



U.S. Business and Industry Council

**Fighting for American companies
Fighting for American jobs**

CHINESE MARKET SHARE IN ADVANCED U.S. MANUFACTURING GROWS AT ACCELERATING PACE

High-Value U.S. Industries' Losses Mirror Those That Doomed American Consumer Goods Sectors

A U.S. Business and Industry Council Research Brief

By Alan Tonelson
Research Fellow
U.S. Business and Industry Council
February 7, 2012

Copyright U.S. Business and Industry Council, 2012

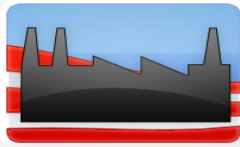
SUMMARY

After decimating U.S.-based producers of cheap, labor-intensive manufactures with a flood of exports, China-based producers have now made deep and rapidly expanding inroads into U.S. markets for a wide range of advanced industrial products, including semiconductors and other high value electronics goods, machine tools, sophisticated industrial machinery, and chemicals.

Also on this list, according to a U.S. Business and Industry Council analysis of the latest available data, is the U.S. auto parts sector, recently identified by several members of Congress and numerous trade policy activists as a major victim of predatory Chinese trade practices.

In all, Chinese-made products in 2010 captured 7.51 percent of total American purchases of 108 groups of capital- and technology-intensive products. These industries create an outsized share of America's highest paying jobs on average, and lead the American economy in innovation.

This Chinese market share figure represented a 19.01 percent jump from the 2009 level of 6.31 percent – which in turn exceeded the 2008 figure by 15.99 percent. In 1997 – the first year for which these calculations are possible – China supplied only 0.59 percent of U.S. consumption of these products.



U.S. Business and Industry Council

**Fighting for American companies
Fighting for American jobs**

These gains have propelled China far ahead of Germany and Japan as a source of the high-value manufactures consumed by Americans. The total import share of America's markets for advanced industrial goods reached 38.01 percent in 2010, an 8.66 percent increase from the 34.98 percent levels in 2009, and 55.21 percent higher than 1997.

In addition, although import penetration rates (IPRs) from neither China nor the world at large can be calculated yet for 2011, the import figures per se for last year, which are available, strongly indicate that import penetration rates from China and from the rest of the world have kept growing.

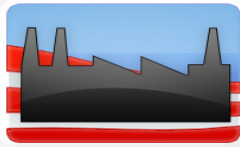
China's greatest advanced manufacturing successes in the United States have come in electronics products. Its share of the American market for computers topped 61 percent in 2010. In 2010, however, China-based manufacturers also controlled nearly 29 percent of the U.S. market for broadcast and wireless communications equipment, and supplied nearly 28 percent of American consumption of miscellaneous electronic components.

Chinese gains extended into even higher-tech sectors of electronics as well. Chinese-made products in 2010 represented 7.47 percent of all the semiconductor production equipment bought by Americans, 5.59 percent of the semiconductors, and 7.45 percent of the electricity measuring and test equipment (which is critical for producing information technology hardware).

Producers in China – including those owned by or affiliated with U.S and other foreign-owned multinational companies – also have won significant chunks of American markets in a wide variety of industrial machinery categories. In 2010, imports from China represented 14.65 percent of all American purchases of industrial valves, 14.38 percent of the market for fluid meters and counting devices, 12.28 percent of the market for motors and generators, 9.85 percent of consumption of relays and industrial controls, and 4.12 percent of the market for metal-cutting machine tools.

Chinese products held just over 4 percent of the total U.S. market for automotive products in 2010, but their penetration rates were much higher for key individual products like brakes (11.53 percent), vehicular lighting systems (7.61 percent), and a broad category of miscellaneous parts (8.07 percent).

A list of Chinese shares of selected U.S. markets in advanced manufacturing can be found in Appendix A.



U.S. Business and Industry Council

**Fighting for American companies
Fighting for American jobs**

At the same time, as indicated by the nearly 1,200 percent jump in the combined Chinese market-share in the 108 advanced manufacturing sectors studied, Chinese penetration has proceeded with jaw-dropping speed between 1997 and 2010.

