

US Export Report 2022

*US Exports of Goods and Services to China
by State and Congressional District*



THE US-CHINA BUSINESS COUNCIL

美 中 贸 易 全 国 委 员 会

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Authors

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Executive Summary

The latest data on US exports to China paint a picture of extremes. In 2021, as global trade continued recovering from the pandemic, goods exports to China grew by 21 percent to an all-time high of \$149.2 billion. On the other hand, in 2020, the latest year of services data available, services exports to China contracted by 33 percent to \$37 billion. This was the lowest amount since 2013, reflecting the devastating impact of the pandemic on travel and education. When it comes to jobs supported by US exports to China, the bump in 2020 goods exports from tariff relief did not make up for the pandemic's impact on services exports. The number of US jobs supported by both goods and services exports to China stood at just over 858,000 in 2020, roughly 44,000 fewer than in 2019, a five percent drop.

- **US goods exports to China hit an all-time high in 2021.** After hitting a trough in 2019 during the peak of tariff escalations, US goods exports continued a two-year growth streak last year. That boost was powered by substantial growth in the three largest categories of exports: oilseeds and grains, semiconductors and their componentry, and oil and gas.
- **In 2020, US services exports to China were crushed by the COVID-19 pandemic.** The global spread of COVID-19 in 2020 caused international travel to plummet, hammering the largest US services export to China. North Dakota, the state with the highest growth figure, saw its services exports to China contract by 19 percent.
- **China remains an important market for US exporters.** As in years past, China remained the United States' third-largest goods export market in 2021, outsized only by USMCA partners Canada and Mexico. While China fell to the United States' sixth-largest services export market in 2020, when it comes to combined goods and services exports that year, it was still the top export market for four states, in the top three for 38, and in the top five for 47.
- **US businesses and farmers across the country benefit from exporting to China.** US exports to China continue to include a broad array of goods and services—including agricultural goods, semiconductors, oil and gas, and education—supporting US jobs across the country.

