Economic Policy Institute

Testimony before the Subcommittee on Asia and the Pacific of the House Subcommittee on Foreign Affairs

China's Technological Rise—Challenges to U.S. Innovation and Security

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I'd like to thank Chairman Royce and Ranking Member Sherman for their invitation to testify, and all Members of the Committee. It is a pleasure to appear before you today to discuss these important issues. My name is Dr. Robert E. Scott and I am a Senior Economist with the Economic Policy Institute, where I am also the Director of Trade and Manufacturing Policy Research. The Economic Policy Institute (EPI) is a non-profit, non-partisan think tank based in Washington D.C. that studies the economy and government policies, and particularly analyzes the impact on low- and middle-income workers in America.

My testimony today will focus on the impact of the trade deficit with China and how it has impacted the U.S. economy, including in industries where the U.S. has typically held a competitive advantage. Growing trade with China, following its entry into the World Trade Organization in 2001 has eliminated millions of good U.S. jobs and depressed the wages of roughly one hundred million non-college educated workers in the United States. China's rapidly growing technological capabilities, fueled by hundreds of billions of dollars of public investment, channeled through its increasingly sophisticated industrial planning systems, represents a tremendous challenge to U.S. high tech industries and to the national security of the United States. I would like to call your attention to the following points:

- **Rapid growth of the U.S. trade deficit with China after that country's entry into the WTO eliminated 3.4 million U.S. jobs between 2001 and 2015 alone.** Nearly three-fourths (74.3 percent) of the jobs lost were in manufacturing (2.6 million). The hardest hit states were Oregon, California, New Hampshire, Minnesota and North Carolina.
- **The trade deficit in the computer and electronic parts industry grew the most**, and 1,238,300 jobs were lost or displaced, 36.0 percent of the 2001–2015 total.
- **Global trade in advanced technology products—often discussed as a source of comparative advantage for the United States—is instead dominated by China.**In 2015, the United States had a $120.7 billion deficit in advanced technology products with China, and this deficit was responsible for 32.9 percent of the total U.S.–China goods trade deficit. In contrast, the United States had a $28.9 billion surplus in advanced technology products with the rest of the world in 2015.
- Job losses are just the tip of the iceberg when it comes to the negative impacts of US trade with China. **Wage losses have hurt not just manufacturing workers but all workers who don't have a college degree.** Between 2001 and 2011 alone, growing trade deficits reduced the incomes of directly impacted workers by $37 billion per year, and growing competition with imports from China and other low wage countries reduced the wages of all non–college graduates by $180 billion per year.
- **There are reasons for China's large and growing trade surpluses with the United States and the world that go far beyond the free market.** China both subsidizes and dumps massive quantities of exports. Specifically it blocks imports, pirates software and technology from foreign producers, invests in massive amounts of excess production capacity in a range of basic industries, often through state owned enterprises (SOEs) (investments that lead to dumping), and operates as a refuse lot for

carbon and other industrial pollutants. China has also engaged in extensive and sustained currency manipulation over the past two decades, resulting in persistent currency misalignments.