During this period, for example, China's share of U.S. computer consumption has skyrocketed by more than 152,000 percent. Its share of America's market for semiconductor production equipment has soared by 74,600 percent. The percentage of commercial and service industry machinery supplied to Americans by China is up 42,400 percent. And in 22 of the other advanced manufacturing categories studied – including three auto parts sectors – Chinese import penetration rates have risen by more than 1,000 percent between 1997 and 2010. A list of these Chinese “rapid growers” can be found in Appendix B.

BACKGROUND

As President Obama prepares to meet China's likely next leader in the White House next week, major questions persist about the effectiveness of the China strategy he has been pursuing, and the effects of similar approaches taken by his predecessors. In particular, despite some recent signs of progress, the American economy remains deeply recessed. The economy is also still heavily dependent on borrowing (much of it from China and other trade competitors) for the modest growth and employment gains that have been generated since the current recovery technically began in mid-2009.

All the while, moreover, by all accounts China has increased its use of trade and investment-distorting practices to take growth and jobs from America and other countries. And on the security front, Washington has become so concerned about China's increasingly belligerent behavior toward its neighbors that President Obama has decided to strengthen America's military presence in the East Asia-Pacific region.

At the same time, effective responses to Beijing's predatory economic policies in particular remain hobbled by misconceptions about the nature of the economic challenge posed by China, and about its responsibilities for America's economic woes. Especially widespread is the belief that focusing on China is mistaken because its economic successes remain highly concentrated in low-value, labor-intensive products that America shouldn't even want to make anymore.

Undercutting this argument is the large and growing trade deficit in high tech products that the United States is running with China. But research by the U.S. Business and Industry Council has come up with even more compelling reasons to focus on the China challenge. This report presents new evidence that Made in China products are making large and often rapidly growing



U.S. Business and Industry Council

Fighting for American companies
Fighting for American jobs

inroads into American markets for advanced manufactured products – i.e., capital- and technology-intensive industrial goods in which high-income, technologically advanced countries like the United States should retain sizable competitive advantages.

As the tables below and related findings show clearly, domestic U.S. industries with high China import penetration rates (IPRs) include advanced electronics and communications equipment industries, and numerous categories of industrial machinery.

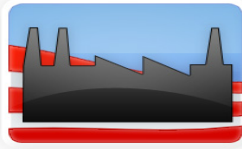
In other words, for more than a decade, Chinese-made products have been grabbing significant and vigorously expanding shares of American markets in these sophisticated products, enjoying large and mounting successes in head-to-head competition with their U.S.-made counterparts. Worse, these burgeoning successes are coming in coming in American industry's domestic backyard – the manufacturing market that is not only still the world's largest, but the one that U.S.-based manufacturers should know best, and in which they face no trade barriers whatever.

KEY FINDINGS

The two tables below list the ten advanced U.S. manufacturing markets in which Chinese-made products had gained their greatest shares in 1997 and 2010. As is clear, the import penetration rates (IPRs) of Chinese products have risen exponentially. Moreover, in the electronics field, the Chinese have greatly strengthened their positions in both final products, like computers, and broadcast and wireless communications equipment, as well as in parts and components.

Top Ten IPRs for Chinese Products in High-Value U.S. Manufacturing Markets

2010		1997	
Computers	61.05%	Electric coils, transformers, & other inducers	8.97%
Household textile products	40.29%	Misc. electronic components	8.62%
Miscellaneous textiles	30.03%	Household textile products	6.72%
Broadcast & wireless communications equip.	28.21%	Computer storage devices	5.82%



U.S. Business and Industry Council

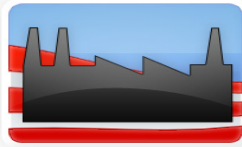
Fighting for American companies
Fighting for American jobs

Enameled iron & sanitary ware	27.94%	Miscellaneous textiles	5.14%
Miscellaneous electronic components	27.56%	Optical instruments	4.55%
Upholstered household furniture	22.00%	Telecomms hardware	2.92%
Computer storage devices	20.46%	Synthetic organic dyes & pigments	2.60%
Printed circuit assemblies	19.60%	Specialty transformers	2.53%
Plumbing fittings, fixtures, & trim	17.15%	Printed circuit assemblies	2.47%

The following two tables show the ten advanced U.S. manufacturing markets in which imports in general had gained their greatest shares in 1997 and 2010. As these tables show, import penetration generally is high and has grown rapidly in a wider range of products than it has grown for Chinese-made products.