\$149 billion

US goods exports to China, 2021

\$37 billion

US services exports to China, 2020

\$123 billion

US goods exports to China, 2020

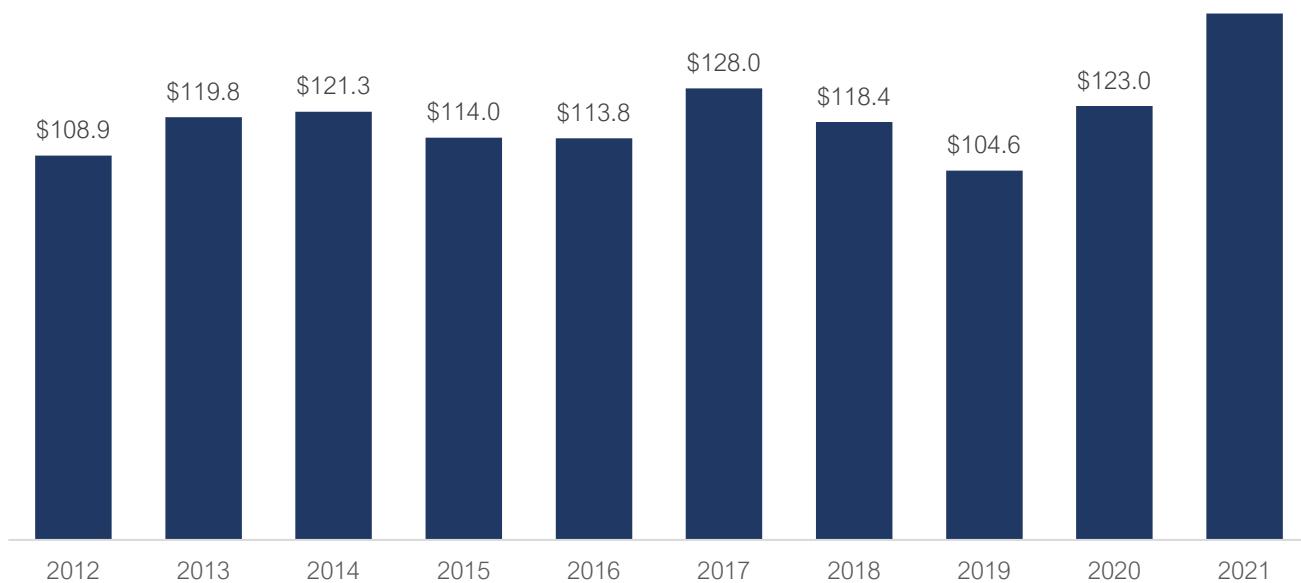
858,486 jobs

US jobs supported by all exports to China, 2020

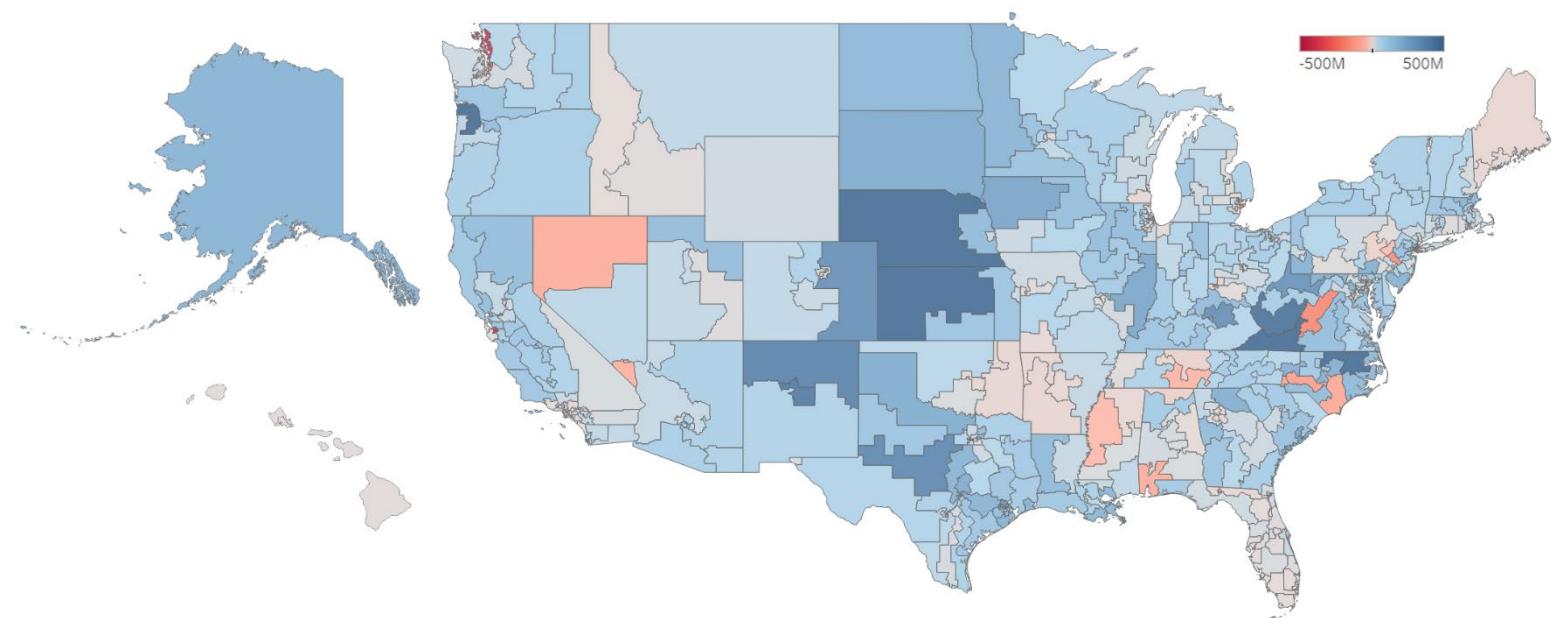
US Goods Exports to China

The United States saw goods exports to China reach an all-time high in 2021, propelled by growing sales of oilseeds and grains, semiconductors, and oil and gas, among other goods. Though the top-line categories of US goods exports to China get the most media attention, the array of goods that US businesses ship to China is expansive.

US goods exports to China (billions, USD)



Changes in US goods exports to China, 2020–2021



US goods exports to China by category, 2021

All Others \$22.8B

Oilseeds & Grains \$21.9B

Pharmaceuticals & Medicines \$7.9B

Industrial Machinery \$7.5B

Navigational & Meas.
Instruments \$6.6B

Semiconductors & Components
\$14.1B

Motor Vehicles \$6.3B

Aerospace Products & Parts
\$4.7B

Resins & Synthetic
Fibers \$3.9B

Nonferrous Metal
Products \$3.6B

Oil & Gas \$12.0B

Basic Chemicals \$5.7B

Coal & Petroleum
Gases \$2.4B

Misc. Crops \$2.4B

Pulp &
Paperboard Mill
Products \$2.3B

Meat Products \$5.0B

Medical
Equipment &
Supplies \$3.4B

Motor Vehicle
Parts \$2.1B

Plastics
Products
\$1.7B

Electrical
Equipment &
Compone...
\$1.7B

Soaps,
Cleaning
Agents &
Toiletries
\$1.5B

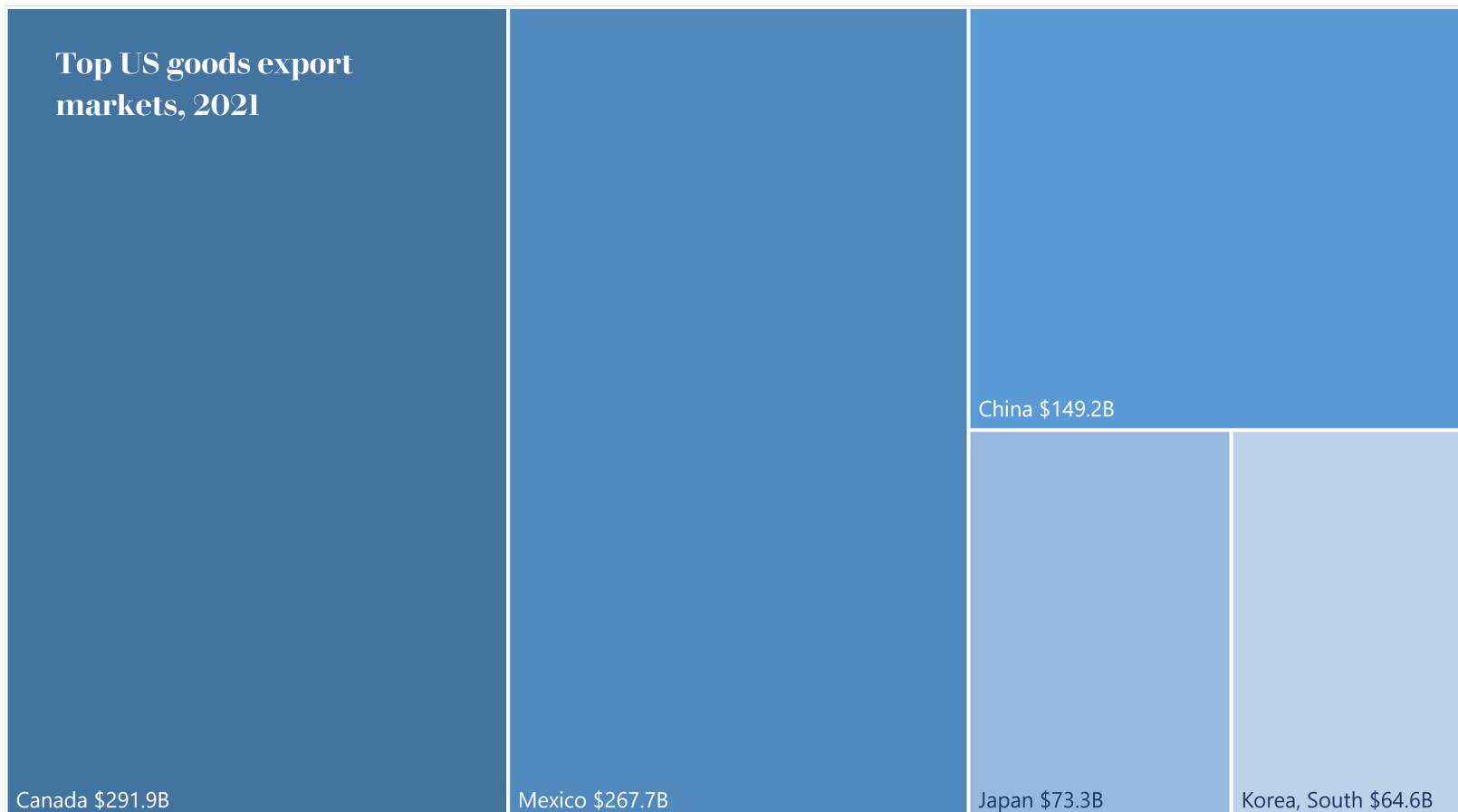
Misc. General
Purpose
Machinery
\$2.8B

Computer
Equipment
\$2.1B

Scrap
Products
\$1.7B

Electrical
Equipment
\$1.6B

Top US goods export markets, 2021



Top US goods export markets, 2021

Market	Total (billions, USD)	Growth (2020–2021)
1. Canada	\$291.9	18.8%
2. Mexico	\$267.7	30.6%
3. China	\$149.2	21.3%
4. Japan	\$73.3	17.7%
5. South Korea	\$64.6	29.1%
6. Germany	\$62.4	14.1%
7. United Kingdom	\$56.6	5.7%
8. Netherlands	\$52.1	18.7%
9. Brazil	\$46.0	36.0%
10. India	\$39.1	48.0%

