



CPA Reshoring Index Improves Slightly in 2020 as Manufacturing Trade Deficit Plunges to Worst Ever

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Executive Summary

The CPA Reshoring Index is the first and only measure of U.S. producers' share of the U.S. domestic market for manufactured goods. It is calculated from federal government data on manufacturing production, imports, and exports. The Reshoring Index for 2020 shows that U.S. producers had a 69.6% share of the U.S. market with importers taking 30.4% of the market. In this Working Paper, we look at recent trends in U.S. producers' share of the total manufacturing market and key sub-sectors. We also look at the trade deficit in manufactured goods, which reached an all-time high last year of \$897 billion. Since 2002, the U.S. has lost 7.7 percentage points of market share in the U.S. market. Regaining that share would add over \$500 billion to manufacturers' revenue and millions of additional jobs.

Key Takeaways

- **The CRI rose** slightly from 69.4 in 2019 to 69.6 in 2020, as U.S. producers took a slightly larger share of the U.S. manufacturing market. The CPA Reshoring Index (CRI) measures U.S. producers' market share in the U.S. domestic market for manufactured goods. The improvement in the CRI reflects reductions in imports caused by the COVID shutdowns during 2020.
- **The U.S. manufacturing trade deficit** hit a new all-time high in 2020 of \$897 billion, or 4.29% of GDP. The deficit was widespread across manufacturing. Of the 19 manufacturing sub-sectors, 16 were in deficit, including motor vehicles, computers, chemicals, and machinery.
- **Since 2002**, the CRI has fallen by 7.7 points, from 77.3 to 69.6, as importers have gained share across nearly every major manufacturing sector. This represents a loss of \$524 billion of potential business in 2020 for U.S. producers in the U.S. manufacturing market.
- **The total U.S. market** for manufactured goods was worth \$6.8 trillion last year. Contrary to claims that foreign markets are a priority, the huge U.S. market represents the largest opportunity for the vast majority of U.S. manufacturers. U.S. manufactured exports were just \$1.17 trillion last year. Nations that cannot hold their home market do not succeed in foreign markets.
- **The import penetration of China's** manufactured goods into the US market fell from a high of 7.7% in 2017 to 6.2% last year, demonstrating the success of China tariffs in making the U.S. less dependent on China. However, U.S. imports are increasing because other foreign nations are taking the place of China as a source of U.S. imports. The import penetration of the European Union, at 5.6% last year, could overtake China in the near future.

- **Manufacturing output** has fallen since 2002 in ten out of 19 sectors. Some of the largest declines are in apparel (-74%) and computers (-28%). The Durable Goods manufacturing sector output has declined 1.3% since 2002 despite growth of 40.3% in the U.S. economy since then. Manufacturing employment losses have been far larger than the losses in output.

The CPA Reshoring Index (CRI) improved slightly in 2020, to 69.6, as U.S. producers gained a larger share of the U.S. manufactured market. Despite this increase in the CRI, the U.S. manufacturing trade deficit plunged to its worst-ever level, at \$897.7 billion, as exports fell more than imports. That manufacturing deficit, representing 4.29% of last year's gross domestic product (GDP) is a worst-ever figure for the U.S. and the world. Furthermore, import data from the first three months of 2021 suggest the deficit for 2021 could be even worse.

The CRI is the only comprehensive measure of the performance of the U.S. manufacturing sector in competition with imports from foreign manufacturers. Put another way, the CRI is the inverse of the import penetration ratio of foreign producers in the U.S. market. A CRI of 69.6 means that 69.6% of total U.S. demand for manufactured goods was met by domestic producers. The other 30.4% was met by imports.

The U.S. Bureau of the Census publishes monthly figures on U.S. trade in goods but Census's goods deficit (\$916 billion last year) includes non-manufacturing sectors, principally agriculture and mining. All goods and services play a role in the economy. But manufacturing has a unique position in the economy as the sector that has driven U.S. economic growth virtually since its founding. In addition to its role in military and civilian national security, manufacturing has been the engine of income growth for the average family for centuries. The decline of manufacturing in the U.S. in recent decades is linked to slowing economic growth and greater inequality.

