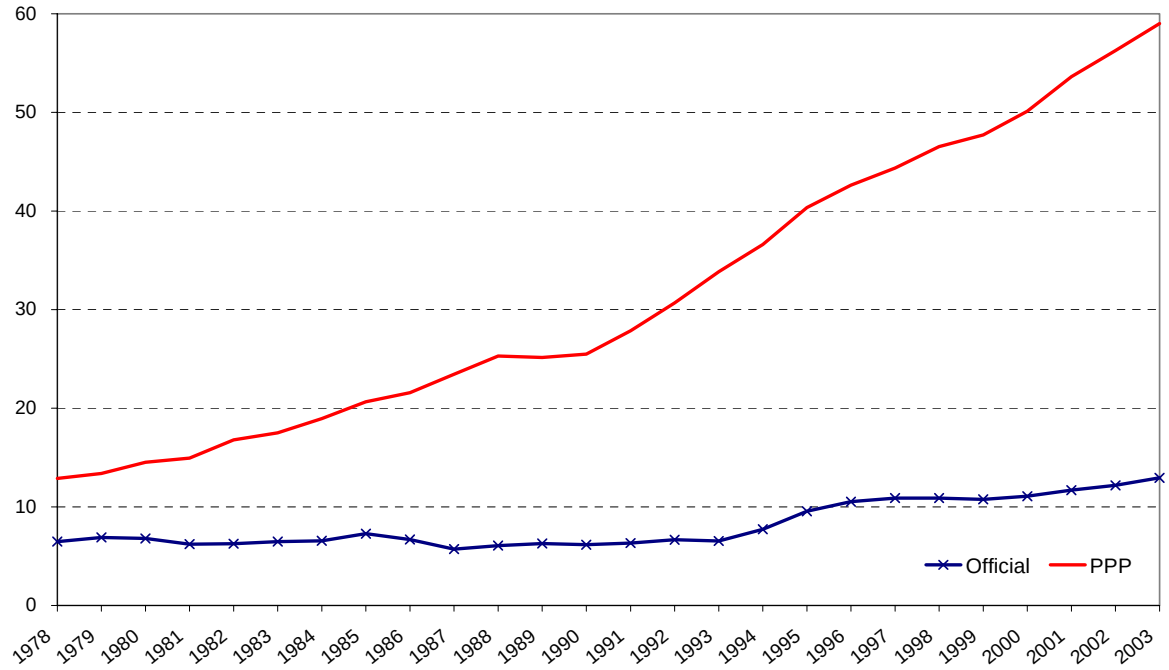
	No. of Foreign Students	Foreign Students/Enrollment 2003 (percent)
Boston University	4518	16
Harvard University	3403	14
Massachusetts Institute of Technology	2780	27
Northeastern University	2101	9
University of Connecticut - Storrs	1817	na
Yale University	1765	18
University of Massachusetts - Amherst	1602	7
University of Bridgewater	1208	44
Johnson & Wales	1138	7
Brown University	1111	13

Source: Number of foreign students from Institute of International Educations, Open Doors Report 2004
Foreign students' share of enrollment from New England Board of Education analysis of IIE data

Figure 1. Growth in Real GDP in China (constant 2000 US dollars)