Top goods exporters to China by state, 2021

State	Exports (billions, USD)	Growth (2020–2021)	Growth (2012–2021)
1. Texas	\$20.6	23.0%	105.5%
2. California	\$16.5	11.1%	22.1%
3. Oregon	\$10.3	10.6%	371.5%
4. Illinois	\$6.1	20.1%	1.5%
5. South Carolina	\$4.7	18.5%	41.1%
6. Indiana	\$4.6	16.9%	80.0%
7. North Carolina	\$4.3	47.3%	57.8%
8. Georgia	\$4.2	21.9%	12.6%
9. New Jersey	\$4.1	28.7%	201.3%
10. Minnesota	\$4.1	18.5%	15.5%

Top US congressional district goods exporters to China, 2021

District	Exports (billions, USD)	Growth (2020–2021)	Growth (2012–2021)
1. Oregon 1st	\$8.1	8.6%	652.9%
2. Texas 7th	\$2.2	15.8%	447.6%
3. California 17th	\$2.1	-17.2%	48.0%
4. Texas 11th	\$1.9	26.2%	669.9%
5. Nebraska 3rd	\$1.6	50.8%	39.3%
6. Iowa 4th	\$1.5	20.1%	16.7%
7. Kansas 1st	\$1.5	51.4%	156.2%
8. South Carolina 4th	\$1.5	5.0%	40.8%
9. Alaska	\$1.4	16.7%	2.9%
10. Texas 18th	\$1.3	22.3%	126.4%

Diving into the details

Oilseeds and grains see significant growth to cement their place as the top US export to China

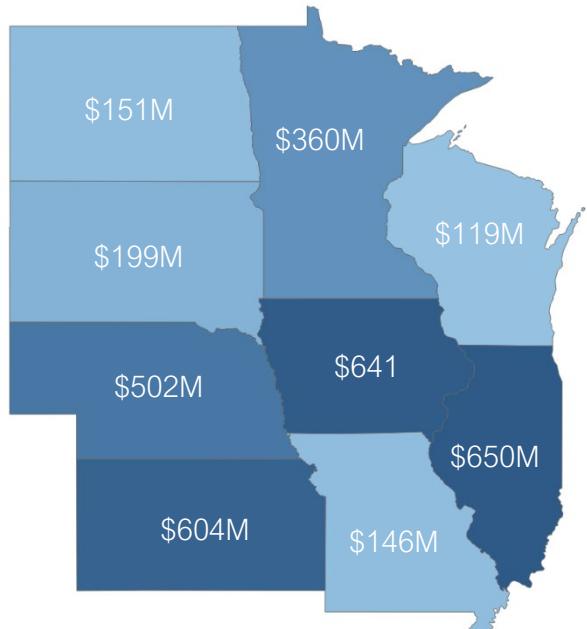
In 2021, US farmers sent \$4.8 billion more in oilseeds and grains—crops such as soybeans, wheat, and corn—to China than they did the year before, bringing the latest total to \$21.9 billion. Illinois, Iowa, Kansas, and Nebraska each saw their exports of these products grow by more than half a billion dollars last year.

Unlike some more geographically concentrated industries—such as semiconductors, for example—the United States' top goods export to China supports a relatively wide swath of states. Ten states had oilseed and grain exports of more than a billion dollars, and another 14 had more than \$100 million. At the congressional district level, five districts exported over a billion dollars of oilseeds and grains—though two of those are at-large districts—and another 42 exported over \$100 million.

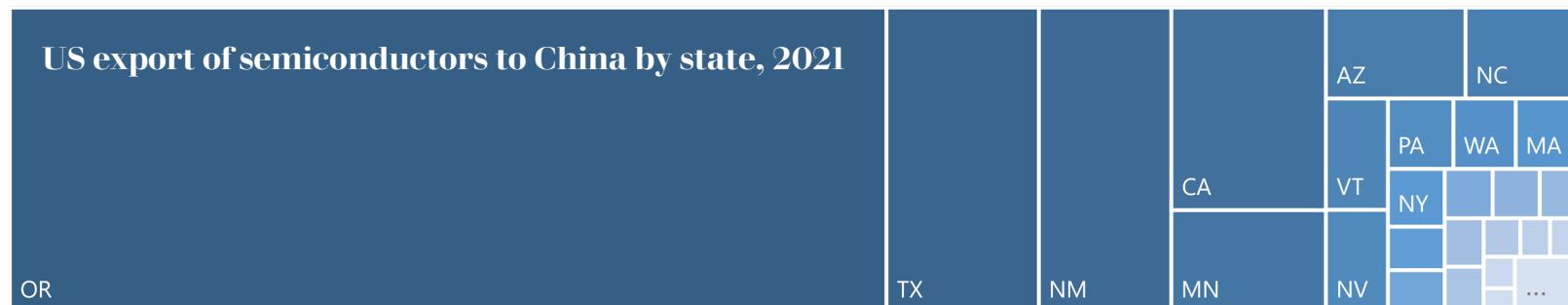
Semiconductor exports continue to grow despite increasing bilateral tech competition

US exports of semiconductors and their componentry grew by \$2.1 billion last year to a total of \$14.1 billion. Despite China's efforts to create a more self-reliant domestic chip-making industry to support the government's technological advancement goals, many Chinese companies are still reliant on imported semiconductors. Although the United States represents a relatively small source of China's chip imports, China still creates significant export opportunities for US companies. Exports of US chips largely originate from one state—Oregon's 2021 exports of \$7.9 billion accounted for more than half of US chip exports to China. Nevertheless, some other states have seen significant growth in their chip exports to China, most notably New Mexico, which grew by 220 percent to \$1.2 billion in 2021. Digging down to the district level, the source of chip exports is even clearer. Oregon's 1st district represents \$7.2 billion of US chip exports to China, over half the national total.