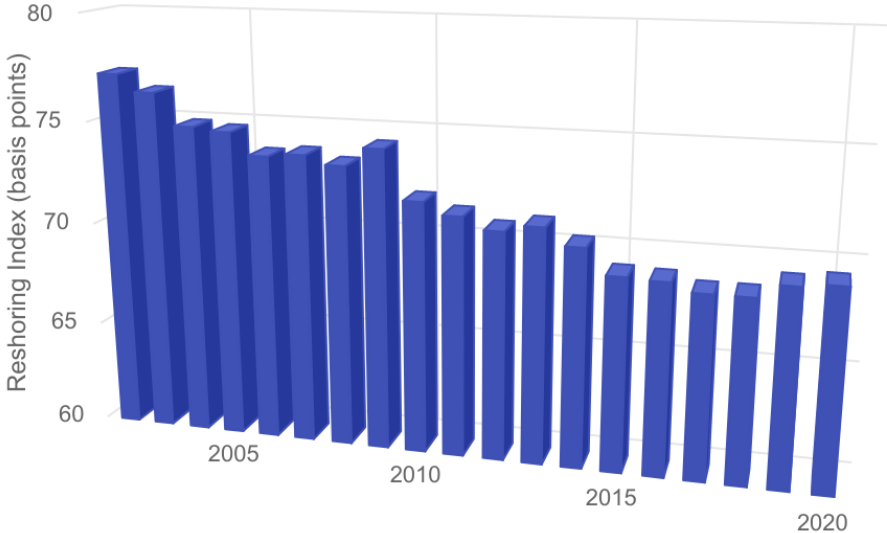
We calculate the total U.S. market for manufactured goods by adding manufacturing imports to U.S. manufacturing production and subtracting exports. All data comes from official U.S. government sources. The U.S. is the world's largest market for manufactured goods, worth \$6.8 trillion last year. The market fell 3.4% in 2020 as COVID reduced manufacturing activity.

The data series used to compute the CRI are available back to 2002. In that year the CRI was 77.3 (see **Figure 1**). The loss of 7.7 percentage points of share by U.S. producers represents a loss of \$524 billion of potential annual sales. In other words, if U.S. producers had held a share of 77.3% last year, they would have enjoyed an additional \$524 billion of revenue. Commonly used multipliers suggest that each manufacturing job generates three to five jobs among suppliers, so the loss of half a trillion dollars of revenue represents a loss of millions of well-paid U.S. jobs.

Figure 1: CPA Reshoring Index 2002-2020. Domestic share was 69.6% in 2020.

CPA Reshoring Index, Annual

Reshoring Index shows the share of domestic producers in US consumption of manufactured goods



Source: US Bureau of Economic Analysis, US Census data, CPA calculations

Manufactured Imports

The shutdowns of the global economy due to the COVID-19 pandemic, followed by pervasive, widespread (and still ongoing) failures of global supply chains to deliver goods to consumers affected import volumes last year—and continues to affect import volumes this year too. U.S. manufactured goods imports fell 4.2% to \$2.07 trillion in 2020 (see **Table 1**), their steepest fall since the recession of 2009. However, the negative effects from COVID-19 have been worse for some manufacturing sub-sectors than others.

For instance, imports of motor vehicles and parts fell by 18% to \$277 billion, their lowest level since 2013. The motor vehicle sector was hit by COVID-related closures in the U.S., Mexico, and elsewhere, reducing imports of parts and vehicles. Machinery imports also fell steeply, down 10% to \$171 billion. However, computer and electronics imports rose 1% to \$393 billion, as consumers and workers stayed at home and used the Internet more intensively during the pandemic. Chemical imports rose 4% to \$271 billion, driven by increasing pharmaceutical imports. Pharma imports are driven by increased demand for drugs, higher prices for drugs, and increased offshoring of drug production by the large U.S. pharmaceutical manufacturers.