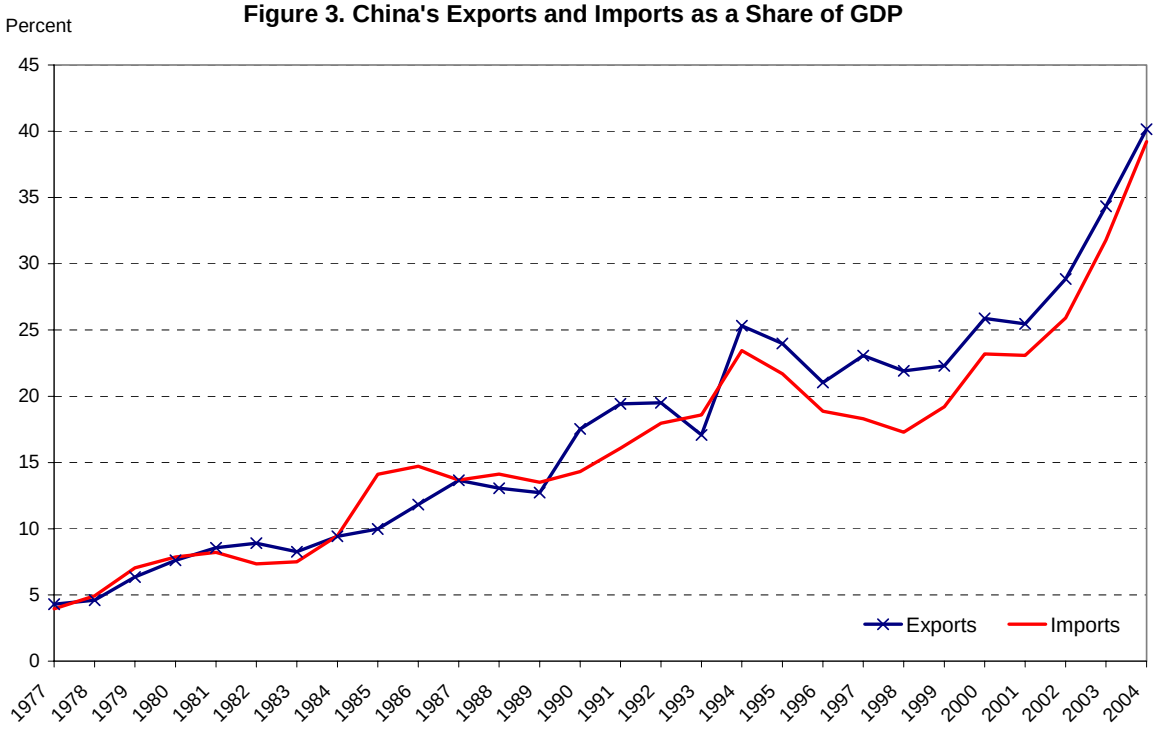
Source: World Development Indicators, The World Bank Group

Figure 2. China GDP as a Share of US GDP, in nominal dollars using official and PPP exchange rates



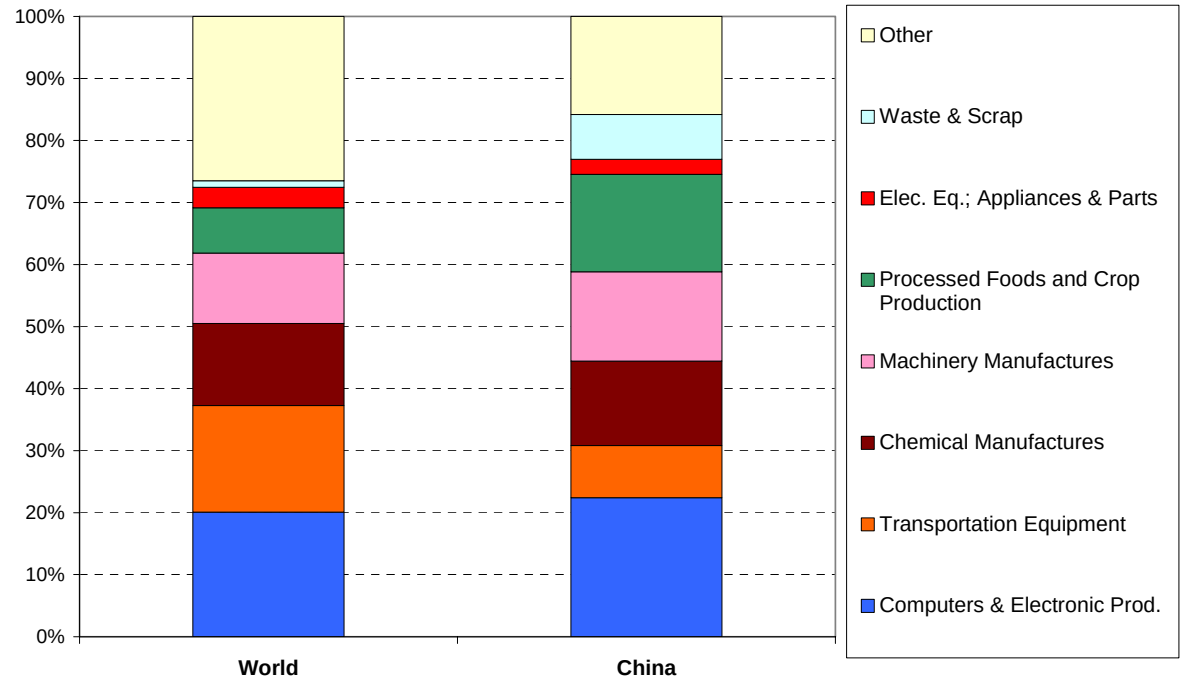
Source: World Development Indicators, The World Bank Group