Increases in oilseeds and grains exports to China, 2020–2021



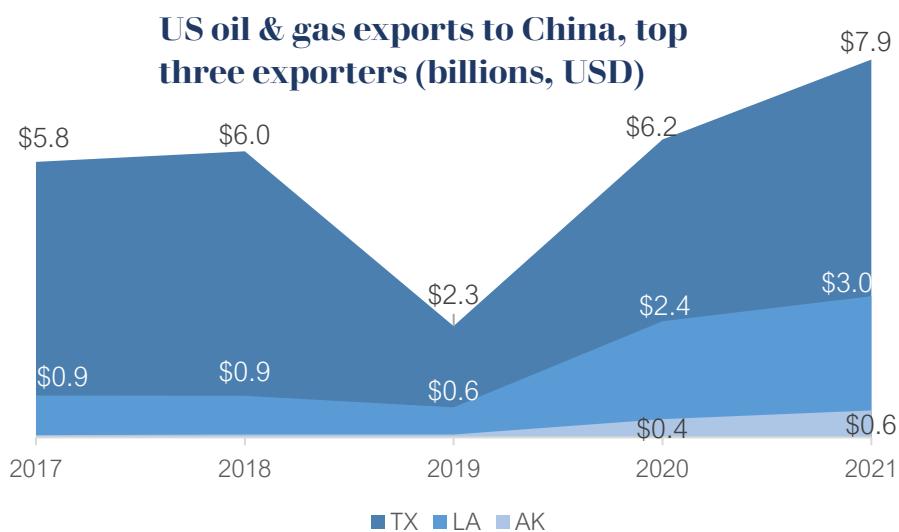
US export of semiconductors to China by state, 2021



Oil and gas

In 2020, the United States became a net exporter of petroleum products, and growing US oil and gas exports to China helped drive that growth. US oil and gas exports are predominantly driven by Texas and, to a lesser extent, Louisiana. In 2021, Texas saw exports of oil and gas further increase by \$1.6 billion to \$7.9 billion, and Louisiana saw its exports grow by

\$525 million to \$3 billion. The growth in these sales can be partially attributed to an overall increase in the amount of oil and gas products the United States sends abroad, a quantity that has been growing since revolutions in fracking technology helped drive a boom in gas production. Simultaneously, China imported more US oil and gas to help meet the energy purchase commitments it had made as part of the US-China Phase One trade deal.

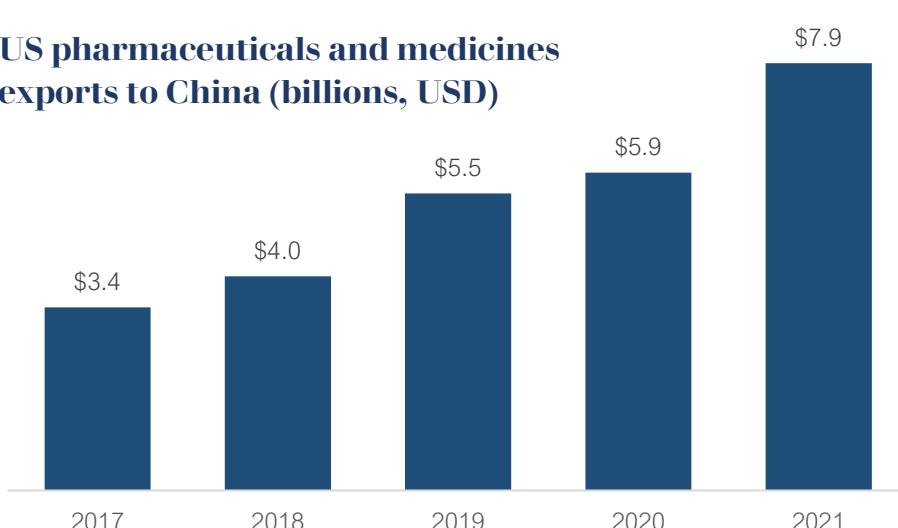


Pharmaceutical and medicine exports to China saw significant growth

Although four of the top five US export categories were the same in 2021 as in 2020, one sector saw large growth that pushed it into the top five: pharmaceuticals and medicines. While significant media attention has been given to the United States' imports of medicines and pharmaceutical ingredients from China, US pharmaceutical innovations have also found an important export market in China. Changes to China's regulatory processes for new drugs have sped up approval times and helped US pharmaceutical companies export more to China

in recent years. As China seeks to import drugs that tackle life-threatening diseases and for which it has few domestic equivalents, the United States has increased exports of high-value, high-demand drugs and vaccines.

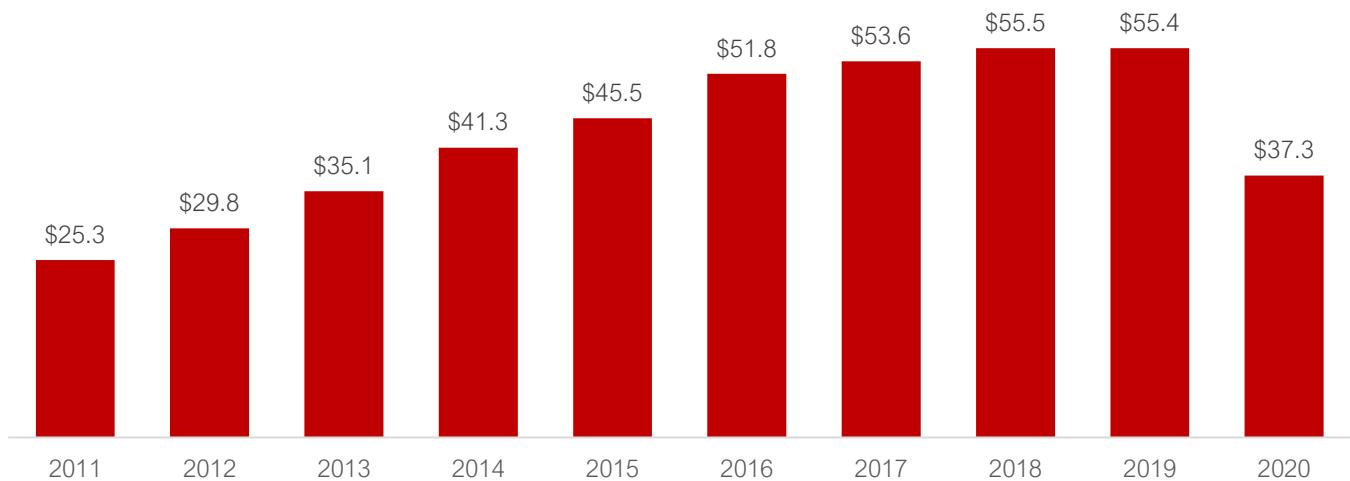
US pharmaceuticals and medicines exports to China (billions, USD)