Table 1. Imports of Manufactured Goods by Sector			
Sector	Imports 2019	Imports 2020	Change
	<i>Billions of Dollars</i>		<i>%</i>
Manufacturing	\$ 2,158.69	\$ 2,069.08	-4.2%
Durable goods	\$ 1,491.94	\$ 1,429.70	-4.2%
Wood products	\$ 18.37	\$ 21.55	17.3%
Nonmetallic mineral products	\$ 24.13	\$ 21.95	-9.0%
Primary metals	\$ 86.57	\$ 128.73	48.7%
Fabricated metal products	\$ 76.30	\$ 70.57	-7.5%
Machinery	\$ 189.61	\$ 170.97	-9.8%
Computer and electronic products	\$ 389.48	\$ 392.96	0.9%
Electrical equipment, appliances, and components	\$ 124.95	\$ 127.51	2.0%
Motor Vehicles, Bodies and Trailers, and Parts	\$ 337.90	\$ 277.32	-17.9%
Other transportation equipment	\$ 74.84	\$ 56.76	-24.2%
Furniture and related products	\$ 42.30	\$ 42.68	0.9%
Miscellaneous manufacturing	\$ 127.50	\$ 118.71	-6.9%
Nondurable goods	\$ 666.75	\$ 639.38	-4.1%
Food and beverage and tobacco products	\$ 95.75	\$ 99.52	3.9%
Textile mills and textile product mills	\$ 31.78	\$ 45.25	42.4%
Apparel and leather and allied products	\$ 127.59	\$ 101.93	-20.1%
Paper products	\$ 21.25	\$ 19.39	-8.7%
Printing and related support activities	\$ 5.90	\$ 4.95	-16.1%
Petroleum and coal products	\$ 63.22	\$ 37.02	-41.4%
Chemical products	\$ 261.63	\$ 271.05	3.6%
Plastics and rubber products	\$ 59.64	\$ 60.26	1.0%

Source: U.S. Census; CPA calculations

Although manufactured imports fell by 4.2%, manufactured exports fell much more, by 14.2%, leading to a larger trade deficit in manufactured goods. **Table 2** shows the sector-by-sector manufacturing trade deficit, with a new record total manufacturing trade deficit of \$898 billion. Of the 19 manufacturing sectors, the U.S. has a trade surplus in only three: other transportation equipment (chiefly aerospace), petroleum and coal products, and paper products.

The other 16 sectors show trade deficits, many of them large. The U.S. trade deficit in computer and electronics is the largest, at \$195 billion, with motor vehicles and parts not far behind at \$171 billion. The deficit in apparel (\$95 billion) and chemicals (\$72 billion) both seem likely to cross the \$100 billion, due to rising consumption of apparel and pharmaceuticals, price inflation, and little sign of any increase in domestic production in either sector.

<i>All figures in Billions of Dollars</i>			
Sector	Exports	Imports	Balance
Manufacturing	\$ 1,171.37	\$ 2,069.08	-\$897.7
Durable goods	\$ 757.07	\$ 1,429.70	-\$672.6
Wood products	\$ 6.29	\$ 21.55	-\$15.3
Nonmetallic mineral products	\$ 10.64	\$ 21.95	-\$11.3
Primary metals	\$ 57.13	\$ 128.73	-\$71.6
Fabricated metal products	\$ 41.42	\$ 70.57	-\$29.1
Machinery	\$ 123.25	\$ 170.97	-\$47.7
Computer and electronic products	\$ 197.58	\$ 392.96	-\$195.4
Electrical equipment, appliances, and components	\$ 53.31	\$ 127.51	-\$74.2
Motor Vehicles, Bodies and Trailers, and Parts	\$ 106.45	\$ 277.32	-\$170.9
Other transportation equipment	\$ 91.45	\$ 56.76	\$34.7
Furniture and related products	\$ 4.88	\$ 42.68	-\$37.8
Miscellaneous manufacturing	\$ 64.67	\$ 118.71	-\$54.0
Nondurable goods	\$ 414.29	\$ 639.38	-\$225.1
Food and beverage and tobacco products	\$ 75.08	\$ 99.52	-\$24.4
Textile mills and textile product mills	\$ 10.79	\$ 45.25	-\$34.5
Apparel and leather and allied products	\$ 7.45	\$ 101.93	-\$94.5
Paper products	\$ 21.68	\$ 19.39	\$2.3
Printing and related support activities	\$ 4.40	\$ 4.95	-\$0.5
Petroleum and coal products	\$ 65.12	\$ 37.02	\$28.1
Chemical products	\$ 198.66	\$ 271.05	-\$72.4
Plastics and rubber products	\$ 31.12	\$ 60.26	-\$29.1