Top Ten IPRs for Total Imports in High-Value U.S. Manufacturing Markets

2010		1997	
Pulp mill products	88.19%	Electric capacitors & parts	69.08%
Medicinal & botanical products	86.85%	Computer storage devices	66.67%
Computers	83.26%	Metal-forming machine tools	62.72%
Electronic resistors	82.11%	Heavy-duty trucks & chassis	62.53%
Semiconductor production Equipment	81.61%	Metal-cutting machine tools	58.56%



U.S. Business and Industry Council

Fighting for American companies

Fighting for American jobs

Electronic capacitors	81.46%	Misc. electronic components	56.90%
Autos & light trucks	78.66%	Newsprint	54.34%
Household textile products	77.23%	Autos & light trucks	50.43%
Metal-cutting machine tools	75.83%	Medicinal & botanical products	49.49%
Turbines & turbine Generator sets	70.86%	Electric coils, transformers & inducers	49.00%

An even better sense of the speed at which import penetration has grown in advanced U.S. manufacturing comes from the next two tables. These list the ten industries in which Chinese import penetration rates have grown fastest since 1997, and in which penetration rates for imports from all U.S. trade competitors have grown fastest since 1997. In order to eliminate distortions caused by “the law of small numbers,” these lists include only industries and products in which Chinese and global import penetration rates had reached 5 percent or more by 2010.

These lists show that the “fast growers” from China are not only increasing their shares of U.S. markets at much faster rates than the fast growers from the world at large. They also represent a much wider range of high-value industries than the list presenting those products with the highest absolute levels of Chinese import penetration.

Fastest Growing Chinese IPRs '97-10

Computers	+152,500%
Tire cord & fabrics	+81.500%
Semiconductor production equipment	+74,500%
Misc. commercial & service industry machinery	+42,400%

Fastest Growing Global IPRs '97-'10

Misc. commercial & service industry machinery	+808.76%
Computers	+497.70%
Household refrigerators & freezers	+440.50%
Enameled iron & sanitary ware	+339.10%



U.S. Business and Industry Council

Fighting for American companies
Fighting for American jobs

Fluid meters & counting devices	+23,868%	Broadcast & wireless communications equipment	+304.28%
Upholstered household furniture	+4,900%	Pharmaceutical preparations	+289.35%
Coated fabrics	+3,582%	Fabricated metal products	+261.89%
Broadcast & wireless communications equip.	+2,847%	Upholstered household furniture	+259.92%
Enameled iron & sanitary ware	+2,639%	Fluid power valves	+240.49%
Electronic capacitors	+2,390%	Household textile products	+233.18%

Although import penetration rates cannot yet be calculated for 2011, the import figures per se for last year, which are available, strongly indicate that import penetration rates from China and from the rest of the world have kept growing. That is to say, America's purchases of advanced manufacturers overall and from China in 2011 increased considerably faster than the overall economy's sluggish growth. Therefore, it seems clear that much more U.S. demand for these sophisticated products was met by these foreign producers than from producers in the United States. As a result, the U.S. economy will have continued to lose even more valuable growth and employment opportunities to other countries. And the goal of turning the U.S. economy from one based on borrowing and consuming, to one based on investing and producing, will have become more distant, not closer.

Fastest-Growing U.S. High-Value Imports from China, 2010-11

Autos & light trucks	+287.4%
Industrial patterns	+197.3%
Miscellaneous basic inorganic chemicals	+152.0%

Fastest-Growing U.S. High-Value Imports Total, 2010-2011

Metal-cutting machine tools	+81.0%
Construction equipment	+58.7%
Industrial patterns	+45.0%



U.S. Business and Industry Council

Fighting for American companies
Fighting for American jobs

Petrochemicals	+117.8%	Iron & steel	+35.5%
Pulp mill products	+108.1%	Miscellaneous engine equip.	+35.0%
Fluid power valves	+93.2%	Fluid power valves	+34.3%
Industrial gases	+87.2%	Cutting tools & machine tool Accessories	+33.0%
Motor vehicle stampings	+86.7%	Speed changers, gears, & high-speed industrial drives	+32.6%
Construction equip.	+70.1%	Tire cord & fabrics	+31.1%
Speed changers, gears, & high-speed industrial drives	+66.0%	Sheet metal works	+30.6%

For comparison's sake, the two tables below show the fastest growing U.S. high-value exports to China, and to the world as a whole last year. These tables show that many U.S. high-value exports to China grew last year at rates roughly comparable to those of America's high-value imports from China. The same holds for the global numbers.