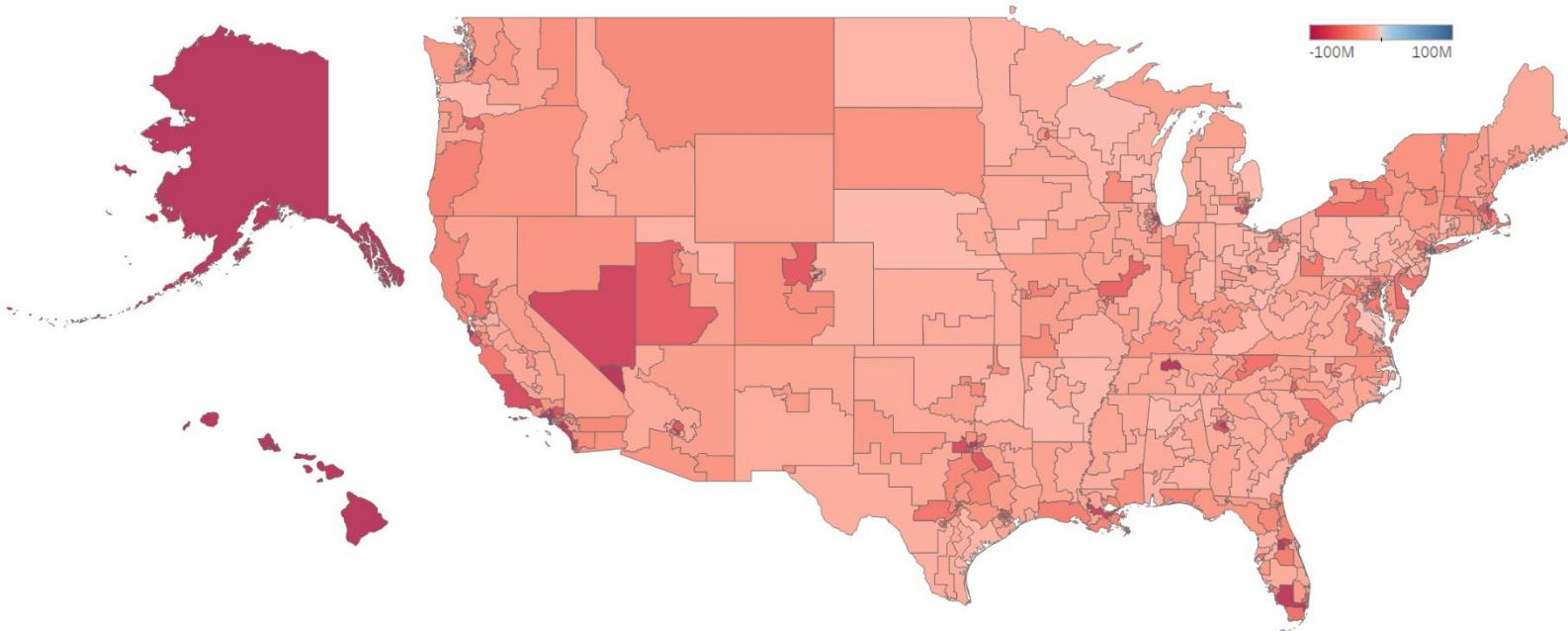
US Services Exports to China

American services exports to China—entailing categories such as travel, education, financial services, and intellectual property—dropped off sharply in 2020, largely as a result of fewer Chinese travelers coming to the United States in the first year of the COVID-19 pandemic. The dip caused China to slip from being the United States' fourth-largest services market in 2019 to its sixth largest in 2020. While the United States also exported less to several of its other top trading partners that year, the 32.7 percent drop in services exports to China was the most severe. Every state exported less services to China in 2020 than in 2019.

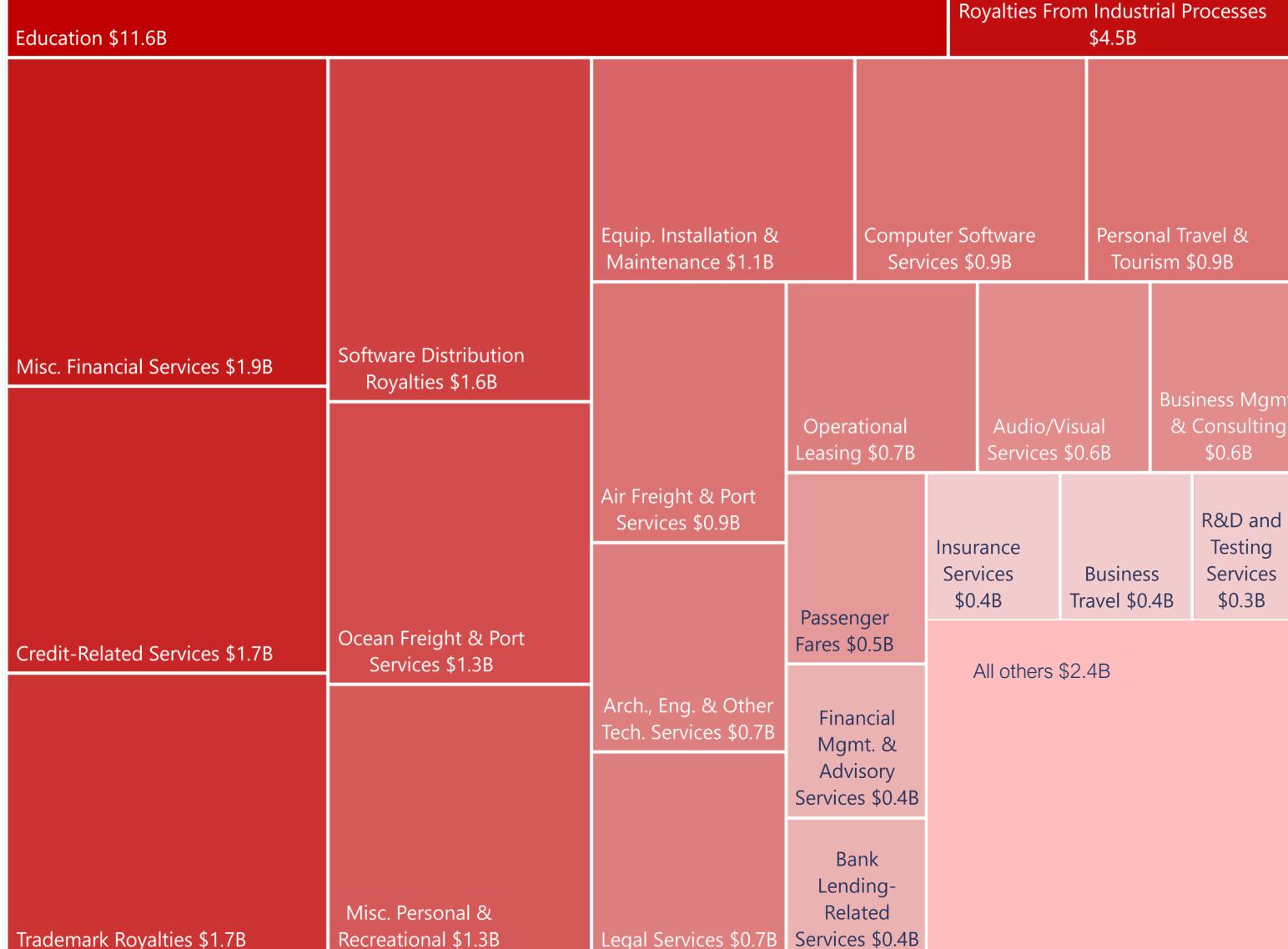
US services exports to China (billions, USD)