- **China's actions call for direct policy responses.** To adequately respond to these threats, I propose that the Subcommittee make the following recommendations:
  - Congress and the President enhance enforcement of all fair trade laws and treaty obligations (through anti-dumping, countervailing duty, and WTO case filings) and implement better early warning systems and mechanisms for responding to import surges.
  - The United States should also make Chinese excess production capacity a priority to address in bilateral negotiations as it is this excess capacity that fuels dumping of exports in the United States. In particular, overcapacity should be addressed by reforming state-owned enterprises, barring China from all U.S. government procurement contracts, and prohibiting SOEs and most Chinese companies from foreign direct investment in U.S. manufacturing or high tech companies, including through enhanced Committee on Foreign Investment in the U.S. (CFIUS) review processes.
  - The United States should also consider imposing a border-adjustable carbon fee on imports produced by energy-intensive industries.
  - In addition, the United States should continue to treat China as a nonmarket economy in fair trade enforcement, because decades of subsidies and market distortions render Chinese market prices meaningless, and because granting China market-economy status would curb the ability to impose tariffs on dumped goods and thus allow Chinese companies to undercut domestic production by flooding WTO nation markets with cheap goods.
  - China should not be rewarded for its market distortions with a bilateral investment treaty. I appreciate Ranking Member Sherman's past proposals to revoke Most Favored Nation status for China, and to refocus on a trading relationship designed to eliminate the trade imbalance.
  - Lastly, the United States must maintain currency vigilance and consider negotiating a new Plaza Accord to rebalance currencies and global trade.
- **China's high-tech and industrial policies pose grave threats to the future of U.S. technological leadership, economic growth, and national security.** According to the President's Council of Advisors on Science and Technology (PCAST), China is now exerting a "concerted push … to reshape the semiconductor market in its favor, using industrial policies backed by over one hundred billion dollars in government-directed funds, [which] threatens the competitiveness of U.S. industry." At the same time, China is advancing a "made in China 2025" plan to accelerate technological innovation and domestic content in 10 broad industries which will be supported by plans to invest $300 billion for low-interest loans, assistance in buying competitors and research subsidies. Overall, the U.S. has fallen behind China in total, late-stage development research, according to a recent report from the Boston Consulting Group. By 2018,

China could spend up to twice as much as the U.S. on development research, threatening U.S. leadership in a wide array of manufacturing industries.

- **Growing foreign investment in U.S. manufacturing firms, especially by Chinese multinationals, threatens U.S. national security, control of sensitive financial data and control of key technologies, and is likely to lead to increases in U.S. imports and the trade deficit because foreign multinationals have been responsible for growing U.S. trade deficits, and at least forty percent of the total U.S. trade deficit in every year since 2007.** Foreign investments by Chinese firms, often state-owned, such as Zhongwang's proposed purchase of Aleris Aluminum have been challenged out of concern over the loss of sensitive research data used to make key defense materials such as high-strength alloys and light armor material. Likewise, the Chongqing Casin Enterprise Group, a Chinese firm with possible ties to the Chinese government is preparing to purchase the Chicago Stock Exchange. This purchases poses potential threats to both National Security and to individual firms listed on the Chicago Exchange which are required to share sensitive data in order to be listed on the exchange, information which could be compromised by this foreign investor. Finally, more than fifty members of Congress recently signed a letter to the Treasury Secretary requesting that he initiate a CFIUS review of the purchase of Vertex Railcar Corporation by China Railroad Rolling Stock Corporation (CRRC) and Majestic Legend holdings. CRRC is government owned and subsidized, and the Chinese government could use this purchase to compete unfairly in the US market. CRRC has used subsidized financing to underbid domestic firms on railcar contracts in Boston and Chicago. American suppliers of products such as steel for railcars must now compete against the resources of the Chinese government. These cases illustrate why enhanced CFIUS review is critical for limiting the negative impacts of FDI by Chinese firms in the United States.
- **Thank you again for the opportunity to testify before you today. I look forward to your questions.**

The growing trade deficit with China has led to U.S. job losses[1]

From 2001 to 2015, imports from China increased dramatically, rising from $102.3 billion in 2001 to $483.2 billion in 2015, as shown in **Table 1**. U.S. exports to China rose at a rapid rate from 2001 to 2015, but from a much smaller base, from $19.2 billion in 2001 to $116.1 billion in 2015. As a result, China's exports to the United States in 2015 were more than four times greater than U.S. exports to China. These trade figures make the China trade relationship the United States' most imbalanced trade relationship by far.

The trade deficit and job losses, by industry

The composition of imports from China is changing in fundamental ways, with significant, negative implications for certain kinds of high-skill, high-wage jobs once thought to be the

hallmark of the U.S. economy. China is moving rapidly "upscale," from low-tech, low-skilled, labor-intensive industries such as apparel, footwear, and basic electronics to more capital- and skills-intensive industries such as computers, electrical machinery, and motor vehicle parts. It has developed a rapidly growing trade surplus in these specific industries and in high-technology products in general.