Source: U.S. Census; CPA calculations

Table 2 also shows that the U.S. ran trade deficits last year in 16 out of 19 manufacturing sub-sectors. Further, the U.S. has run a manufacturing trade deficit every year since 2002. While \$1.2 trillion in exports sounds like a big number, U.S. imports of \$2.07 trillion in 2020 were 77% larger. In most of the larger manufacturing sectors, U.S. imports are 100% to 200% larger than exports. Simple math suggests that moves to so-called freer trade are likely to drive imports up more than exports. Those members of Congress who describe free trade agreements as creators of jobs are looking only at the smaller side of the ledger, the export side. If you look at the whole picture, exports and imports, most moves to freer trade will raise imports more than exports, destroying jobs and businesses and reducing manufacturing revenue. Structural change is required first, in two areas: in the relationships of the U.S. with other trading nations, such as with a more competitive dollar or with a genuine commitment by other nations to reduce their trade surplus. Secondly the U.S. needs to change its own manufacturing structure to make it uneconomic for multinationals to offshore production.

Figure 2 shows the historical trajectory of the manufacturing trade deficit. It has tended to deteriorate throughout modern economic history except in recessions, when the deficit contracts as imports fall. Since economic recovery began in 2009, the manufacturing deficit has increased steadily, reaching a record 4.29% of U.S. GDP last year. Any other advanced economy with a manufacturing deficit on this scale and a corresponding total trade deficit over many years would have had a financial crisis and been forced to retrench. The U.S. continues to borrow from the rest of the world to sustain its consumption, a policy that some praise but ultimately must end in pain and traumatic adjustment when foreign investors finally grow skeptical of the U.S. ability to pay back mounting foreign debt.

