

# POLICY BRIEF

BROOKINGS

JANUARY 2011 | NO. 179

## Adjusting to China: A Challenge to the U.S. Manufacturing Sector

BY MARTIN NEIL BAILY



REUTERS

**D**uring an “exit interview” with the *Wall Street Journal*, departing National Economic Council Director Lawrence

Summers argued that history would judge the United States based on how well we adjust to China’s emergence as a great power, economically and politically.

In the face of China’s progress, America’s manufacturing sector faces major challenges in becoming and

remaining competitive and our choice of national economic policies will affect how well we meet those challenges. It is essential that the U.S. trade deficit not balloon as the economy recovers. There is scope to expand our exports in services and agriculture, but improving the competitiveness of U.S. manufacturing is vital.

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## Recommendations

The ability of China's economy to pull millions of its citizens out of poverty in a short time is amazing; no advanced economy should want to stand in the way of this progress. At the same time, our policies should strengthen our own manufacturing sector—and its reservoir of jobs—and prevent misappropriation of our technology in service to the rapid growth of China.

Specifically, the United States should:

- Make the U.S. economy a more attractive environment for creating and manufacturing new products, principally by balancing the budget and reducing the marginal tax rate on corporations.
- Engage the private sector in identifying and reducing barriers to U.S. export growth.

- Work with the European Union, Japan and multinational companies to develop a uniform code of conduct that protects technology and patents when emerging market companies work with multinationals.
- Carefully assess sectors for growth potential.
- Focus on technology skills transfer with changes to our H-1B visa policy, support for U.S. companies that resist pressure to partner with Chinese firms and improvements to math and science education.

Meanwhile, U.S. companies should focus on innovation and cost reduction and avoid dragging policy-makers and themselves along tangents that waste time and other resources.

## The U.S. Trade Deficit: Background

**Components of the Trade Deficit.** The U.S. trade deficit in goods and services was just under \$700 billion in 2008—4.9 percent of Gross Domestic Product (GDP). However, the deficit in goods trade was nearly \$835 billion, which was partially offset by a \$136 billion surplus in services trade. The latter surplus has grown consistently over a range of service types and has important potential to expand. Going forward, we can assume this surplus will remain around one percent of GDP. But services trade surpluses alone cannot solve the U.S. trade deficit problem, because of persistent large deficits in goods trade.

Very important are deficits in the energy sector. In 2008, petroleum products accounted for \$386 billion of the total trade deficit (2.7 percent of GDP). Reducing energy imports (and consumption) is a significant challenge for the U.S. economy, and with global energy demand continuing to rise and supply constrained, oil prices are more likely to rise than fall. The U.S. bill for imported oil is unlikely to fall below 2.7 percent of GDP for years to come.

In future, for overall U.S. trade in goods and services to be balanced, non-energy products (that is, manufactured and agricultural products) would have to achieve a surplus of around 1.7 percent of GDP. Added to the one percent services surplus, the two would balance out the almost unavoidable petroleum deficit.

Obviously, elements in this rough calculation could shift, for better or worse, but *if the U.S. economy is to achieve a more balanced growth path, the competitive position of U.S. manufacturing must improve sharply.*

**Growth of the U.S. Trade Deficit.** In 1999, the U.S. economy was experiencing strong growth and low inflation, but the trade deficit in manufactured and agricultural products was high—\$262.5 billion—and concentrated in four broad industry categories. The largest deficit was in plastic, wood and paper products (\$62 billion). Transportation equipment—from autos to aerospace—was close behind (\$61 billion), followed by textiles and apparel (\$52 billion) and computers and electronics (\$44 billion). Only two categories had trade surpluses: chemicals at more than \$9 billion and agriculture at \$4 billion.

By 2008, the trade deficit had risen to \$400 billion, an increase of \$138 billion or nearly 52 percent in nominal terms. The deficit in computers and electronics accounted for nearly half of the overall *increase* in the trade deficit (48 percent, a \$66 billion increase). Two other industries had large deficit increases: plastic, wood and paper products; and textiles and apparel. By contrast, agricultural products contributed an additional \$27 billion to a small 1999 surplus. And transportation equipment reduced its trade deficit by nearly \$12 billion. Chart 1 illustrates how the increase in the U.S. goods trade deficit (excluding oil) was distributed by segment between 1999 and 2008.