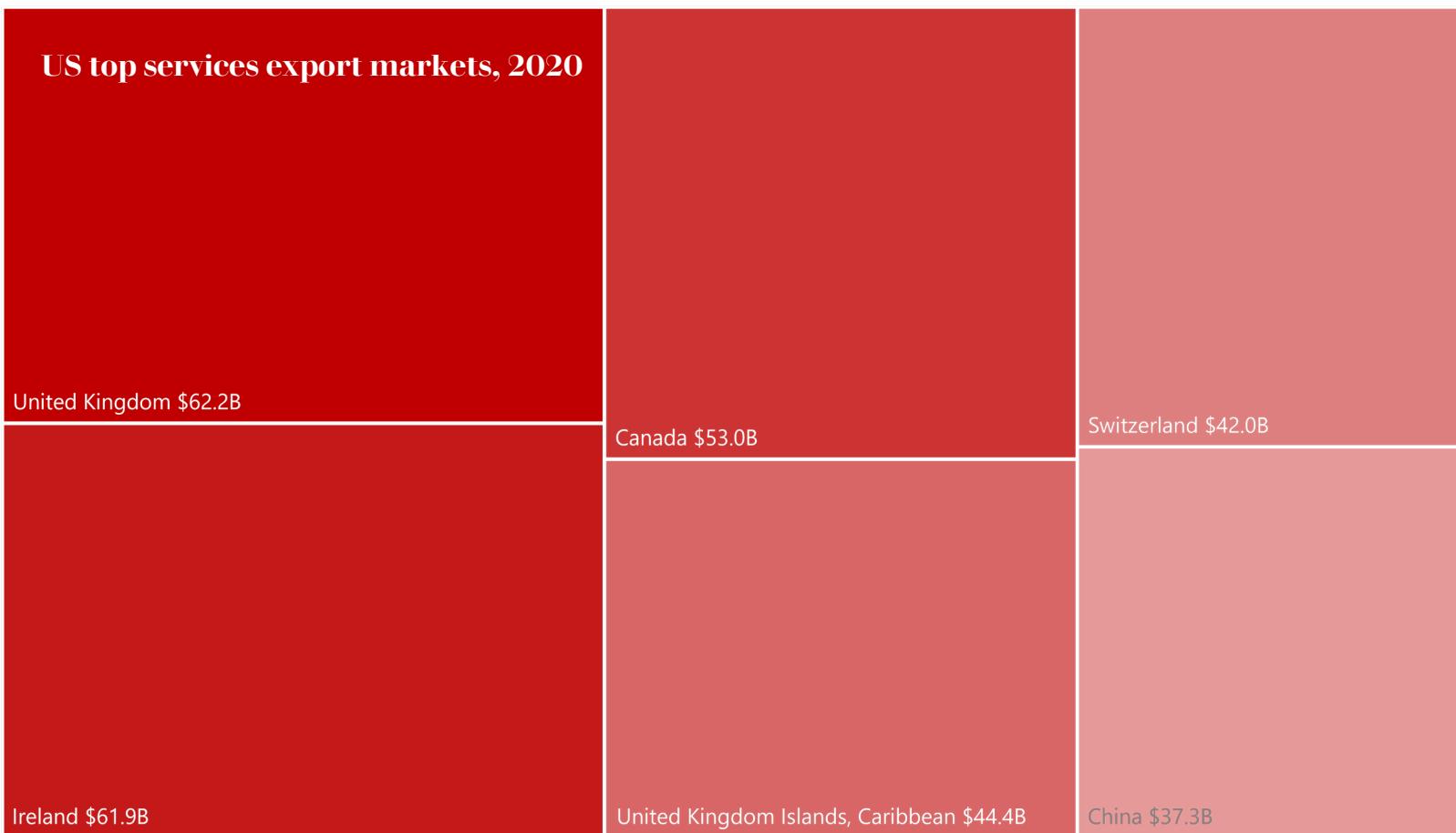
Changes in US services exports to China, 2019–2020



US services exports to China by category, 2020



US top services export markets, 2020



Top US services export markets, 2020

Market	Total (billions, USD)	Growth (2019–2020)
1. United Kingdom	\$62.2	-19.3%
2. Ireland	\$61.9	7.9%
3. Canada	\$53.0	-22.9%
4. UK Islands, Caribbean	\$44.4	10.8%
5. Switzerland	\$42.0	-7.3%
6. China	\$37.3	-32.7%
7. Japan	\$36.8	-24.3%
8. Germany	\$29.2	-18.5%
9. Singapore	\$24.5	-2.9%
10. Mexico	\$23.1	-28.4%

Top services exporters to China by state, 2020

State	Exports (billions, USD)	Growth (2019–2020)	Growth (2011–2020)
1. California	\$7.4	-29.5%	66.4%
2. New York	\$4.2	-29.2%	71.0%
3. Texas	\$2.8	-34.0%	32.1%
4. Illinois	\$1.9	-35.1%	50.0%
5. Massachusetts	\$1.8	-24.9%	90.0%
6. Florida	\$1.5	-47.3%	11.1%
7. Washington	\$1.2	-26.9%	35.5%
8. Pennsylvania	\$1.2	-26.5%	52.2%
9. North Carolina	\$1.1	-26.9%	91.3%
10. Georgia	\$1.1	-32.6%	32.1%

Top services exporters to China by district, 2021

District	Exports (USD)	Growth (2019–2020)	Growth (2011–2020)
1. New York 10th	\$1.1 billion	-22.1%	150.8%
2. New York 12th	\$1.0 billion	-24.3%	69.5%
3. Massachusetts 7th	\$675 million	-24.6%	149.8%
4. California 47th	\$555 million	0.0%	11.8%
5. Illinois 5th	\$520 million	-39.9%	66.1%
6. California 33rd	\$446 million	-27.4%	115.0%
7. Washington 7th	\$423 million	-24.0%	43.0%
8. California 12th	\$410 million	-36.7%	50.1%
9. California 17th	\$406 million	-11.5%	152.1%
10. California 18th	\$382 million	-15.0%	122.2%

What happened in 2020?

Travel

Growth in US services exports to China had been slowing for the better part of a decade until 2019, when services exports to China decreased only slightly. What was a negligible decline in 2019, however, took a nosedive in 2020, when virtually all international travel came to a halt due to what would become the COVID-19 pandemic. By February 2020, much of the world, including the United States, had banned entry to international travelers coming from China or other countries hit hard in the early days of the pandemic. By March, the United States banned entry to virtually all nonessential travelers. These restrictions were maintained throughout the rest of the year. As a result, all categories of travel exports to China—personal, business, and health—declined sharply in 2020. Nevada and Hawaii, two states whose services exports rely heavily on travel and tourism, saw their services exports to China contract by at least 70 percent each.