Figure 2. U.S. Manufacturing Trade Balance

Manufacturing Trade Balance, 2002-2020

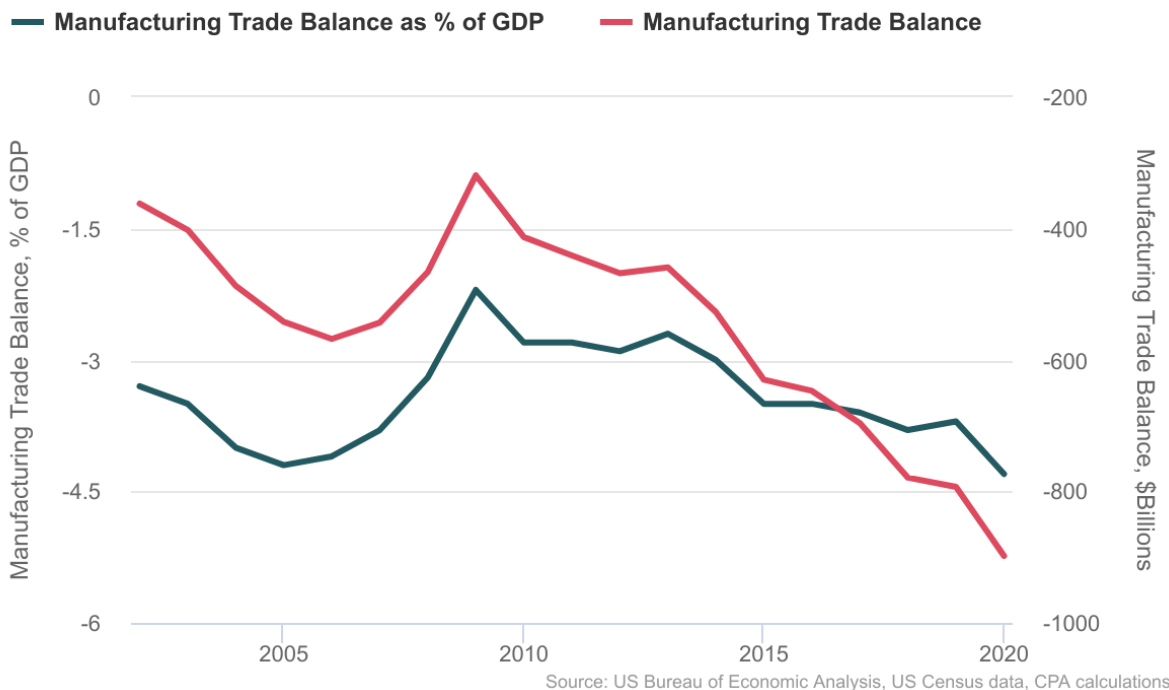


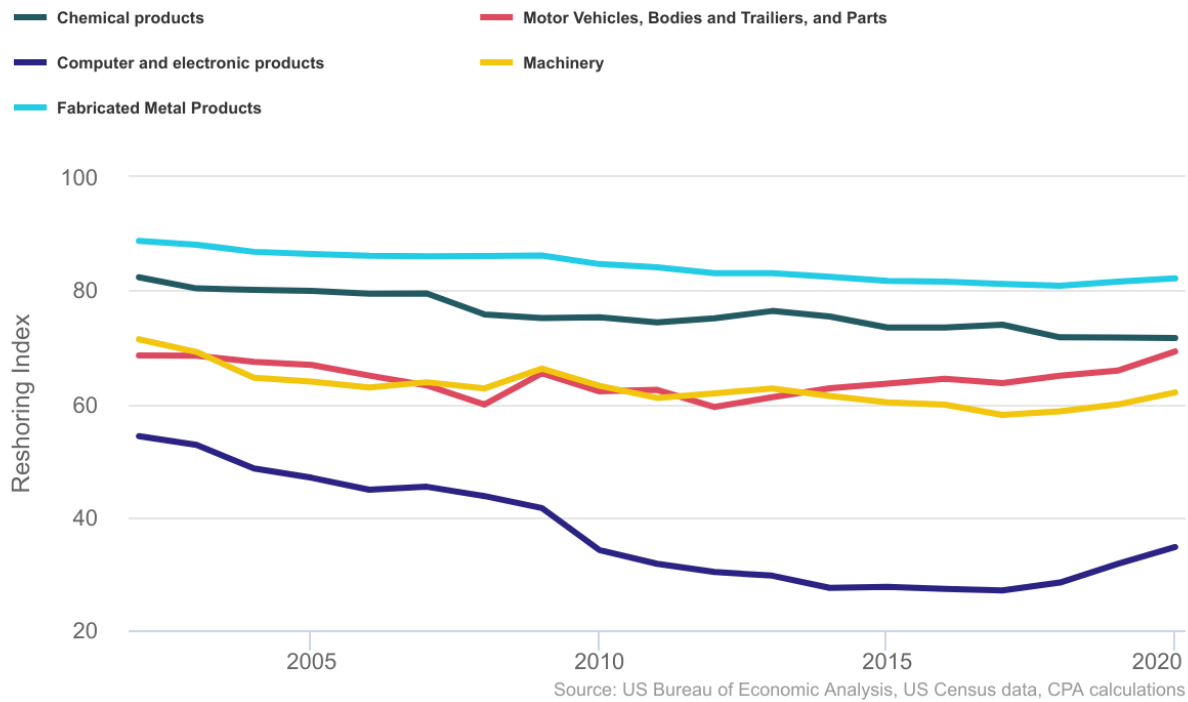
Table 3 shows the size of the domestic manufacturing market by sector in 2020. The domestic market in each sector is the sum of domestic production plus imports minus exports. This is the U.S. market opportunity. Last year's \$6.8 trillion market opportunity for U.S. producers is likely to bounce back to \$7 trillion or more this year. It is the world's largest and most attractive market opportunity for U.S. producers.

