

# US Exports to China

Goods and Services Exports to China and the Jobs They Support, by State and Congressional District



THE US-CHINA BUSINESS COUNCIL  
美中贸易全国委员会

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# Executive Summary

**US exports to China support a broad swath of the US economy.** These exports contribute to American livelihoods across the country. This report explores the latest comprehensive data available for both US goods (2022) and services (2021) exports to China, as well as the American jobs (2021) they support. China was the United States' third-largest goods export market in 2022 and its sixth-largest services export market in 2021. For combined goods and services exports in 2021, China was the top export market for four states, in the top three markets for 38 states, and within the top five markets for all but three states. China is just one of three countries whose purchases of US goods and services supported more than 1 million jobs—Canada and Mexico were the other two.

**The US-China trade relationship has grown steadily for decades, but in 2022, it appeared to weaken slightly.** Goods exports to China reached a record high, but much of that year-over-year growth can likely be attributed to inflation. When compared to US exports to other top markets, goods exports to China grew at a significantly slower rate. Stunted economic growth in China, Russia's war in Ukraine, and US-China tension are weighing on the bilateral trade relationship, as are long-standing barriers, such as tariffs. On the services front, US exports to China increased in 2021 but had not recovered from the shock of the COVID-19 pandemic.

**US goods exports to China increased by 1.2 percent in 2022 and were led by oilseeds and grains.** Both oilseeds and grains and pharmaceutical exports saw double-digit growth year over year. While semiconductors and oil and gas remained among the top goods exports to China, both saw double-digit contractions.

**US services exports to China increased by 7 percent in 2021, with education and various types of royalties comprising the largest categories.** More than half of states increased their services exports to China by at least 5 percent. Travel, historically the largest services export to China by far, sunk even lower than it had the year prior, and education exports saw a moderate increase.