The import data (shown in my report, but not reproduced here) reflect China's rapid expansion into higher-value-added commodities once considered strengths of the United States, such as computer and electronic parts, which accounted for 36.5 percent ($176.6 billion) of U.S. imports from China in 2015. This growth is apparent in the shifting trade balance in advanced technology products (ATP), a broad category of high-end technology goods trade tracked by the U.S. Census Bureau. ATP includes the more advanced elements of the computer and electronic parts industry as well as other sectors such as biotechnology, life sciences, aerospace, nuclear technology, and flexible manufacturing. The ATP sector includes some auto parts; China is one of the top suppliers of auto parts to the United States, having surpassed Germany.

In 2015, the United States had a $120.7 billion trade deficit with China in ATP, reflecting a tenfold increase from $11.8 billion in 2002. This ATP deficit was responsible for 32.9 percent of the total U.S.–China trade deficit in 2015. It dwarfs the $28.9 billion surplus in ATP that the United States had with the rest of the world in 2015. As a result of the U.S. ATP deficit with China, the United States ran an overall deficit in ATP products in 2015 (of $91.8 billion), as it has in every year since 2002.

Job loss or displacement by industry is directly related to trade flows by industry, as shown in **Table 2**. The growing trade deficit with China eliminated 2,557,100 manufacturing jobs between 2001 and 2015, nearly three-fourths (74.3 percent) of the total. By far the largest job displacements occurred in the computer and electronic parts industry, which lost 1,238,300 jobs (36.0 percent of the 3.4 million jobs displaced overall). This industry includes computer and peripheral equipment (670,800 jobs, or 19.5 percent of the overall jobs displaced), semiconductors and components (282,500 jobs, or 8.2 percent), and communications, audio, and video equipment (267,000 jobs, or 7.8 percent). Other hard-hit industries included apparel (204,900 jobs displaced, equal to 6.0 percent of the total), fabricated metal products (161,800, or 4.7 percent), textile mills and textile product mills (117,800, or 3.4 percent), miscellaneous manufactured commodities (127,000, or 3.7 percent), furniture and related products (115,900, or 3.4 percent), plastics and rubber products (78,800, or 2.3 percent), and motor vehicles and motor vehicle parts (49,600, or 1.4 percent). Several service industries, which provide key inputs to traded-goods production, experienced significant job displacement, including administrative and support and waste management and remediation services (211,500 jobs, or 6.1 percent) and professional, scientific, and technical services (183,000 jobs, or 5.3 percent).

Unfair trade deals lower wages of US workers

Job losses are just the tip of the iceberg when it comes to the negative impacts of US trade with China. Wage losses have hurt not just manufacturing workers but all workers who don't have a college degree.[2] Globalization and unfair trade deals have lowered the wages of U.S. workers by displacing jobs and weakening the bargaining position of low- and middle-wage workers in two main ways.

First, increased U.S. trade deficits push jobs out of better-paid tradeable sectors. Jobs displaced by growing trade deficits result in lost wages as workers who leave high-paying import-competing industries such as computer and electronic parts manufacturing take jobs in lower-paying non-tradable industries. Even when jobs in importing industries are replaced in part by jobs in exporting industries such as agriculture or food products, the result is wage losses from rising trade deficits.

Second, even if trade deficits do not rise, increased trade changes the composition of jobs, and the new patterns of employment lead to reduced demand for labor and downward pressure on wages. As the United States increases production (and increases exports) of capital-intensive goods and reduces production (and increases imports) of labor-intensive goods, this leads directly to a reduced demand for labor, even if exports and imports measured in dollars balance. Further, as imports displace workers from tradeable sectors (such as manufacturing), these laid-off workers need to accept lower wages to obtain work in other sectors (such as landscaping or construction), and this competition helps to lower the wages of similar workers already employed in these sectors. In short, while it is impossible to replace a waitress (a job in the non-tradable restaurant sector) with imports, her wages are harmed by having to compete with apparel workers who have lost jobs due to increased trade flows. Standard trade models indicate that expanded trade has reduced the annual wages of a full-time American worker without a four-year college degree who earns the median wage by $1,800 per year.[3] Given that there are roughly 100 million non-college-educated workers in the U.S. economy, the scale of wage losses suffered by this group likely translates into close to a full 1 percent of GDP—roughly $180 billion.