Table 3. U.S. Domestic Market for Manufactured Goods by Sector			
	2019	2020	Percent Change
	<i>Billions of Dollars</i>		
Manufacturing	\$ 7,052.56	\$ 6,810.01	-3.4%
Durable goods	\$ 3,820.98	\$ 3,748.12	-1.9%
Wood products	\$ 128.98	\$ 138.26	7.2%
Nonmetallic mineral products	\$ 149.60	\$ 151.01	0.9%
Primary metals	\$ 275.51	\$ 297.10	7.8%
Fabricated metal products	\$ 413.44	\$ 394.64	-4.5%
Machinery	\$ 472.22	\$ 449.52	-4.8%
Computer and electronic products	\$ 570.30	\$ 601.49	5.5%
Electrical equipment, appliances, and components	\$ 200.11	\$ 206.30	3.1%
Motor Vehicles, Bodies and Trailers, and Parts	\$ 988.58	\$ 900.28	-8.9%
Other transportation equipment	\$ 284.71	\$ 244.60	-14.1%
Furniture and related products	\$ 119.07	\$ 118.20	-0.7%
Miscellaneous manufacturing	\$ 218.46	\$ 246.74	12.9%
Nondurable goods	\$ 3,231.58	\$ 3,061.89	-5.3%
Food and beverage and tobacco products	\$ 990.19	\$ 997.74	0.8%
Textile mills and textile product mills	\$ 68.93	\$ 79.97	16.0%
Apparel and leather and allied products	\$ 137.73	\$ 113.88	-17.3%
Paper products	\$ 186.81	\$ 189.02	1.2%
Printing and related support activities	\$ 91.64	\$ 88.55	-3.4%
Petroleum and coal products	\$ 558.57	\$ 371.90	-33.4%
Chemical products	\$ 923.14	\$ 953.29	3.3%
Plastics and rubber products	\$ 274.56	\$ 267.44	-2.6%
<i>Source: U.S. Census, U.S. BEA, CPA calculations</i>			

In **Figure 3** we show sectoral CPA Reshoring Indexes for five large sectors from 2002 to 2020. In Motor Vehicles and Parts, the Index has been close to flat. In the other four sectors, the Reshoring Index has fallen substantially since 2002, indicating increased import penetration. In Computers and Electronics, three decades of continuous offshoring have led to just 34% of the market supplied from the U.S.—in products like laptops and cellphones which were mostly invented in the U.S.