## \$151.3 billion

US goods exports to China, 2022

## 1.06 million

Jobs supported by US exports to China, 2021

## \$39.6 billion

US services exports to China, 2021

## \$149.5 billion

US goods exports to China, 2021



# US goods exports to China by category, 2022

Oilseeds & Grains, \$25.4B

Semiconductors & Components, \$11.2B

Navigational & Meas. Instruments, \$6.5B

Industrial Machinery, \$5.6B

Aerospace Products & Parts, \$5.5B

Oil & Gas, \$11.0B

Meat Products, \$5.3B

Motor Vehicles, \$5.0B

Resins & Synthetic Fibers, \$4.7B

Misc. Crops, \$4.0B

Pharmaceuticals & Medicines, \$10.9B

Medical Equipment & Supplies, \$3.6B

Pulp & Paperboard Mill Products, \$2.4B

Petroleum & Coal Products, \$1.7B

Electrical Equipment & Components, \$1.7B

Misc. Fabricated Metal Products, \$1.6B

Plastics Products, \$1.6B

Soaps, Cleaning Agents & Toiletries, \$1.5B

Metal Ores, \$1.2B

Electrical Equipment, \$1.2B

Misc. Chemical Preparations, \$1.2B

Marine Products, \$1.0B

Scrap Products, \$2.2B

Misc. Manufactured Commodities, \$1.4B

Sawmill & Wood Products, \$0.9B

Timber & Logs, \$0.7B

Ag. & Construction Machinery, \$0.7B

Fruits & Tree Nuts, \$0.7B

Misc. Foods, \$0.6B

Misc. General Purpose Machinery, \$3.0B

Computer Equipment, \$2.0B

Engines & Turbines, \$1.2B

Communications Equipment, \$0.9B

Coal & Petroleum Gases, \$0.8B

Basic Chemicals, \$6.7B

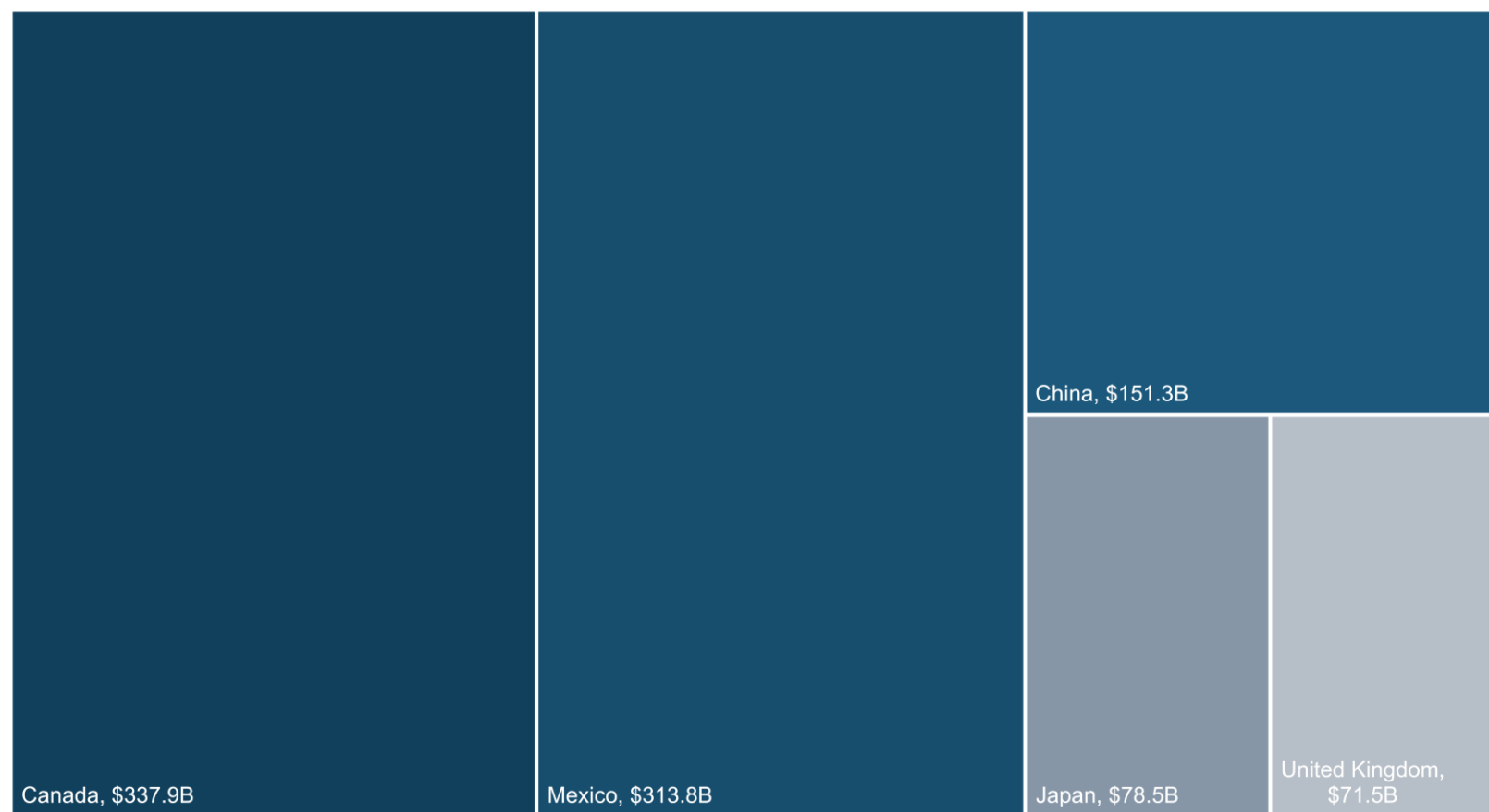
Nonferrous Metal Products, \$2.8B

Motor Vehicle Parts, \$1.8B

Comm. & Serv. Industry Machinery, \$1.2B

Dairy Products, \$0.8B

All others, \$8.7B



### Top US goods export markets, 2022

Market	Exports (billion)	Growth (y/y)
1. Canada	\$337.9	15%
2. Mexico	\$313.8	17%
<b>3. China</b>	<b>\$151.3</b>	<b>1%</b>
4. Japan	\$78.5	8%
5. United Kingdom	\$71.5	27%
6. Netherlands	\$70.6	37%
7. South Korea	\$69.9	8%
8. Germany	\$69.5	11%
9. Brazil	\$52.3	14%
10. India	\$46.2	18%

## Top goods exporters to China by state, 2022

State	Exports (billion)	Growth (y/y)	Growth (10 year)
1. Texas	\$21.8	3%	104%
2. California	\$17.7	8%	13%
3. Oregon	\$8.2	-21%	181%
4. Illinois	\$6.6	9%	8%
5. North Carolina	\$6.5	50%	123%
6. Indiana	\$5.2	13%	116%
7. Louisiana	\$4.5	8%	120%
8. Minnesota	\$4.4	8%	33%
9. Washington	\$4.1	45%	-65%
10. Georgia	\$4.1	-2%	8.3%