Changes in travel exports to China, 2019–2020

Category	2019 exports	2020 exports	Change (nominal)	Growth
1. Personal travel & tourism	\$9.3 billion	\$915.4 million	-\$8.4 billion	-90.1%
2. Business travel	\$3.6 billion	\$347.1 million	-\$3.2 billion	-90.3%
3. Medical-related travel	\$190.8 million	\$41 million	-\$150 million	-78.5%

Education

Due to the decline in travel, education services became the United States' top services export to China in 2020, at \$11.6 billion. This category of exports is comprised of the fees that Chinese students studying in the United States pay for tuition, housing, books, and other related fees. While education exports to China topped all other services exports in 2020, the United States actually exported 19.3 percent fewer education services to China compared with 2019, when it exported \$14.2 billion.

Much of this decline can be attributed to disruptions to students' plans to pursue education in the United States due to COVID-19 travel restrictions. However, it is worth noting that while Chinese students make up the largest demographic of international students studying in the United States, the data for 2019 suggest that the trend of fewer Chinese students coming to study in the United States began even before the pandemic.

One study suggests that the United States is becoming a less desirable location to study for Chinese students, with the United Kingdom surpassing it in popularity in 2020. Friction in

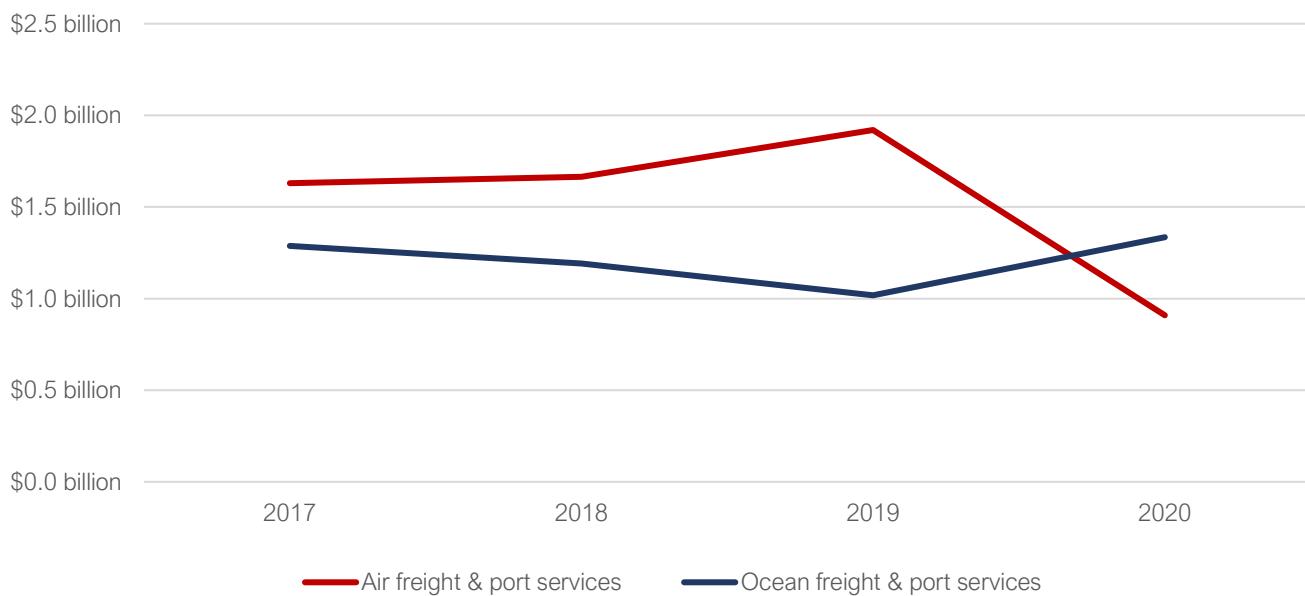
the bilateral relationship and unfavorable US visa policies for Chinese students likely factor into these preferences.

Shipping and port services

The COVID-19 pandemic also had an impact on the air and ocean freight industry, which experienced a decrease in demand in the early months of 2020 due to the pandemic-induced recession before experiencing a dramatic recovery in the second half of the year. At the same time, the industry had to navigate rapidly evolving quarantine and travel restrictions around the world, unpredictable labor shortages, and other supply chain disruptions. Because belly cargo—cargo shipped in the belly of passenger aircraft—accounted for at least 50 percent of global air cargo capacity before the pandemic, the decline in all types of travel in 2020 also meant that there were far fewer passenger planes in the air and, therefore, a lower global capacity for air freight shipping.

At the same time, demand for certain goods, such as personal protective equipment, skyrocketed—and the price of air shipping spiked in turn. While some commercial airlines were eventually able to mitigate the loss in travelers by converting a portion of their passenger planes to dedicated freighters, it was not enough to fully recover from the losses incurred by the end of 2020. The belly cargo capacity of international flights recovered more slowly than that of domestic flights, according to the US International Trade Commission. This resulted in increased demand for ocean shipping and port services, which 2020 US export figures bear out.

US air freight, ocean freight, and port services exports to China



Intellectual property

Royalties, which are paid in exchange for the right to use or distribute a company's intellectual property, are a significant aspect of the United States' exports. In 2020, exports of different types of royalties to China exceeded \$8 billion, comprising 22.2 percent of the United States' total services exports to China that year. Industrial processes, trademark, and software distribution are consistently the top-grossing categories of royalties paid by Chinese purchasers.

Royalty exports to China

Type of royalty	2020 exports	Growth (2019–2020)	Growth (2011–2020)
1. Industrial processes	\$4.5 billion	-10%	187.4%
2. Trademark	\$1.6 billion	-9.6%	51.8%
3. Software distribution	\$1.6 billion	0.2%	66.7%
4. Movie/TV distribution	\$281 million	34.3%	13,960%
5. Franchise fees	\$169.3 million	-68.2%	-48.8%
6. Books/music distribution	\$22 million	-21.4%	633.3%
7. Broadcasting live events	\$11 million	-78.4%	22.2%

US companies exported less in the form of royalties to Chinese customers in 2020 compared with 2019 across nearly every category—only movie/TV distribution royalties saw a meaningful increase in 2020. That said, Chinese customers are paying more in nearly every category of royalties than they were a decade ago. This highlights the growth in popularity of US technology, entertainment, and artistry in China over time and might also indicate market access openings in entertainment and improvements to the regulatory environment surrounding intellectual property in China. Still, there is much more work to be done on both fronts.