Figure 3: Major Manufacturing Sectors Losing Share to Imports

Reshoring Index for Selected Major Manufacturing Sectors

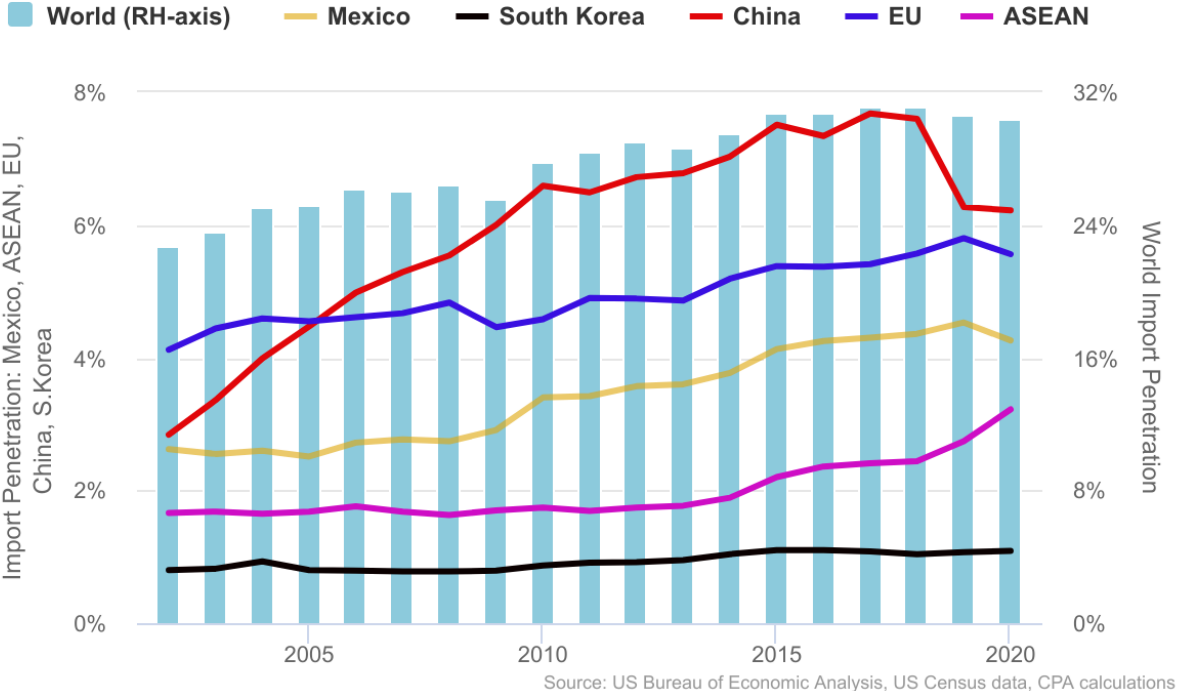


U.S. manufactured imports can also be broken down by source country. **Figure 4** shows the trends among major trading nations and regions. The graph shows clearly that the Trump China Section 301 tariffs have reduced U.S. dependence on China. U.S. manufactured imports from China have fallen from the \$500 billion range to the \$300 billion range. If the tariffs remain in place, they are likely to continue to trend downwards. The graph suggests that in the next several years, the European Union could overtake China as the number one source for U.S. manufactured imports. The sharp increase in manufactured imports from the ASEAN nations in 2020, despite the pandemic, shows that much of the product the U.S. previously sourced from China has shifted to ASEAN nations, such as Vietnam, Malaysia, and Indonesia.

The steadily rising levels of import penetration through 2019 for all these nations/regions except for China suggest that China tariffs on their own will not be sufficient to reshore U.S. industry. While the China tariffs do reduce U.S. dependence on China, with economic and

geostrategic benefits to the U.S., they have also served as an impetus to other Asian countries, in particular Vietnam, to begin modernizing their economy and turning it into a purpose-built export platform with the U.S. as the target market, just as China did two decades ago.

Figure 4. Import Penetration by Source: World, Mexico, South Korea, China, EU, and ASEAN
Import Penetration into the U.S.



Finally, we can look at how the growth of the U.S. economy in the context of high and rising import penetration has affected the domestic manufacturing sector since 2002. Over long periods, inflation naturally makes many sectors appear larger in dollar terms. To correct for inflation, we deflate the Gross Output figures for each sector by price inflation as measured by the Bureau of Labor Statistics’ Consumer Price Index (CPI). From 2002 to 2020, the CPI rose by 43.8%. We adjust 2020 output by that figure and compare it to the dollar value of output levels in 2002. Table 4 shows that 10 of the 19 manufacturing sectors experienced a decline in output since 2002 when inflation is taken into account. The largest decline was in apparel, at 73.5%. Moreover, the table shows that durable goods manufacturing actually declined in real value by 1.3%. Nondurable manufacturing increased by 9.1%. Durable manufacturing has traditionally included more of the industries that generate high profits, high investment, high wages, and strong economic growth. Shrinking output in durable manufacturing is bad for U.S. economic growth, equality, and the availability of middle-class jobs.

There are some positive trends within the table. Petroleum output and Chemical Product output have each grown strongly in the period. The two are related: the huge growth of the U.S. shale oil and gas industry has led to growth in U.S. production of basic chemicals and

petrochemicals. Food manufacturing output has grown strongly, although the food manufacturing sector pays some of the lowest wages in the manufacturing sector so that growth is cold comfort for workers.

Alongside these figures, it should be kept in mind that in this period, U.S. population grew by 16.9% and U.S. real GDP by 40.3%. No durable manufacturing sector grew at that rate, with the result that manufacturing has been a shrinking part of the U.S. economy. It has shrunk even more severely in terms of employment than it has in terms of output or revenue.