## Top US congressional district goods exporters to China, 2022

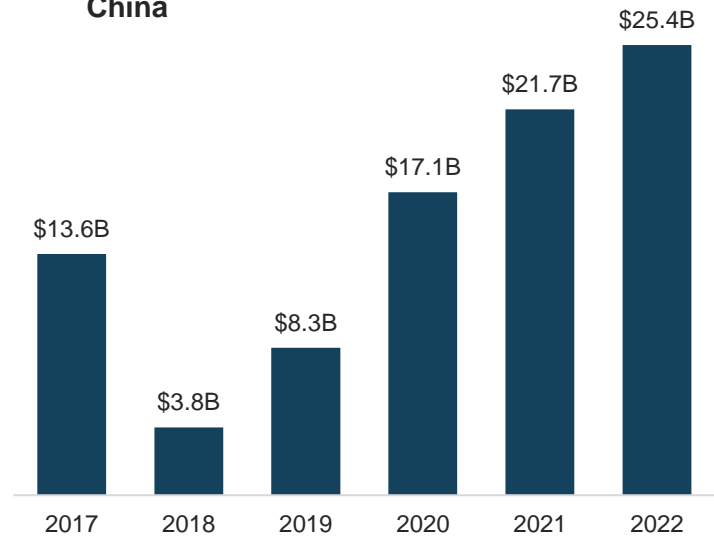
District	Exports (billion)	Growth (y/y)	Growth (10 year)
1. Oregon 1st	\$3.3	-22%	304%
2. Oregon 6th	\$3.2	-23%	273%
3. Texas 38th	\$3.2	-4%	541%
4. California 17th	\$2.0	6%	19%
5. Nebraska 3rd	\$1.9	12%	67%
6. North Carolina 4th	\$1.8	72%	375%
7. Iowa 4th	\$1.6	14%	66%
8. Texas 36th	\$1.5	14%	21%
9. Minnesota 7th	\$1.5	13%	37%
10. Indiana 7th	\$1.4	13%	997%

# Diving into the Details

## Oilseeds and grains cement their place as the top export to China

Oilseeds and grains—crops like soybeans, wheat, and corn—remained the largest export to China by far. At \$25.4 billion, these exports totaled more than twice the size of the next largest category. US farmers sent \$3.6 billion more in oilseeds and grains to China than they did the year before. According to the US Department of Agriculture, this growth is largely attributable to strong demand and higher prices of agricultural goods compared to the previous year, as the volumes of most agriculture exports actually went down. Trouble in other markets—a drought in South America, a palm oil export ban in Indonesia, and the war in Ukraine, an important exporter of wheat—put upward pressure on prices.

US exports of oilseeds and grains to China

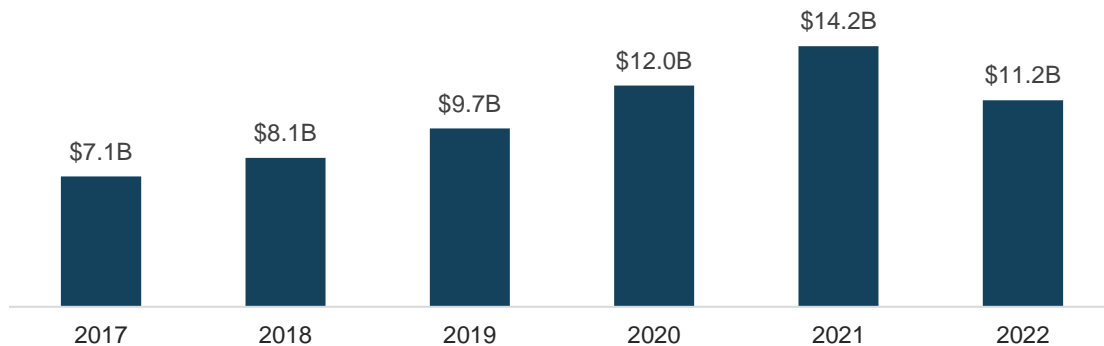


Growth in oilseeds and grains exports was widely distributed across the United States. Thirty states saw their exports of the crops expand, and 11 states saw shipments grow by more than \$100 million, with Illinois posting the largest increase of all: \$653 million. Ten US states shipped more than \$1 billion in the crops to China in 2022.

## Semiconductor exports falter

Exports of semiconductors and their componentry fell by \$2.9 billion last year, wiping out the growth of the year before. China’s weak economy in 2022, a result of strict COVID-19 travel policies and widespread lockdowns, reduced the demand for these foundational technologies. US export controls on advanced semiconductors and semiconductor manufacturing equipment, which took effect in October of 2022, also inhibited exports to China. The more frequent use of export controls over the last few years has led Chinese customers to deprioritize American products when there are viable domestic and third-country suppliers. Oregon, the largest exporter of the goods by far, comprised the bulk of the national decline with a \$1.8 billion decrease in 2022. However, even with new export controls in place, chips remain the second-largest goods export to China.