## Rising Imports from China

Simply put, the United States runs chronic trade deficits and China runs trade surpluses because

we spend more than we produce, and they do the opposite. The U.S. trade deficit with China in manufactured and agricultural products was already large in 1999—\$68.6 billion or 26 percent of the nation's total trade deficit. By 2008, it had increased to nearly \$268 billion. The story of the increasing U.S. trade deficit from 1999-2008—apart from oil—is the explosion in the deficit with China.

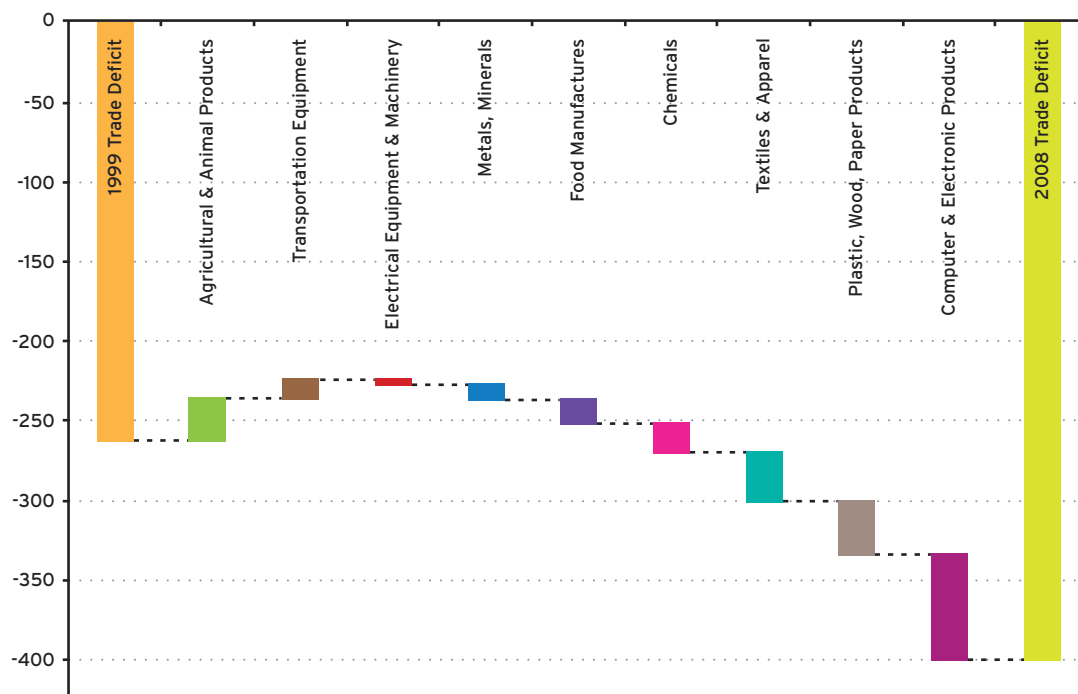
Computers and electronic products account for much of the increase in U.S. imports from China. In 2008, China exported \$108 billion in these products to the United States, up from less than \$19 billion in 1999. Beyond this sector, Chinese exports to the United States have grown strongly pretty much across the board. Although the United States exports agricultural products to China, there is a large return flow of processed and labor-intensive food products. And, while Chinese textile and

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1  
CHART

### THE U.S. TRADE DEFICIT GREW IN MOST SECTORS, ESPECIALLY COMPUTERS AND ELECTRONICS

1999–2008, billion dollars, goods excluding petroleum, coal and gas



Source: International Trade Association, Department of Commerce

apparel imports have risen, U.S. demand for Chinese goods in this category has grown only modestly as other emerging economies have become major clothing exporters.

**The Nature of Chinese Exports.** On a visit to China early in 2010, I heard a memorable speech declaring that the United States is exploiting China. The Chinese perception is based on where profits land. For example, a 2009 survey by Greg Linden, Kenneth Kraemer and Jason Dedrick of the University of California suggests that Apple, Inc. sells iPhones or iPods for several hundred dollars, most of them “made in China,” but the Chinese producer and Chinese workers receive just under four dollars apiece. The retail price of the 2005 video iPod was \$299, the wholesale price \$224 and the fac-

tory price \$144.56. The largest part of the factory price (\$101.40) came from Japanese components, with U.S. companies other than Apple supplying \$14.14 in components and many different suppliers providing other small components. The final assembly and checking is done in China for \$3.86, while Apple’s estimated gross margin is \$80 per unit sold at wholesale, plus a portion of the retail margin through its Apple online and retail stores.