Fastest-Growing U.S. High-Value Exports to China, 2010-11

Tire cord & fabrics	+249.1%
Motor vehicle power train & transmission equip.	+185.1%
Special dies & tools	+111.7%
Upholstered household furniture	+109.5%
Construction equip.	+98.6%

Fastest-Growing U.S. High-Value Exports Total, 2010-2011

Spun yarns	+63.3%
Industrial patterns	+52.8%
Construction equipment	+41.7%
Synthetic rubber products	+29.6%
Fluid power valves	+28.7%



U.S. Business and Industry Council

Fighting for American companies

Fighting for American jobs

Fluid power valves	+85.5%	Power boilers & heat exchangers	+27.6%
Pharmaceutical Preparations	+81.8%	Inorganic dyes & pigments	+27.6%
Household textile Products	+71.2%	Cutting tools & machine tool accessories	+27.0%
Sawmill products	+69.8%	Metal-cutting machine tools	+26.1%
Magnetic & optical recording media	+66.5%	Mining machinery & equip.	+25.1%

Yet the tables also point to a disturbing trend – even though the United States is supposed to be much more industrially and technologically advanced than China, these trade figures reveal a gap that is not overwhelmingly wide. That is to say, China's most increasingly successful exports to the United States don't look substantially different than America's most increasingly successful exports to China. A comparison of the biggest U.S. and global winners yields a similar picture.

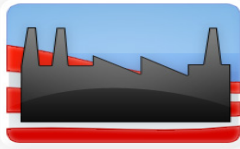
Additional signs of a rapidly closing U.S.-China manufacturing and technology gap: Of the ten industry sectors responsible for the fastest-growing U.S. high-value exports to China, only three are running trade surpluses with the PRC. Seven are running trade deficits. The surplus industries are: pharmaceutical preparations; construction equipment; and sawmill products. The deficit industries are: special dies and tools; fluid power valves; motor vehicle transmission and power train equipment; magnetic optical and recording media; tire cord and fabrics; and upholstered household furniture; household textile products.

These industries, however, hardly exhaust the list of high-value U.S. sectors running trade deficits with China. Others include computers; electro-medical devices; broadcast and wireless communications equipment; industrial valves; relays and industrial controls; search, detection, navigation, and guidance equipment; ball and roller bearings; farm machinery and equipment; relays and industrial controls; industrial process and control equipment; automatic environmental controls; commercial and industrial refrigeration and heating equipment; and iron and steel.

UNITED STATES BUSINESS AND INDUSTRY COUNCIL • 512 C ST. NE • WASHINGTON, DC 20002

(202) 266-3980 • (202) 266-3981 FAX • COUNCIL@USBUSINESS.ORG •

WWW.AMERICANECONOMICALERT.ORG



U.S. Business and Industry Council

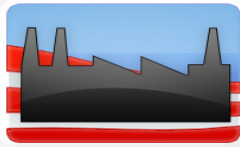
Fighting for American companies
Fighting for American jobs

METHODOLOGY

This data is drawn from a recent report from the U.S. Business and Industry Council on import penetration trends in advanced U.S. manufacturing. This latest in USBIC's annual import penetration reports examines trade and output trends in the same 108 capital- and technology-intensive U.S. manufacturing industries. That report is available at this link: <http://images.magnetmail.net/images/clients/USBIC/attach/USBICImportPenetrationReport2012.pdf>