US exports of semiconductors and their componentry





## Oil and gas

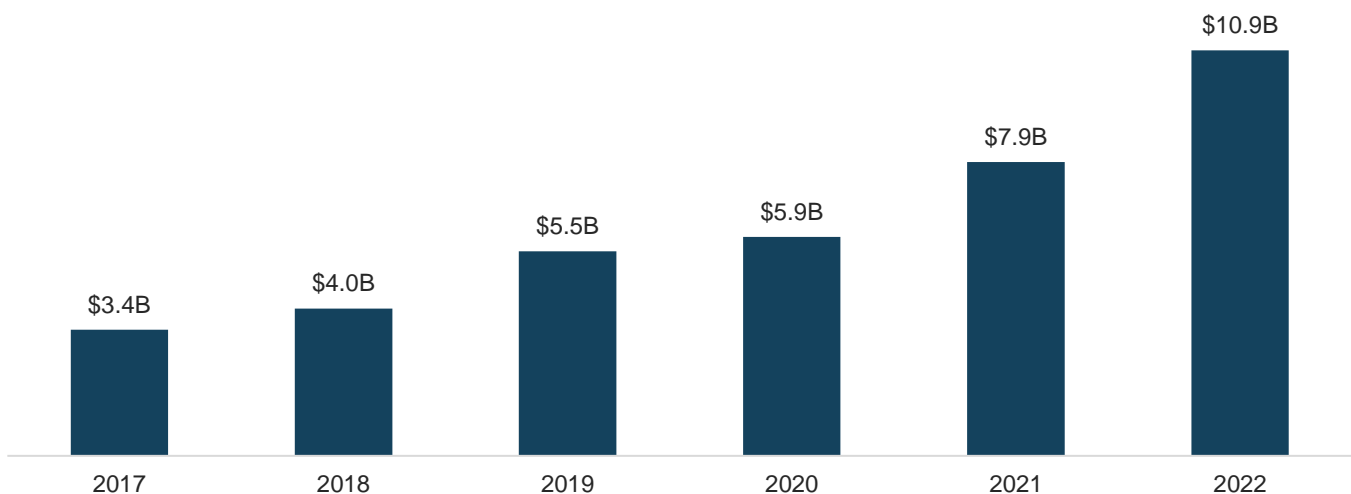
While US exports of oil and gas to China remained the third-largest export category at \$11 billion, the figure actually represents a \$1.5 billion contraction from 2021. The decrease is the result of a reshuffling in international petroleum markets after Russia's invasion of Ukraine began in February 2022. Russia's subsequent isolation from most markets drastically lowered the price of Russian oil and gas, and some Chinese importers switched from importing the product from the United States and other producers to importing it from Russia. Texas and Louisiana remained by far the largest exporters of oil and gas to China, shipping \$7.7 billion and \$2.9 billion respectively, despite both seeing year-over-year contractions of around 5 percent.

## Pharmaceutical and medicine exports to China saw continued growth

US exports of pharmaceuticals and medicines to China continued their growth streak, jumping \$3 billion in 2022, or 38 percent. Much of this growth was concentrated in North Carolina, which boosted its exports by \$2.1 billion compared to the year prior. A handful of states also saw massive growth relative to 2021, with Rhode Island, Utah, Nevada, Arkansas, Michigan, Louisiana, and North Carolina all more than doubling their pharmaceutical exports to China. While this report does not include data for territories such as Puerto Rico or the US Virgin Islands, it is noteworthy that Puerto Rico exported \$1.1 billion in pharmaceuticals to China in 2022, behind only North Carolina and Indiana.

Over the past few years, China has sped up regulatory processes for new drug approvals, which has allowed US companies to more rapidly bring new drugs to the country's market. While some US companies are able to export a large amount of high-value, high-demand drugs that have no domestic equivalents in China, China's national pharmaceutical procurement program may pose a long-term barrier to continued growth for US companies in this sector.