Table 4. U.S. Gross Manufacturing Output Changes from 2002 to 2020

Sector	Gross Output 2002	Gross Output 2020	Real Gross Output 2020	Percent Change, Real Gross Output
<i>Units</i>	<i>Current Billions of Dollars</i>		<i>Billions of Dollars at 2002 prices</i>	<i>%</i>
Manufacturing	\$ 3,971.6	\$ 5,912.3	\$ 4,108.6	3.4%
Durable goods	\$ 2,165.4	\$ 3,075.5	\$ 2,137.2	-1.3%
Wood products	\$ 90.2	\$ 123.0	\$ 85.5	-5.2%
Nonmetallic mineral products	\$ 95.3	\$ 139.7	\$ 97.1	1.9%
Primary metals	\$ 139.2	\$ 225.5	\$ 156.7	12.6%
Fabricated metal products	\$ 246.9	\$ 365.5	\$ 254.0	2.9%
Machinery	\$ 246.9	\$ 401.8	\$ 279.2	13.1%
Computer and electronic products	\$ 390.2	\$ 406.1	\$ 282.2	-27.7%
Electrical equipment, appliances, and components	\$ 100.9	\$ 132.1	\$ 91.8	-9.0%
Motor Vehicles, Bodies and Trailers, and Parts	\$ 477.2	\$ 729.4	\$ 506.9	6.2%
Other transportation equipment	\$ 175.9	\$ 279.3	\$ 194.1	10.3%
Furniture and related products	\$ 75.7	\$ 80.4	\$ 55.9	-26.2%
Miscellaneous manufacturing	\$ 127.1	\$ 192.7	\$ 133.9	5.4%
Nondurable goods	\$ 1,806.2	\$ 2,836.8	\$ 1,971.4	9.1%
Food and beverage and tobacco products	\$ 568.7	\$ 973.3	\$ 676.4	18.9%
Textile mills and textile product mills	\$ 75.4	\$ 45.5	\$ 31.6	-58.1%
Apparel and leather and allied products	\$ 50.9	\$ 19.4	\$ 13.5	-73.5%
Paper products	\$ 152.5	\$ 191.3	\$ 132.9	-12.8%
Printing and related support activities	\$ 99.7	\$ 88.0	\$ 61.2	-38.7%
Petroleum and coal products	\$ 214.2	\$ 400.0	\$ 278.0	29.8%
Chemical products	\$ 471.4	\$ 880.9	\$ 612.2	29.9%
Plastics and rubber products	\$ 173.4	\$ 238.3	\$ 165.6	-4.5%

Source: U.S. Bureau of Economic Analysis; Bureau of Labor Statistics; CPA calculations

No sector illustrates the lost opportunity better than Computer and Electronics. In these 18 years, the Internet and the smartphone have grown from moderate industries to some of the

largest in the world, playing a huge role in daily life for leisure and at work. Yet U.S. manufacturing output in this sector has shrunk by 28%.¹ No company illustrates this phenomenon better than Apple Inc. In these 18 years, Apple has gone from revenue of \$5.7 billion to \$275 billion, and become the world's most valuable public company. Between 2002 and 2020, its [headcount](#) rose from 10,000 employees to 147,000 employees. Yet over these years, it also outsourced all its manufacturing to China, with the sole exception of a small facility in Austin, Texas. It is estimated that Apple suppliers in China, led by Foxconn, employ around one million employees, manufacturing the full portfolio of Apple computers, phones, laptops, and other electronic products. Apple's contribution to the U.S. economy is very large. However, when Apple's China-based manufacturing partners and their suppliers are considered, Apple's contribution to the Chinese economy is spread across a much larger group of employees and has likely delivered more to the Chinese economy in terms of paychecks and prosperity than it has in the U.S.

Conclusion

The CPA Reshoring Index measures the success of U.S. manufacturers in selling into the U.S. market. The U.S. domestic market is the world's largest market for manufactured goods and the most important opportunity for U.S. producers. Since 2002, U.S. producers have suffered a declining share in their home market, extending to nearly every manufacturing sub-sector. While the data from 2020 showed an increase in the CRI, due chiefly to the effects of the pandemic shutdowns, import data from the first quarter of 2021 suggests that the CRI could fall significantly this year. In addition, a record manufacturing trade deficit is further evidence that U.S. producers are losing share not only in U.S. markets but worldwide.

The manufacturing sector is an essential source of middle-class jobs for Americans. The manufacturing sector's growth has been the prime driver of strong U.S. economic growth in the 19th and 20th century, as well as a key factor in greater income equality. Restoring the health and growth of the U.S. manufacturing sector is essential to recapture American prosperity. The CRI illustrates the trillion-dollar opportunity for the U.S. to re-position itself to dominate the domestic market, reshore high quality jobs, and dramatically spur economic growth.

¹ Data from the BEA and BLS use different price deflators for different industries to capture the increased performance and putative customer satisfaction for certain goods. These adjustments, while appropriate for certain purposes, overstate the economic impact of those sectors. For that reason, we use a uniform method of price adjustment based on the widely used CPI index. See for example Flamm, 1989, *Technological Advance and Costs: Computers versus Communications*, or Byrne and Corrado, 2015, *Prices for Communications Equipment: Rewriting the Record*.