Figure 3. China's Exports and Imports as a Share of GDP



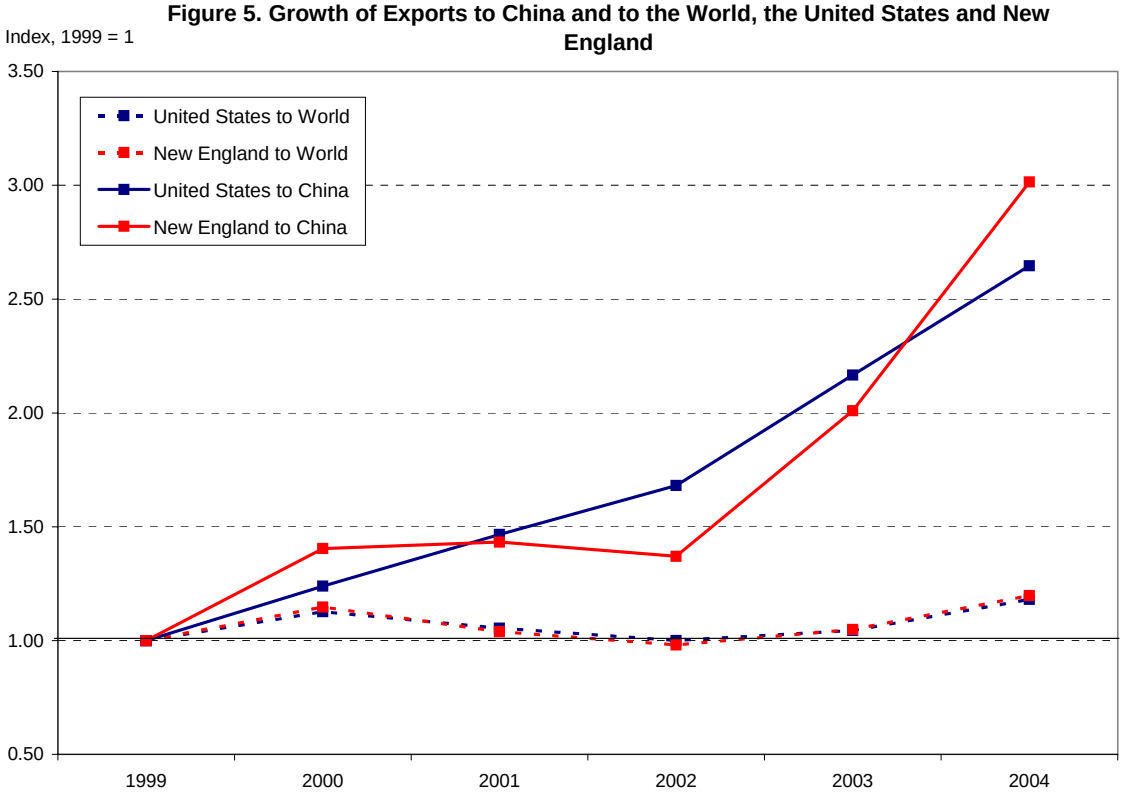
Source: World Development Indicators, The World Bank Group