### US exports of pharmaceuticals and medicines to China



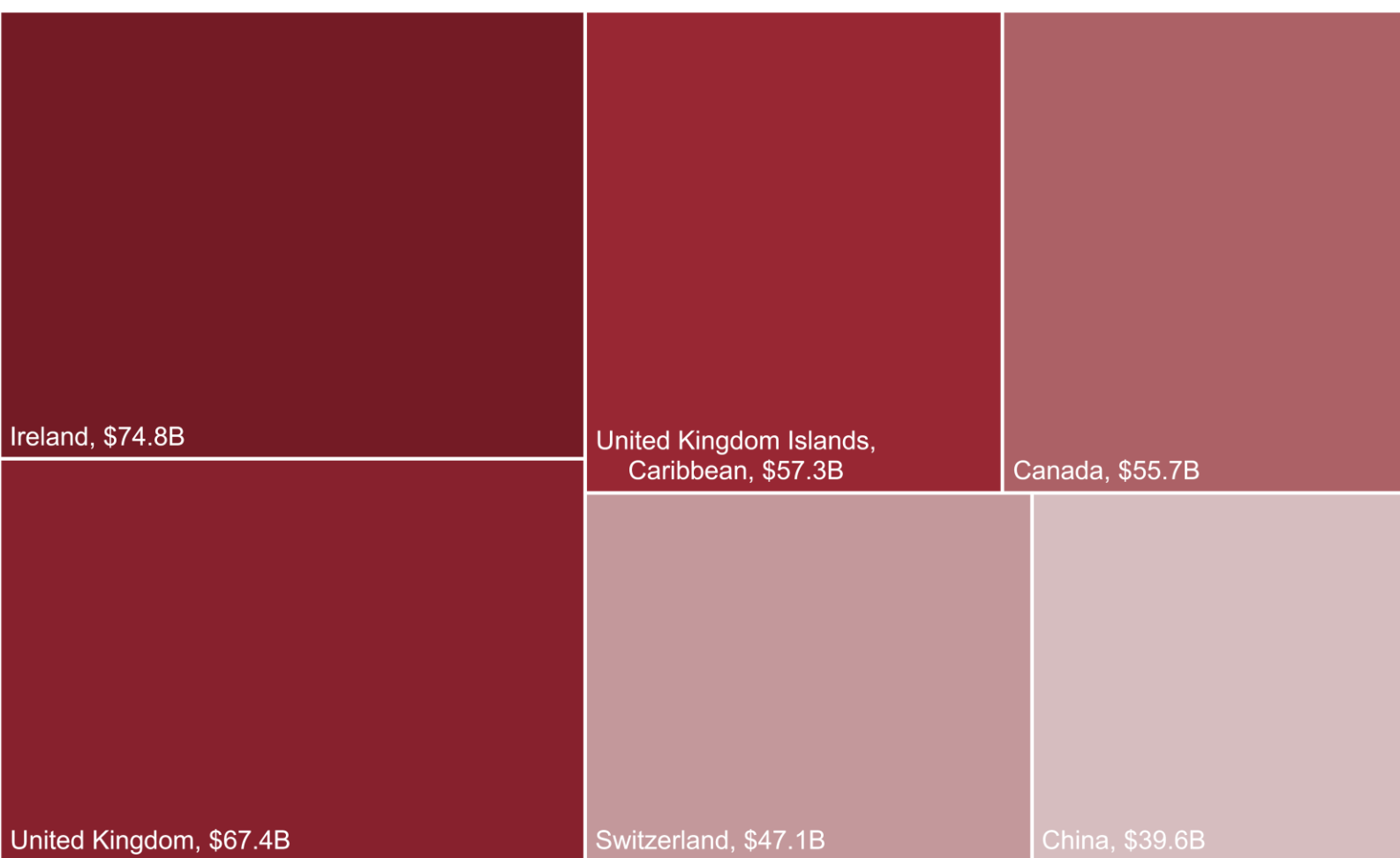


# US services exports to China by category, 2021

Education, \$11.1B

Royalties From Industrial Processes, \$4.6B

Software Distribution Royalties, \$2.0B	Credit-Related Services, \$1.7B	Misc. Financial Services, \$1.7B	Misc. Business, Prof. & Tech. Services, \$1.6B
Trademark Royalties, \$1.9B	Ocean Freight & Port Services, \$1.5B	Computer Software Services, \$1.1B	Audio/Visual Services, \$1.1B
Misc. Personal & Recreational, \$1.7B	Air Freight & Port Services, \$1.2B	Legal Services, \$0.8B	Equip. Installation & Maintenance, \$0.9B
	Business Mgmt. & Consulting, \$1.2B	Operational Leasing, \$0.7B	Bank Lending-Related Services, \$0.3B
		Arch., Eng. & Other Tech. Services, \$0.7B	Insurance Services, \$0.3B
		Financial Mgmt. & Advisory Services, \$0.5B	Misc. Computer Services, \$0.3B
			All others, \$2.5B



### Top US services export markets, 2021

Market	Exports (billion)	Growth (y/y)
1. Ireland	\$74.8	11%
2. United Kingdom	\$67.4	10%
3. UK Islands, Caribbean	\$57.3	9%
4. Canada	\$55.7	7%
5. Switzerland	\$47.1	13%
<b>6. China</b>	<b>\$39.6</b>	<b>7%</b>
7. Japan	\$36	-3
8. Germany	\$31.6	7%
9. Mexico	\$30.1	30%
10. Singapore	\$30	17

### Top services exporters to China by state, 2021

State	Exports (billion)	Growth (y/y)	Growth (10 year)
1. California	\$7.9	7%	52%
2. New York	\$4.5	12%	52%
3. Texas	\$2.9	3%	23%
4. Illinois	\$2.2	13%	41%
5. Massachusetts	\$2	9%	73%
6. Florida	\$1.5	6%	-2%
7. Washington	\$1.4	8%	30%
8. Pennsylvania	\$1.2	5%	34%
9. Georgia	\$1.2	8%	25%
10. North Carolina	\$1.1	6%	69%