The industry categories used are those created by the North American Industry Classification System (NAICS) and are presented at the 6-digit level. The trade data upon which the import penetration calculations are based come from the U.S. International Trade Commission. The output data that is also needed to calculate IPRs comes from the U.S. Census Bureau's Annual Survey of Manufactures. All figures presented are current-dollar figures. The export data used are "domestic exports." The import data are "imports for consumption." These categories are used to minimize double-counting. 1997 is the first year used because it marks the year when the NAICS system was introduced. 2010 is the most recent year for which IPRs are presented, because it is the last year for which the detailed U.S. manufacturing output data needed to calculate them are available. Due to deficiencies in the above U.S. government data, IPRs for several industries prominent in U.S.-China trade – notably telecommunications hardware, metal-forming machine tools; plastics and rubber production equipment; and aircraft, and aircraft parts – are not possible to calculate for 2010. Therefore, no data is presented for these sectors. In addition, data for tires have been omitted, since U.S. imports of tires from China recently have been limited recently by anti-subsidy tariffs.

Alan Tonelson is a Research Fellow at the U.S. Business and Industry Council, which represents nearly 2,000 small and medium-sized domestic U.S. manufacturing companies. A columnist for The Washington Times, Tonelson is also a contributor to the Council's AmericanEconomicAlert.org website and author of The Race to the Bottom (Westview Press, 2002)



U.S. Business and Industry Council

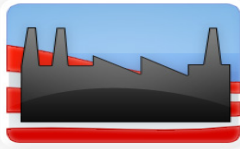
Fighting for American companies
Fighting for American jobs

APPENDIX A

SELECTED CHINA IMPORT PENETRATION RATES, 2010

© 2012 U.S. Business and Industry Council

Computers: 61.05%
Household textile products: 40.29%
Miscellaneous textile products: 30.03%
Broadcast & wireless communications equipment: 28.59%
Miscellaneous electronic components: 27.56%
Upholstered household furniture: 22.00%
Computer storage devices: 20.46%
Printed circuit assemblies: 19.60%
Electronic resistors: 16.47%
Transformer, inductors, and electric coils: 16.68%
Industrial valves: 14.65%
Fluid meters & counting devices: 14.38%
Motors & generators: 12.28%
Printed circuits: 11.98%
Relays & industrial controls: 9.85%
Speed changers, gears, & high-speed industrial drives: 8.85%
Pumps & pumping equipment: 8.63%
Miscellaneous commercial & service industry machinery: 8.50%
Semiconductor production equipment: 7.47%
Electricity measuring & test equipment: 7.45%
Household refrigerators & freezers: 6.97%
Ball & roller bearings: 6.43%
Commercial & industrial heating & refrigeration equipment: 6.43%
Cutting tools & machine tool accessories: 6.39%
Mining machinery & equipment: 6.29%
Miscellaneous basic organic chemicals: 5.69%
Semiconductors: 5.59%
Metal-cutting machine tools: 4.12%
Construction equipment: 2.47%
Iron & steel: 1.06%
Plastics & resins: 0.52%
Pharmaceutical preparations: 0.23%



U.S. Business and Industry Council

Fighting for American companies
Fighting for American jobs

APPENDIX B

FASTEST-GROWING CHINA IMPORT PENETRATION RATES, 1997-2010

© 2012 U.S. Business and Industry Council

Computers: +155,525%
Tire cord & fabrics: +81,500%
Semiconductor production equipment: +74.600%
Miscellaneous commercial & service industry machinery: +42,500%
Fluid meters & counting devices: +23,868%
Upholstered household furniture: +4,900%
Coated fabrics: +3,524%
Broadcast & wireless communications equipment: +2,847%
Enameled iron & sanitary ware: +2,639%
Electronic capacitors: +2,390%
Electricity measuring & test equipment: +2,281%
Commercial & industrial heating & refrigeration equipment: +2,043%
Miscellaneous auto parts: +1,917%
Crowns & closures: +1,913%
Electronic resistors: +1,908%
Environmental controls: +1,767%
Semiconductors: +1,703%
Speed changers, high-speed industrial drives, & gears: +1,598%
Motor vehicle brakes: +1,571%
Industrial valves: +1,269%
Plumbing fixtures, fittings, and trim: +1,240%
Pumps & pumping equipment: +1,066%
Mining machinery & equipment: +1,065%
Printed circuit assemblies: +1,060%
Cutting tools & machine tool accessories: +1,041%