US Jobs Supported by Exports to China

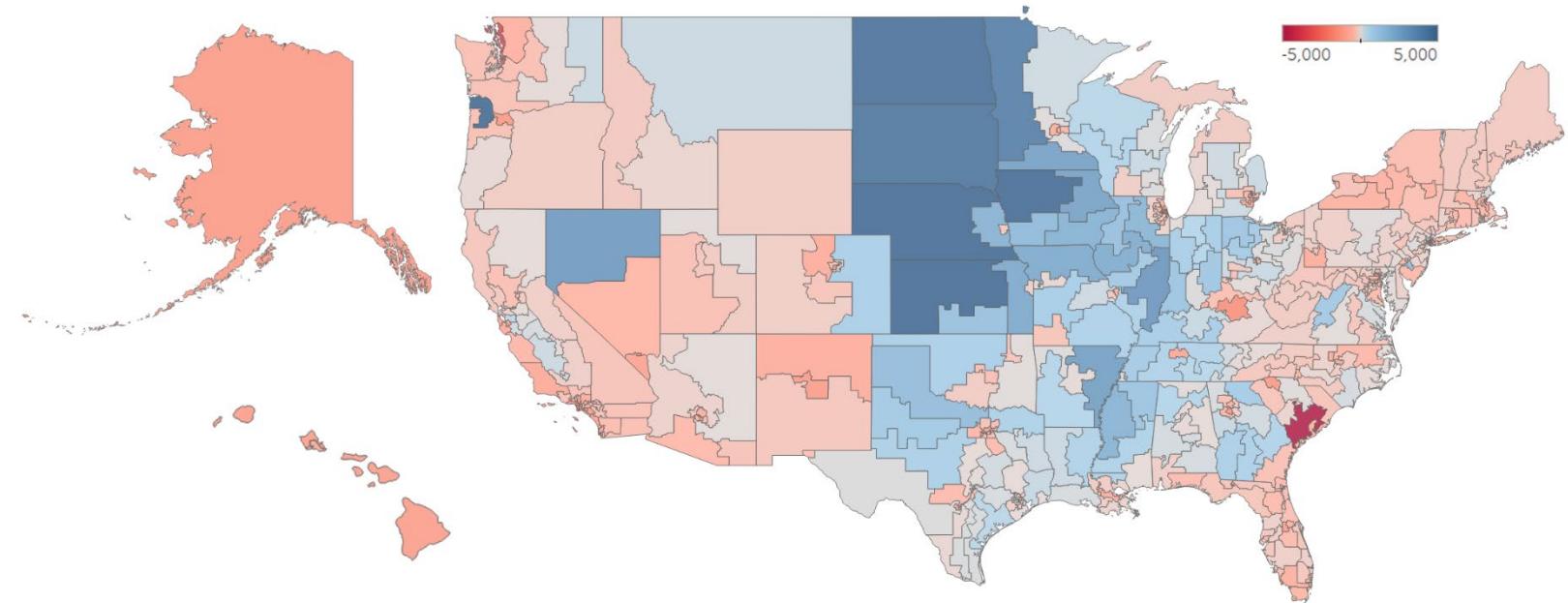
US exports of goods and services to China support hundreds of thousands of jobs across the country in almost every sector of the economy. More than 300 congressional districts have over 1,000 jobs supported by exports to China, and eight are home to more than 10,000. The US-China Business Council's calculations of how many jobs are supported by exports to China take both goods and services exports into account, so the latest data available are for 2020. In that year, US goods exports to China grew by around 18 percent thanks to tariff relief following the Phase One trade deal, while US services exports collapsed as a result of the COVID-19 pandemic. The net effect was that the number of jobs supported by total exports to China contracted by 5 percent to a total of 858,486.

Although some states and congressional districts were buoyed by growing goods sales, about 70 percent of districts saw a decrease in the number of jobs supported by US exports to China. As one might expect from the divergent trends of goods and services exports in 2020, US regions with economies heavily dependent on goods exports generally did relatively well, while more services-dominated local economies took a hit as travel fell precipitously.

Agriculture exports boosted farmers' fortunes in the Midwest

Some of the largest positive changes in jobs supported by exports to China were in the heartland of the United States, where agricultural products dominate exports. As China removed structural agricultural trade barriers and offered tariff relief in pursuit of Phase One trade deal purchase commitments, US farmers and ranchers exported billions of dollars

Changes in US jobs supported by all US exports to China, 2019–2020



Districts whose exports to China support the most jobs, 2020

District	Jobs
1. Oregon 1st	33,782
2. Iowa 4th	13,142
3. California 17th	12,562
4. South Dakota	10,845
5. Nebraska 3rd	10,777
6. Kansas 1st	10,757
7. North Dakota	10,182
8. New York 10th	10,146
9. Minnesota 7th	9,975
10. Illinois 15th	8,111

district in particular saw its growing chips exports help support 33,782 jobs in 2020, up nearly 7,000 from the year before.

Aerospace hubs remained an outlier of growing goods exports

While most goods exports categories saw growth in 2020, aerospace products remained an outlier. In South Carolina's 6th district, exports of aerospace products and parts fell from around \$2.4 billion in 2019 to virtually none in 2020. As a result, the number of jobs supported by exports in the district fell from 9,904 to only 1,890. Similarly, in Washington's 2nd district, which was once the top exporter of aircraft and aerospace products to China, the number of jobs supported by exports halved in 2020 from nearly 7,000 to only 3,488.

Areas that previously welcomed Chinese tourists and travelers saw jobs decline

As the COVID-19 pandemic caused a near full stop in Chinese travelers visiting the United States, states whose services exports to China rely heavily on tourism also saw jobs supported by exports to China decline. For example, New York's 10th and 12th districts—which encompass parts of Brooklyn and Manhattan—exported the most in services to China in 2020, yet both saw a more than 22 percent decrease from the year before, and the numbers of jobs supported by their combined exports to China declined by 6,988. On the other side of the country, in California's 43rd district—which includes part of the Los Angeles area, including Los Angeles International Airport—services exports to China decreased by 43.6 percent, and the number of jobs supported by the district's exports declined by roughly the same proportion.

more in oilseeds and grains and over a billion dollars more in meat products. The growth in these goods exports, combined with relatively limited exposure in services exports, saw more than a dozen agriculture-exporting congressional districts add thousands of jobs. Kansas's 1st, Iowa's 4th, and Nebraska's 3rd districts all saw increases of more than 5,000 jobs supported by US exports to China.

Semiconductor exports continued to support more American jobs

While the US-China relationship is mostly portrayed as combative in the field of high-tech products such as semiconductors, US companies support thousands of American jobs by exporting advanced semiconductors to China. As the world's largest semiconductor importer, China provides a massive market for US exports—in 2020, it imported nearly \$380 billion worth of semiconductors from worldwide sources. US exports of chips are dominated by Oregon, which accounted for more than half of chips exports in 2020. Oregon's 1st