### Top services exporters to China by district, 2021

District	Exports	Growth (y/y)	Growth (10 year)
1. New York 12th	\$1.4 billion	14%	60%
2. New York 10th	\$884 million	-1%	52%
3. Massachusetts 7th	\$768 million	12%	103%
4. Illinois 5th	\$645.2 million	28%	80%
5. California 42nd	\$636 million	9%	7%
6. California 11th	\$561.2 million	10%	66%
7. California 36th	\$536 million	17%	93%
8. California 16th	\$491 million	4%	145%
9. Washington 7th	\$432.1 million	7%	63%
10. California 17th	\$423.1 million	1%	161%



## Travel

While most nations relaxed their entry and exit policies after mRNA vaccines were deployed to fight the COVID-19 pandemic, China was an outlier. China continued to restrict non-citizens' and citizens' entry for the entirety of 2021 and 2022. During this time, private citizens and business executives alike found it nearly impossible to smoothly travel back and forth between the United States and China due to extended quarantine requirements, limited visa availability, and slowed passport issuance in China. As a result, the travel exports figure—which represents money spent by Chinese citizens in the United States—sank even further in 2021 and will almost certainly not show signs of recovery until 2023. Since 2019, the last full year before the COVID-19 pandemic began, personal, business, and health travel decreased a dizzying 98, 96, and 88 percent respectively. Nevada's and Hawaii's services exports to the world have been cut in half since 2019, with their services exports to China specifically dropping by more than 70 percent over the same period.

### Travel exports to China, 2019–2021

Category	2019	2020	2021	Change (2019-2021)
1. Personal Travel & Tourism	\$9.4 billion	\$923 million	\$217 million	–98%
2. Business Travel	\$3.6 billion	\$350 million	\$136 million	–96%
3. Medical-related Travel	\$188 million	\$40 million	\$22 million	–88%