These same researchers deconstructed the value of a 2005 Hewlett-Packard Notebook PC, which sold at retail for \$1,399 and had a factory cost of \$856.33. Intel and Microsoft received a total of \$305.43 for each computer sold, while the assembly and checking done in China netted \$23.76—only 1.7 percent of the retail price.

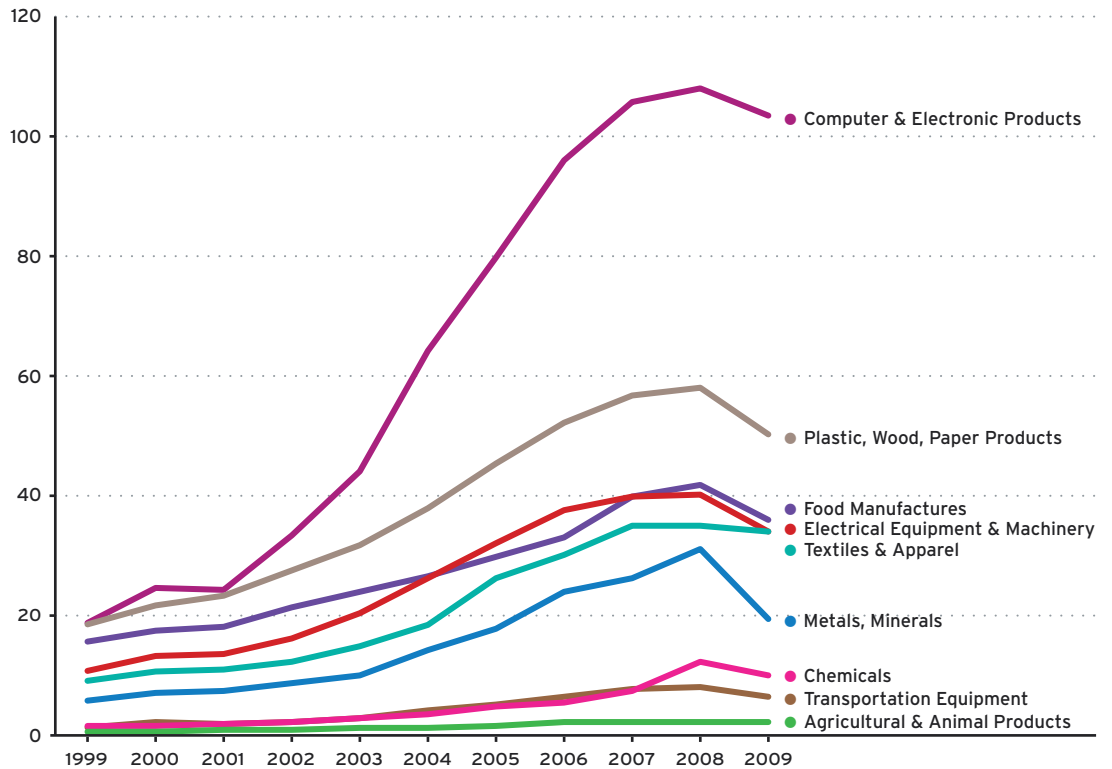


Martin Neil Baily is a senior fellow in Economic Studies at Brookings and the Bernard L. Schwartz chair in Economic Policy Development. He is a past chairman of the Council of Economic Advisers and focuses on globalization, productivity and competitiveness, Social Security reform and U.S. economic policy.

2 CHART

**GOODS IMPORTS FROM CHINA GREW ACROSS THE BOARD, BUT ESPECIALLY IN COMPUTERS AND ELECTRONICS**

1999–2009, billion dollars, goods excluding petroleum, coal and gas



Source: International Trade Association, Department of Commerce

China's massive export boom in computers and electronics derives from the fact that it is a very good place to assemble electronic products that clearly benefit U.S. companies' profits. However, China's policymakers want change; they are determined to attempt to obtain more of the value-added of the goods their citizens assemble.

The place of China as a supplier to the United States is further illuminated in the forthcoming book *Rising Tide: Is Growth in Emerging Economies Good for the United States?* by Lawrence Edwards and Robert Lawrence, who have taken a detailed look at the "unit values" of traded products, particularly U.S. exports and imports. Detailed trade data identify specific classes of products and provide total dollar value and number of physical items sold in each class. For example, the data report the value of electric motors exported by China to the United States, along with the number of motors, which allows a calculation of the price per motor. If a country is selling motors for electric shavers or toys, the unit value will be small; if the motors are for large capital goods, the unit value will be high.