Figure 4. Composition of US Exports to the World and to China, 2004



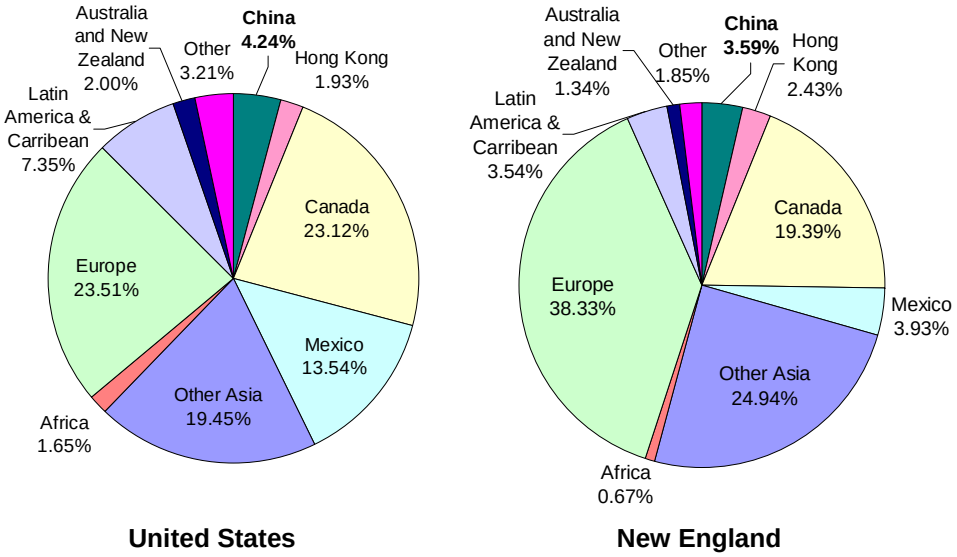
Source: International Trade Administration, U.S. Department of Commerce

Figure 5. Growth of Exports to China and to the World, the United States and New England



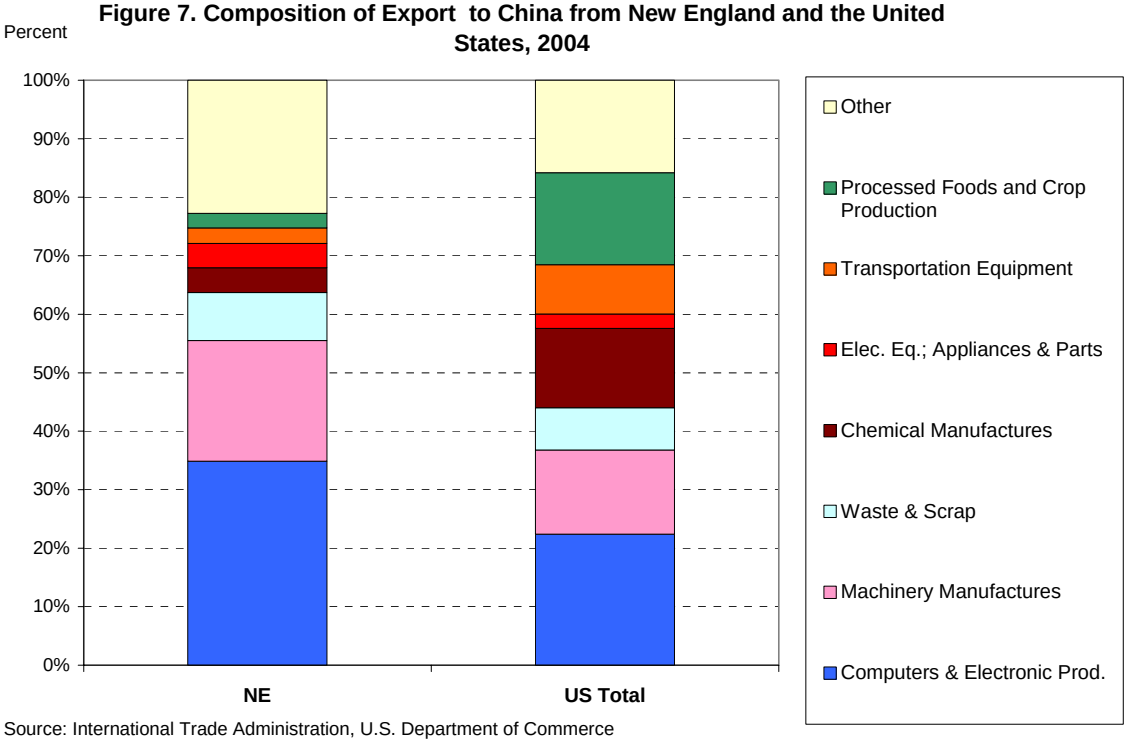
Source: International Trade Administration, U.S. Department of Commerce