It's Not an Accident: Addressing The Causes of Trade-Related Job Losses

The job and wage losses from the growing U.S. trade deficit with China—and the national security vulnerabilities—should be unacceptable to U.S. policymakers. Especially since this is a solvable problem: The increase in the U.S.–China trade deficit is caused by specific Chinese policies that U.S. policy can address.

Subsidies that fuel excess capacity and lead to dumping

Extensive government subsidies and the rapid growth of state-owned enterprises have generated a massive buildup of excess capacity in a range of Chinese industries. Excess capacity means that China's factories are churning out quantities of basic commodity products such as steel products, aluminum, machinery, rubber and plastics and stone, cement, glass, and solar panels that far exceed the demand for these products in China's domestic economy. To prop up these overcapacity industries, these products are sold in other markets at below market rates (dumping). The United States bears a uniquely large burden, suffering more than other countries from subsidized and dumped imports in these industries.

Much of this Chinese overcapacity has been developed by SOE's, which channel financial support to companies in these industries through state banks. But direct support from the Chinese government in the form of subsidized prices for energy and natural resource inputs also plays a significant role. The U.S.–China Economic Security and Review Commission concluded in its 2016 annual report that:

> Rather than restructuring the state sector to reduce corporate debt and increase efficiency, the Chinese government continues to prop up nonviable companies with government subsidies, discounted production inputs, and favorable lending from state banks. As a result, the SOEs remain the driving force behind key sectors of the Chinese economy despite incurring significant losses. Under President Xi, the Chinese government has not only expanded its control over SOEs, but also exerted its influence over private companies. By enhancing government oversight … Beijing is able to direct both private and public firms to promote state goals.

The proliferation of subsidies (along with currency manipulation, discussed in the next section) has for most of the past 15 years acted like a subsidy to all of China's exports and a tax on everything that China imports. These subsidies have contributed to the tremendous growth of excess capacity in steel and other primary product industries in that country. Indeed, China has been found guilty of dumping in 759 cases (covering all products) between 1995 and 2014.

China's actions to prop up its steel industry serve as an example. China's steel production capacity increased tenfold from 2000, when it had roughly the same capacity as the United States, to 2014, when its production capacity reached 1.2 billion tons, while U.S. capacity remained largely unchanged at roughly 100 million tons. China went from being a net steel importer to a net exporter of over 100 million tons of dumped and subsidized steel, worldwide, in 2015. U.S. steel producers absorbed net losses of $1.43 billion in the fourth quarter of 2015 and $233 million in the first quarter of 2016. Domestic steel producers were forced to "reduce capital expenditures" and "shutter capacity and lay off employees," with nearly 19,000 U.S. steel and iron ore miners facing layoffs "as a result of Chinese overcapacity.

Lax environmental laws that "subsidize" Chinese products

China has become one of the world's biggest polluters and much of this is due to increased emissions from steel and other industries. China operates as a dumping ground for carbon and other key air, water, and waste pollutants. China now produces more sulfur dioxide and carbon dioxide than any other country in the world. For example, China's steel industry now accounts for 50 percent of the world's production of carbon dioxide from steelmaking.

Repression of labor rights

China extensively suppresses labor rights, which lowers production costs within China. A 2006 AFL-CIO study estimated that repression of labor rights by the Chinese government had lowered manufacturing wages of Chinese workers by between 47 percent and 85 percent.

Policies that block imports and foreign competition

Indirectly, China's broad network of subsidies and policy supports for favored companies and industries (discussed above) acts as substantial barriers to import penetration, putting international firms that wish to export to China at a substantial disadvantage.

For one, China imposes forced technology transfer on foreign firms wishing to invest in China and it engages in cyber-enabled theft of intellectual property. Thus foreign firms are reluctant to do business in China for fear of endangering technology that is critical to their patents' proprietary technologies and sources of competitive edge in global markets.

China also blocks or discourages imports via import substitution policies. These policies impose tariffs, quotas and other direct restrictions on imports, and explicitly favor Chinese domestic producers of commodities that would otherwise be imported, reducing demand for U.S. exports.