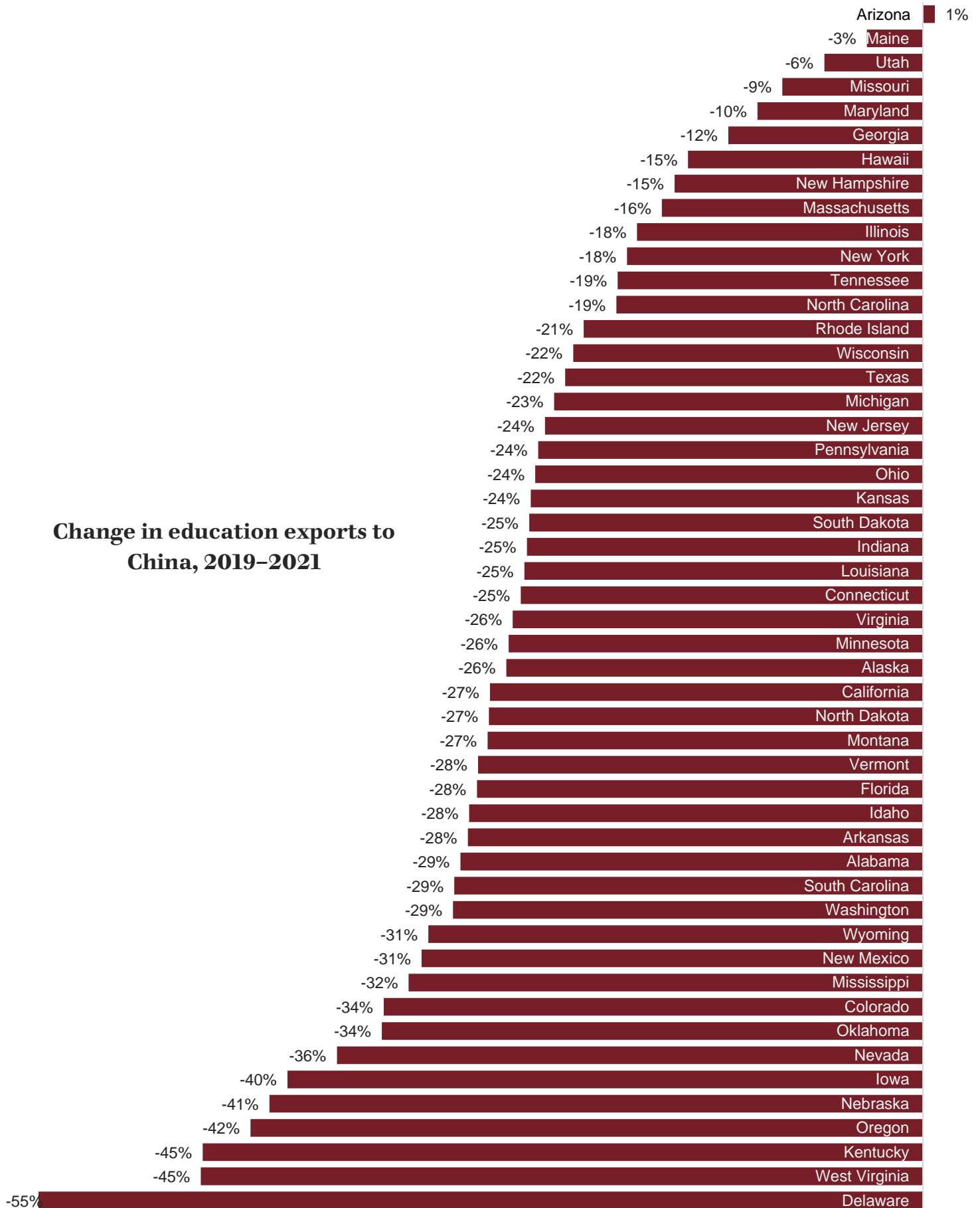
## Education

Education exports to China, also impacted by travel and other factors, saw a moderate increase over the year prior. Education exports include money that Chinese students studying in the United States pay for tuition, housing, books, and other related fees, which are all important contributions to local economies. These exports increased by 6 percent to around \$11.1 billion in 2021, the largest figure for any services category that year, though this is far below pre-pandemic levels. California, New York, and Massachusetts benefited the most from hosting Chinese students, with each seeing a more than \$1 billion contribution from them in 2021.

Chinese students remain the [largest](#) demographic of international students studying at US universities, but they are coming to study in lower numbers than before. Since the 2018–2019 school year, the number of Chinese students coming to study in the United States has been on the decline, and the amount of money Chinese students are spending in the United States has dropped accordingly, plummeting by a quarter since 2019. Only Arizona has increased its education exports to China during this period—and only by 1 percent. Delaware's education exports to China have dropped by a staggering 55 percent since 2019, and Kentucky and West Virginia both experienced 45 percent declines.

While uncertainties in the COVID-19 and travel situations were likely the chief reasons for lower economic contributions from Chinese students in 2020 and 2021, worsening geopolitical tensions between the United States and China, US visa policies, personal safety considerations, and increased competition from UK, Canadian, Australian, Singaporean, and domestic Chinese universities may also have [played](#) a role. These dynamics predate the pandemic and are likely to endure even if travel bounces back.