Edwards and Lawrence find a striking result for China, one that also applies to other emerging economies. It turns out that unit values in the same product categories are hugely different. China sells low unit value products to the United States, and the United States sells high unit value products around the world. These price differentials are so great, in fact, they suggest the United States and China are not really competing. They are making completely different things. Perhaps even more surprising, over the past several years, there appears to be no tendency for the unit values to converge. This contradicts the hypothesis that China is successfully moving up the technology or "value ladder." Instead, U.S. competitors are Europe and Japan.

Although the volume of Chinese exports to the United States has soared, in high-tech, as we saw, it is assembling components originating elsewhere and, in other industries, it is making primarily low-value products, such as toys and children's cloth-

ing—market niches where the U.S. would not be expected to be competitive.

## China and Multinational Companies

When China emerged from the Cultural Revolution and started on a path to become a productive and market-oriented economy, it faced massive educational, technological and business hurdles. Competent scientists, engineers and managers had been exiled and "re-educated." Heroic efforts were needed to catch up to developed nations' economies. Asian precursors such as Japan and Korea had faced their own catch-up challenges, taking advantage of the global market in capital goods to help them, and China followed their lead. Unlike the others, China encouraged direct foreign investments and required partnerships with domestic businesses. These relationships provided not only financing, but also the business and technology skills of global corporations and sped development of Chinese companies.

Germany provides a fascinating case study of the benefits and perils of a strong relationship with China. *Spiegel Online* notes that the most important driving force behind the current German economic upswing is its exports of sophisticated capital goods to China. German companies find, however, that the Chinese demand access to their industrial know-how. German businesses are reluctant to offend their Chinese customers, but deeply concerned about the loss of intellectual property. Beijing does not want merely to catch up to German companies—its goal is to surpass them. It has already done so in the manufacture of solar panels, by subsidizing research into solar technology. China exports perhaps 70 percent of its output of solar panels, about half of which goes to Germany, where demand is heavily subsidized by the German government. In electricity generation, Beijing invited Western companies to build power plants jointly with domestic Chinese partners. Now the Chinese are upgrading the plants with their own technology, based on what they learned

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through the German company Siemens and the French company Alstom.

A 2010 study by James McGregor of APCO sharply criticizing Chinese industrial and technology policies provides additional examples of China's determination to leverage Western technology. Notably, China is expected to spend \$730 billion on its rail network by 2020, with about half being used to expand high-speed passenger lines. This level of capital spending is irresistible for European producers. The China National Railway Corporation (CNR) invited Siemens to bid on a \$919 million contract to build 60 passenger trains for service between Beijing and Tianjin. Siemens built the first three, but the remaining 57 were built in China by CNR, using 1,000 Chinese technicians Siemens had trained. In March 2009, Siemens announced an agreement for it to build 100 additional high-speed trains to serve Beijing-Shanghai, but China denied such an agreement ever existed. Siemens ultimately received a contract for \$1 billion in components, but \$5.7 billion went to CNR, which built the trains.

In the long run, China favors its own producers. It brings in foreign companies at the launching of an industry, then uses government procurement to advance the market share of Chinese companies and, eventually, to shut out competition. This strategy has allowed it to build on foreign companies' expertise, develop domestic champions and raise the technological level of its economy and exports. Because of its large and rapidly growing market, China can pressure foreign companies to partner with Chinese companies, allowing their employees to learn managerial and technical skills. Over time, China has somewhat loosened formal requirements for foreign companies to accept partners, but the strategy of technology and skills transfer remains very much in force.

Developing countries naturally learn from best practices world-wide; indeed the 19th century economic history of the United States includes considerable technology transfer from Britain and the rest of Europe. Nevertheless, companies that have invested heavily to develop new technologies

and efficient processes cannot afford to simply allow China to free-ride on their efforts. Yet many Chinese leaders make it clear they are on a mission to acquire the best technology, using their size and growth as a way to obtain it.

A December 23, 2010 *New York Times* editorial noted this strategy, saying, “[I]ntellectual property misappropriation cannot be a government policy goal, especially in a country the size of China, which can flood world markets with ill-begotten high-tech products.” The editorial acknowledged some U.S. progress at the World Trade Organization, but urged our government to be “more vigilant and aggressive” against intellectual property losses.