China is also become less welcoming to foreign investors, and imposes many restrictions on their activities. Its anti-competitive laws prohibit foreign participation in broad sectors of the domestic economy and give preferences to domestic, Chinese companies. China has made it clear that it does not allow foreign competition to occur, via imports or foreign direct investment, in what it views as key sectors of its economy.

The crucial missing link of foreign direct investment and outsourcing

Proponents of trade deals such as the agreement to endorse China's admission to the World Trade Organization usually focus on the impacts of these deals on tariff and nontariff barriers to trade. China agreed to make major tariff reductions as a condition of entry into the WTO. President Clinton and many others argued that since U.S. tariff barriers were already low, the agreement would do more to increase U.S. exports to China than to increase U.S. imports from China.

But proponents failed to anticipate the effect of China's entry on foreign direct investment (FDI) and outsourcing

Foreign direct investment is an investment by a company or individual in one country that is made in business interests in another country. It can take the form of establishing business operations or acquiring business assets in the other country, such as ownership or controlling interest in a foreign company. Unlike portfolio investments, in which an investor merely purchases equities of foreign-based companies, foreign direct investment establishes effective control of, or at least substantial influence over, the decision making of a foreign business.

FDI has played a key role in the growth of China's manufacturing sector. China is the largest recipient of FDI of all developing countries and is the third-largest recipient of FDI over the past three decades, trailing only the United States and the United Kingdom. For many years, foreign-invested enterprises (both joint ventures and wholly owned subsidiaries) were responsible for roughly two-thirds of China's global trade surplus. However, due to China's indigenous innovation policies and other measures that have pushed out foreign investors, often through forced takeovers and illegal theft of intellectual property, this share has fallen sharply to only one-third in 2015. Nonetheless, outsourcing by U.S. entities—through foreign direct investment in factories that make goods for export to the United States—has played a key role in the shift of manufacturing production and jobs from the United States to China since China entered the WTO in 2001.

Currency manipulation and misalignment are the major causes of the trade deficit

Finally, misalignment of the U.S. dollar and the legacy of currency manipulation by China (and other countries) are major causes of the U.S. trade deficit and of manufacturing job loss. While some countries are still manipulating, as traditionally defined, China is not, and yet we are left with this massive overhang of a trade deficit. The Chinese yuan and other currencies of current and former manipulators are still substantially misaligned, and this hangover is a big cause of U.S. and global trade imbalances.

Recent EPI reports have explained how currency manipulation by China and other East

Asian nations has led to rising trade surpluses by currency manipulators and thus global trade imbalances, hitting the United States particularly hard.

China's actions call for direct policy responses

To adequately respond to these threats, Congress and the president should enhance enforcement of all fair trade laws and treaty obligations (through anti-dumping, countervailing duty, and WTO case filings) and implement better early warning systems and mechanisms for responding to import surges. The United States should also make Chinese excess production capacity a priority to address in bilateral negotiations as it is this excess capacity that fuels dumping of exports in the United States. In particular, overcapacity should be addressed by reforming state-owned enterprises, barring China from all U.S. government procurement contracts, and prohibiting SOEs and most Chinese companies from foreign direct investment in U.S. manufacturing or high tech companies, including through enhanced Committee on Foreign Investment in the United States (CFIUS) review processes.[4] The United States should also consider imposing a border-adjustable carbon fee on imports produced by energy-intensive industries. In addition, the United States should continue to treat China as a nonmarket economy in fair trade enforcement, because decades of subsidies and market distortions render Chinese market prices meaningless, and because granting China market-economy status would curb the ability to impose tariffs on dumped goods and thus allow Chinese companies to undercut domestic production by flooding WTO nation markets with cheap goods. Also, China should not be rewarded for its market distortions with a bilateral investment treaty. Lastly, the United States must maintain currency vigilance and consider negotiating a new Plaza Accord to rebalance currencies and global trade.