**Change in education exports to  
China, 2019–2021**



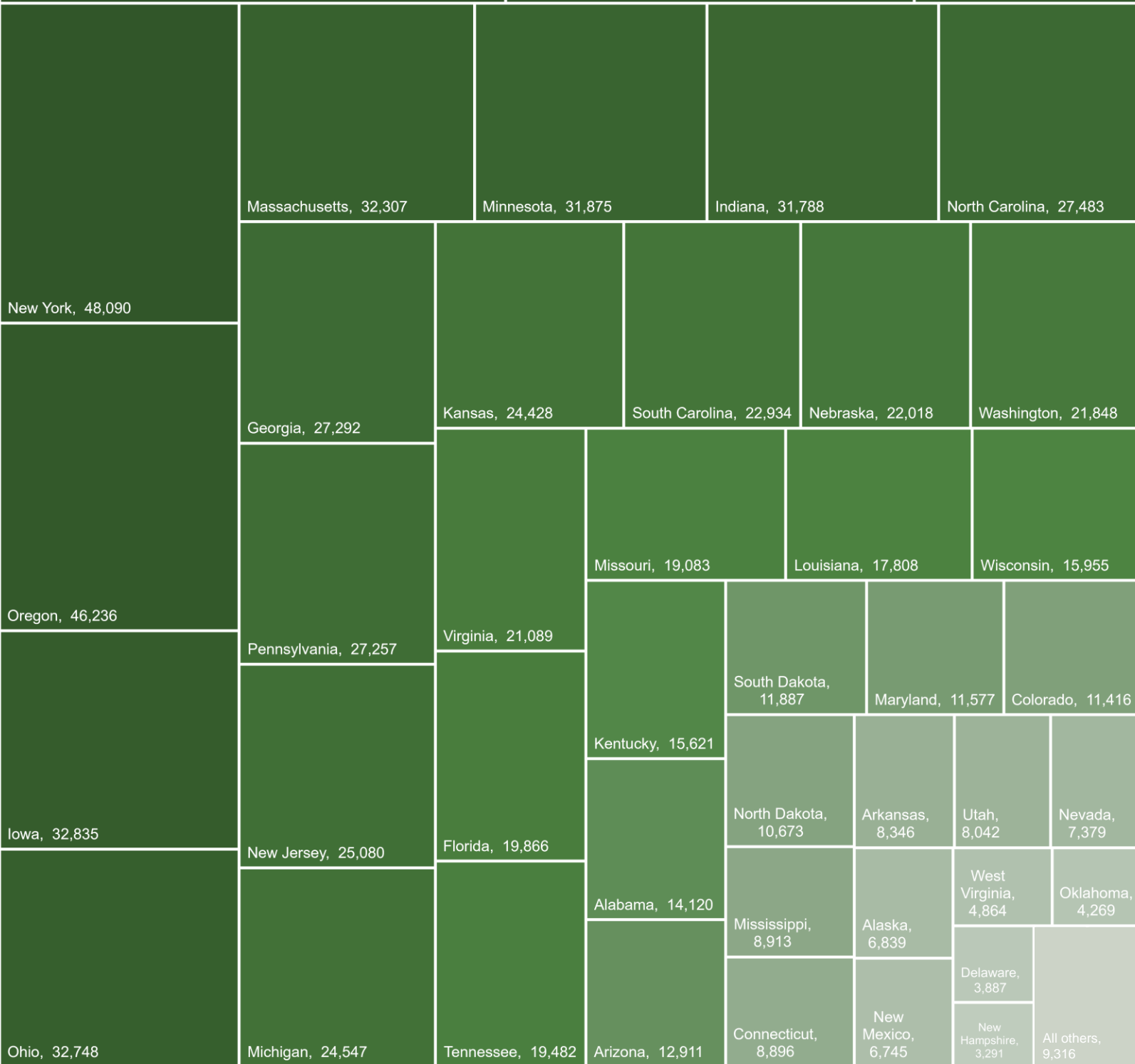


# Jobs supported by states' exports to China, 2021

California, 132,412

Texas, 106,889

Illinois, 58,822



### **Agriculture and livestock continued to support jobs in the heartland**

Agriculture- and livestock-exporting states, including Illinois, Kansas, Nebraska, Iowa, Minnesota, and Texas, saw some of the largest increases in the number of jobs supported by exports to China in 2021. Starting in 2020, China did away with certain structural trade barriers and offered tariff relief for agriculture and other goods in order to fulfill its purchase commitments under the Phase One Trade Agreement. In the cases of Kansas, Nebraska, North Dakota, and South Dakota, the number of jobs supported by exports to China has more than doubled since 2019.

### **California's diverse exports have boosted jobs**

As in past years, California's exports to China supported more jobs than any other state's. In 2021, California also saw the second-largest increase in export-supported jobs: 17,500 or 15 percent. Ten percent of California's global goods exports went to China in 2021; the largest categories being industrial machinery, navigational and measuring instruments, fruits and tree nuts, and pharmaceuticals. Six percent of the state's global services exports went to China that year, with education, royalties from industrial processes, and ocean freight and port services leading the way.

### **Hawaii and Nevada feel repercussions of tourism drain**

Tourism-dependent economies have seen the number of jobs supported by Chinese tourism decrease since 2019, the last year before the COVID-19 pandemic and ensuing restrictions on travel into and out of China. With tourism taking a major hit starting in 2020, the number of jobs supported by Hawaii's exports to China has contracted by 69 percent, a loss of an estimated 1,900 jobs. Similarly, the number of jobs supported by Nevada's exports to China decreased by nearly the same amount.



# Methodology

This year's edition of the US-China Business Council's export report draws on data obtained from Trade Partnership Worldwide, an economic research firm. The report provides a breakdown of each US state and congressional district's goods and services exports to China. Goods export figures are primarily based on data from the US Census Bureau, the US Department of Agriculture, and Moody's Analytics. Goods export figures are classified according to the US government's North American Industry Classification System. Services export figures are primarily based on data from the US Bureau of Economic Analysis (BEA) and Moody's Analytics. Services export figures are classified according to BEA categories. This year's edition of the export report uses the same sector categories for goods and services as last year's. Goods exports cover 2013-2022; services exports cover 2012-2021, the most recent year for which detailed BEA data are available. Because historical data from each of these sources are revised annually, this edition replaces all prior editions. All congressional district data reflect new districts for the 118th Congress. As in previous editions, this report uses a methodology that credits agricultural exports to districts in which crops are grown as opposed to districts with large ports where bulk commodities are aggregated prior to export. Average annual growth is calculated with an average annual growth rate formula. A detailed explanation of the methodology informing our estimates of goods exports, services exports, and jobs is available on Trade Partnership Worldwide's [website](#).