Figure 6. Exports by Major Destination, the United States and New England, 2004



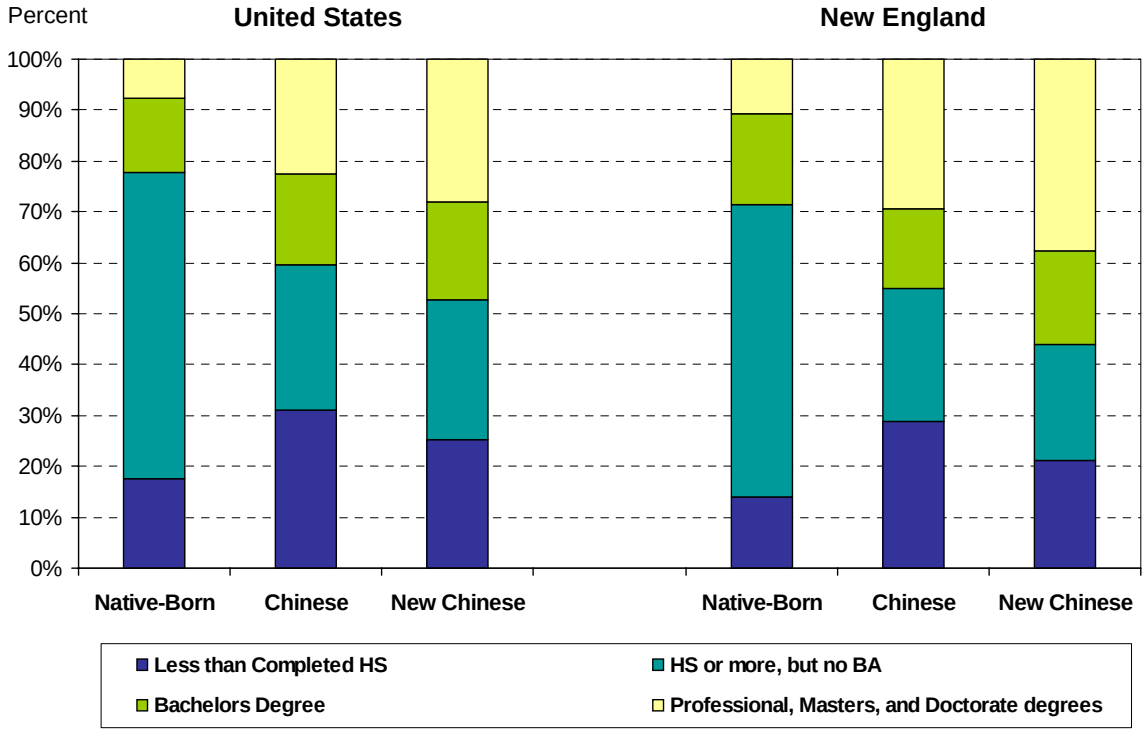
Source: International Trade Administration, U.S. Department of Commerce

Figure 7. Composition of Export to China from New England and the United States, 2004



Source: International Trade Administration, U.S. Department of Commerce

Figure 8. Highest Level of Completed Education of Native-Born and Chinese Immigrants (18 and over)



Source: Integrated Public Use Microdata Series, Minnesota Population Center, University of Minnesota