China's high-tech and industrial policies pose grave threats to the future of U.S. technological leadership, economic growth, and national security

According to the President's Council of Advisors on Science and Technology (PCAST), China is now exerting a "concerted push … to reshape the semiconductor market in its favor, using industrial policies backed by over one hundred billion dollars in government-directed funds, [which] threatens the competitiveness of U.S. industry."[5] The PCAST report found that Chinese policies are reducing U.S. market share in semiconductor industries, undermining innovation and putting U.S. national security at risk. They recommend a three-pronged approach to respond to the Chinese challenge in semiconductors. First,

work in bilateral and multilateral forums to improve the transparency about Chinese policies, coordinate investment security and export controls, and respond to Chinese violation of international agreements. Second, increase funding for basic research and development, talent attraction and reform of tax law and permitting practices. Finally, they propose a series of "moonshots" designed to develop transformative innovations in areas such as biodefense, and cutting edge medical technologies.[6]

At the same time, China is advancing a "made in China 2025" plan to accelerate technological innovation and domestic content in 10 broad industries which will be supported by plans to invest $300 billion for low-interest loans, assistance in buying competitors and research subsidies.[7] The industries targeted include new materials, artificial intelligence, integrated circuits, and 5G mobile technology, as well as aircraft, robots, electric cars, rail equipment, ships and agricultural machinery. China hopes to raise domestic content in these industries to 40 percent in 2020 and at least 70 percent in 2025. The plan calls for using hi-tech investments to "systematically acquire cutting edge technology and generate large-scale technology transfer," according to a German report on the 2025 program.[8]

Overall, the U.S. has fallen behind China in total, late-stage development research, according to a recent report from the Boston Consulting Group. By 2018, China could spend up to twice as much as the U.S. on development research, threatening U.S. leadership in a wide array of manufacturing industries.[9]

Growing foreign investment in U.S. manufacturing firms, especially by Chinese multinationals, threatens U.S. national security, control of sensitive financial data and control of key technologies, and is likely to lead to increases in U.S. imports and the trade deficit.

Foreign multinationals have been responsible for growing U.S. trade deficits, as shown in **Figure B**, and at least forty percent of the total U.S. trade deficit in every year since 2007 (author's estimates).

Foreign investments by Chinese firms, often state-owned, such as Zhongwang's proposed purchase of Aleris Aluminum have been challenged out of concern over the loss of sensitive research data used to make key defense materials such as high-strength alloys and light armor material.[10] Likewise, the Chongqing Casin Enterprise Group, a Chinese firm

with possible ties to the Chinese government is preparing to purchase the Chicago Stock Exchange.[11] This purchases poses potential threats to both National Security and to individual firms listed on the Chicago Exchange which are required to share sensitive data in order to be listed on the exchange, information which could be compromised by this foreign investor. Finally, more than fifty members of Congress recently signed a letter to the Treasury Secretary requesting that he initiate a CFIUS review of the purchase of Vertex Railcar Corporation by China Railroad Rolling Stock Corporation (CRRC) and Majestic Legend holdings.[12] CRRC is government owned and subsidized, and the Chinese government could use this purchase to compete unfairly in the US market. CRRC has used subsidized financing to underbid domestic firms on railcar contracts in Boston and Chicago. American suppliers of products such as steel for railcars must now compete against the resources of the Chinese government. These cases illustrate why enhanced CFIUS review is critical for limiting the negative impacts of FDI by Chinese firms in the United States.

Acknowledgements

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Endnotes

1. References for data and statements of fact are included here in hyperlinks, and in Scott, Robert E. 2017. Growth in U.S.—China trade deficit between 2001 and 2015 cost 3.4 million jobs: Here's how to rebalance trade and rebuild American manufacturing. Washington D.C.: Economic Policy Institute.