## Helping U.S. Manufacturers Adjust to China

U.S. exports of manufactured goods reached \$952 billion in 2009 and grew strongly in 2010. The goal of increasing exports substantially is feasible, given favorable economic conditions and policies. It may even be possible to bring some off-shored production back to the United States, a possibility some manufacturers have been exploring, in order to remediate cost, quality and delivery problems. But first, policymakers must recognize that:

1. **Today's trade deficit is not a technology problem. The U.S. economy simply must become a more attractive place to develop and manufacture new products.** The best ways to do this are to balance the budget and lower the marginal tax rate on corporations. Our trade problem is that U.S. companies develop innovative products but choose not to manufacture much of their value here. One chronic reason is that the value of a dollar has been too high, making U.S. production too expensive. If the U.S. saved more and balanced the federal budget, that problem would take care of itself. This would require global exchange rate adjustments including an increase in the real exchange rate of the *renminbi*, although economic forces will force this to happen without the need for U.S. political action. In addition, the

U.S. corporate tax rate is higher than that of other countries, encouraging overseas investments. Both of the recently announced deficit reduction plans provide blueprints for balancing the budget and lowering corporate tax rates.

2. **Technology may become a problem in the future. The United States should work with the European Union, Japan and multinational companies to develop a uniform code of conduct to protect technology and patents when emerging market companies work with multinationals.** Government sanctions that would draw the United States into direct conflict with China are inadvisable, and the World Trade Organization (WTO) has limited effectiveness. Thus, multinational corporations should take the lead and refuse to work with foreign entities that demand access to and misuse proprietary technology. They should be fully informed of past unacceptable practices and the policies and behavior they should expect before entering new markets. If companies nevertheless reveal their technology as the price of market access, that is their choice.
  
3. **Policymakers must work with the private sector to identify and reduce barriers to U.S. exports.** The expansion of U.S. exports will be in industries such as advanced manufacturing, electronics, aerospace and medical devices. These industries will require new technologies, capital, R&D and skilled labor. There is a strong case for support of technology development through direct funding, improved tax treatment of R&D, increased access to capital and a reduced marginal corporate tax rate. Skill shortages appear to be another important barrier to expansion. Improving the U.S. education and training system in science, math, engineering and technology is a long-term national priority. Furthermore, as recommended by Brookings vice president Darrell West, easing restrictions on H-1B visas to prioritize high-value immigrants with technology expertise is an obvious policy fix with immediate benefits.



China Railway High-speed trains are prepared for the opening ceremony of a new line from Wuhan to Guangzhou.

4. **The policy debate must focus on the right issue, and not be drawn down blind alleys.** Indicators that the U.S. economy is falling behind must be evaluated carefully. For example, A 2007 National Academy of Sciences study, *Rising Above the Gathering Storm*, reviewed a range of such indicators. It noted that China is building 50 chemical plants, whereas the United States is building one; and computer chip fabrication plants are being built in China (and elsewhere in Asia), but not in the United States. However, the lack of U.S. investment in these sectors may not be a reason for concern. It can be difficult to operate either bulk petrochemical or chip fabrication plants profitably over the long run, and they create few jobs.
  
5. **Companies should focus on innovation and cost reduction and avoid dragging policymakers and themselves along time-wasting tangents.** Endless discussions took place during the Clinton administration about how Fuji was competing unfairly with Kodak, whereas the real challenge to Kodak was not Fuji but digital technology. Currently, the World Trade Organization is assessing appeals from the European Union (EU) and the United States regarding its decision that the EU

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unfairly subsidized Airbus to the detriment of Boeing. Whatever the merits of the arguments in the parties’ six years of legal wrangling over this issue, Boeing’s future success may depend more on how well it solves problems with the new 787, now several years behind schedule, and whether it can make its factories leaner and more productive.

## Conclusion

Expanding manufactured exports is a key to our nation’s global competitiveness and reduced

trade deficits. Recovery in manufacturing will help employment and the revival of local economies. Competition from emerging economies, especially China, means that innovation in products and processes will be essential to maintaining U.S. leadership. While emerging economies are important markets for U.S. manufacturers, these exchanges should not become opportunities to misappropriate U.S. companies’ intellectual property. U.S. policymakers must create a climate that fosters growth in manufacturing while protecting U.S. innovation and technology. ■

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Melissa T. Skolfield

**The Brookings Office of Communications**  
202.797.6105  
[communications@brookings.edu](mailto:communications@brookings.edu)

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