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Table 1

U.S.–China goods trade and job displacement, 2001–2015

	2001	2008	2015	Change ($billions) 2001–2015	Change ($billions) 2008–2015	Percent change 2001–2015
U.S. goods trade with China ($ billions, nominal)						
U.S. total exports*	$19.2	$71.5	$116.1	$96.8	$44.6	503.4%
U.S. general imports	$102.3	$337.8	$483.2	$381.0	$145.5	372.5%
U.S. trade balance	-$83.0	-$266.3	-$367.2	-$284.1	-$100.8	342.1%
Average annual change in the trade balance				-$20.2	-$14.4	11.2%
				Change (thousands of jobs)		**Percent change**
U.S. trade-related jobs supported and displaced (thousands of jobs)						
U.S. total exports–jobs supported	171.9	544.2	826.6	654.7	282.4	380.8%
U.S. general imports–jobs displaced	1,129.6	3,621.2	5,227.6	4,098.0	1,606.4	362.8%
U.S. trade deficit–net jobs displaced	957.7	3,077.0	4,401.0	3,443.3	1,324.0	359.6%
Average annual change in net jobs displaced				246.0	189.1	11.5%

* Total exports as reported by the U.S. International Trade Commission include re-exports. Domestic exports are goods produced in the United States and exclude goods produced in other countries and shipped through the United States (known as foreign exports or re-exports). Domestic exports were estimated to be $107.7 billion in 2015. The employment estimates shown here are based on total exports. See footnote 3 for additional details.

Source: Author's analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2016a), Bureau of Labor Statistics (BLS 2016e), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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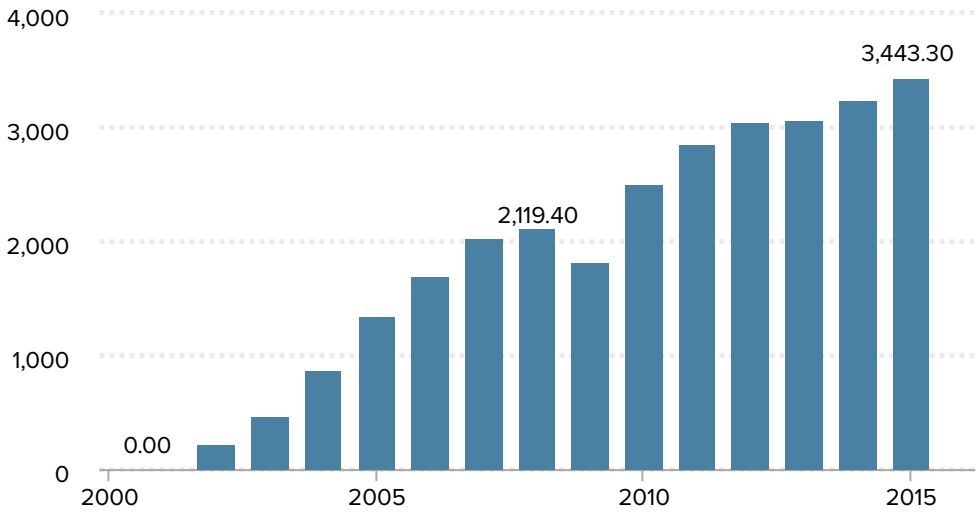
Figure A

U.S. jobs displaced by the growing goods trade deficit with China since 2001 (in thousands of jobs)



Source: Author's analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2016a), Bureau of Labor Statistics (BLS 2016e), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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Table 2

Net U.S. jobs created or displaced by goods trade with China, by industry, 2001–2015

	Total	Share of total jobs displaced
Total*	-3,443,300	
Subtotal, nonmanufacturing	-886,200	25.7%
Agriculture, forestry, fishing, and hunting	43,400	-1.3%
Mining	-4,700	0.1%
Oil and gas	-700	0.0%
Minerals and ores	-4,000	0.1%
Utilities	-12,700	0.4%
Construction	-16,600	0.5%
Manufacturing	-2,557,100	74.3%
Nondurable goods	-391,300	11.4%
Food	-11,600	0.3%
Beverage and tobacco products	3,000	-0.1%
Textile mills and textile product mills	-117,800	3.4%
Apparel	-204,900	6.0%
Leather and allied products	-60,000	1.7%
Industrial supplies	-233,600	6.8%
Wood products	-28,400	0.8%
Paper	-29,200	0.8%
Printed matter and related products	-35,000	1.0%
Petroleum and coal products	-1,200	0.0%
Chemicals	-27,600	0.8%
Plastics and rubber products	-78,800	2.3%
Nonmetallic mineral products	-33,400	1.0%
Durable goods	-1,932,200	56.1%
Primary metal	-57,100	1.7%
Fabricated metal products	-161,800	4.7%
Machinery	-94,800	2.8%
Computer and electronic parts	-1,238,300	36.0%
Computer and peripheral equipment	-670,800	19.5%
Communications, audio, and video equipment	-267,000	7.8%
Navigational, measuring, electromedical, and control instruments	-18,000	0.5%

Table 2 (cont.)

	Total	Share of total jobs displaced
Semiconductors and other electronic components, and reproducing magnetic and optical media	-282,500	8.2%
Electrical equipment, appliances, and components	-116,000	3.4%
Transportation equipment	-21,500	0.6%
Motorvehicles and motor vehicle parts	-49,600	1.4%
Aerospace products and parts	32,700	-0.9%
Railroad, ship, and other transportation equipment	-4,500	0.1%
Furniture and related products	-115,900	3.4%
Miscellaneous manufactured commodities	-127,000	3.7%
Wholesale trade	0	0.0%
Retail trade	0	0.0%
Transportation and warehousing	-106,000	3.1%
Information	-84,200	2.4%
Finance and insurance	-45,500	1.3%
Real estate and rental and leasing	-27,200	0.8%
Professional, scientific, and technical services	-183,000	5.3%
Management of companies and enterprises	-119,700	3.5%
Administrative and support and waste management and remediation services	-211,500	6.1%
Education services	-2,800	0.1%
Healthcare and social assistance	-1,700	0.0%
Arts, entertainment, and recreation	-13,100	0.4%
Accomodation and food services	-51,700	1.5%
Other services (except public administration)	-30,500	0.9%
Public administration	-18,600	0.5%

*Subcategory and overall totals may vary slightly due to rounding.

Source: Author's analysis of U.S. Census Bureau (2013), U.S. International Trade Commission (USITC 2016a), Bureau of Labor Statistics (BLS 2016e), and BLS Employment Projections program (BLS-EP 2014a and 2014b). For a more detailed explanation of data sources and computations, see the appendix.

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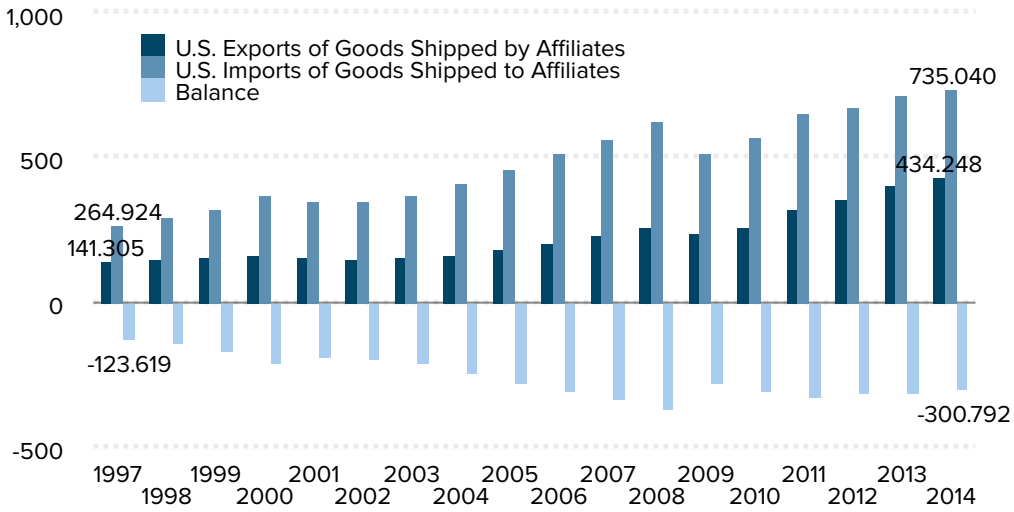
Figure B

Goods trade balance

US affiliates of foreign MNCs, 1997–2014 (billions of dollars)



Note: The increase in most US MNC activities from 2013 to 2014 reflect improved coverage in the 2014 benchmark survey of US Direct Investment Abroad

Source: BEA International Data tables

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