GLOBAL HOUSTON

An Analysis of International Trade and its Impact on Houston's Economy

GREATER HOUSTON PARTNERSHIP

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CORONAVIRUS (COVID-19)

The world has yet to tame the COVID-19 virus, though some may think we've done so. There were over 4.3 million new cases globally in the week ending May 22. India, much in the news lately, accounted for 2.0 million of those cases. Infections were also on the rise in Argentina, Costa Rica, Hungary, Lithuania, and Nepal. Data scientists studying the spread of COVID-19 have found that the magnitude of the pandemic appears to be greatly underreported due to a lack of testing, lack of manpower, or pressure from governments to cover up the extent of the outbreak. This suggests case levels are likely much higher than what's being reported in the media.

Nations with the Most Confirmed COVID-19 Cases*

Nation	Cases	Nation	Cases
United States	33,104,884	Argentina	3,514,683
India	26,530,132	Colombia	3,210,787
Brazil	16,047,439	Poland	2,864,546
France	5,979,597	Iran	2,823,887
Turkey	5,178,648	Mexico	2,395,330
Russia	4,935,302	Ukraine	2,237,240
United Kingdom	4,476,297	Peru	1,920,851
Italy	4,188,190	Indonesia	1,758,898
Germany	3,653,019	Czechia	1,657,558
Spain	3,636,453	Netherlands	1,649,960

* As of May 22, 2021
Source: Our World in Data

Nor are there enough vaccines to hasten global immunity. Wealthy nations, like Bahrain, Canada, Israel and the U.S., have led the world in vaccination rates, measured in shots per 100 people. Those rates still fall below the level needed for herd immunity, which experts put at around 70 percent. Poorer nations, like Armenia, Congo, Honduras, and Niger, which lack the financial resources, a well-developed healthcare infrastructure, or both, have vaccinated only a fraction of their populations. Around 1.6 billion vaccine doses have been delivered world-wide as of mid-May. That's about 20 doses for every 100 people. Some countries, however, have yet to administer a single dose.

Nations with the Highest Vaccination Rates*

Nation	Rate/100 People	Nation	Rate/100 People
Israel	62.9	Austria	36.9
Aruba	56.2	Italy	34.5
Mongolia	55.8	Portugal	34.5
Hungary	51.8	Lithuania	34.2
Bahrain	51.5	Poland	33.6
Canada	50.6	Netherlands	33.5
Curacao	50.1	Estonia	32.8
United States	48.6	Czechia	32.2
Uruguay	45.2	Greece	30.7
Finland	41.3	Slovenia	30.3

* defined as having received at least one dose
Source: Our World in Data

Health officials across the world have called upon wealthier nations to share their vaccine supplies. A global organization, COVAX, has arisen to ensure equitable vaccine access for all nations. Some officials, including U.S. President Joe Biden, have suggested waiving intellectual property protections for COVID-19 vaccines. Such a waiver could remove obstacles to ramping up the production in developing countries. But other challenges remain, such as insufficient materials, a lack of manufacturing facilities, and weak quality control measures, for developing countries to successfully produce and administer the vaccine.

Despite these headwinds, a global economic recovery is underway. This bodes well for Houston, whose fortunes are tied as much to the global economy as they are to the U.S. economy and the oil and gas industry.

The recovery is being led by the world's largest economies, the U.S. and China, two nations that have pursued somewhat divergent methods to control the virus. Both have emphasized mask wearing, frequent handwashing, social distancing, and mass vaccinations. The U.S. has also relied on voluntary isolation of infected individuals. But China has instituted mandatory isolation of patients with mild to moderate symptoms, hospitalized those with severe symptoms, and established strict quarantines in cities and regions soon after outbreaks were identified.

THE GLOBAL IMPACT

Last May, when the Partnership released *Global Houston, Insights & Analysis into a Post-COVID World*, the outlook for the global economy looked quite bleak. Growth, employment, trade, and foreign direct investment (FDI) were expected to plummet.

- The Asian Development Bank (ADB) forecast global gross domestic product (GDP) would shrink 6.4 to 9.7 percent, or by $5.8 to $8.8 trillion, due to the virus.
- The ADB also expected upwards of 240 million full-time payroll jobs would be lost.
- The World Trade Organization (WTO) predicted merchandise trade would decline 13 to 32 percent.
- The United Nations Conference on Trade and Development (UNCTAD) forecast global FDI would contract 30 to 40 percent.

One year later, the results are in, and the downturn wasn't as bad as expected for GDP and trade, but it was worse than expected for employment and investment.

- The International Monetary Fund (IMF) estimated global output shrunk only 3.3 percent, 4.7 percent in the advanced economies and 2.2 percent in the emerging market and developing economies.
- The International Labor Organization (ILO) estimates that the equivalent of 255 million full-time jobs were lost, the damage measured by hours not worked in '20 compared to Q4/19. The losses were four times worse than during the '09 global financial crisis.
- The WTO estimates global merchandise trade fell only 5.3 percent in '20.
- Global (FDI) fell 42 percent in '20, from $1.5 trillion in '19 to $859 billion, according to UNCTAD. Such a low level was last seen in the '90s and is more than 30 percent below the investment trough that followed the '08-'09 global financial crisis.

The lockdowns and travel restrictions had the greatest impact on countries heavily dependent on tourism, like Spain and Greece. Nations geared toward producing goods and exporting merchandise, such as Germany and China, tended to fare better. The U.K. had the additional burden of dealing with fallout from its withdrawal from the European Union.

Percent Change, Real Gross Domestic Product, '20

Country	Change	Country	Change
China	+2.3%	Canada	-5.4%
Nigeria	-1.8	South Africa	-7.0
Russia	-3.1	India	-8.0
United States	-3.5	France	-8.2
Brazil	-4.1	Mexico	-8.2
Saudi Arabia	-4.1	Italy	-8.9
Japan	-4.8	United Kingdom	-9.9
Germany	-4.9	Spain	-11.0

Source: International Monetary Fund

U.S. Impact

This time last year the outlook for the U.S. was equally dire. The Bureau of Economic Analysis (BEA) reported U.S. GDP had shrunk 5.0 percent and the consensus among economists polled by The Wall Street Journal was U.S. GDP would shrink another 32.3 percent in Q2/20. The nation had already hemorrhaged 21.4 million jobs.

As it turns out, the U.S. economy shrank 31.4 percent in Q2/20, job losses were revised upward to 22.4 million, and as of mid-May '20, over 21.0 million Americans were receiving some form of unemployment benefits compared to 1.6 million in May the year before.

But This Time Was Different

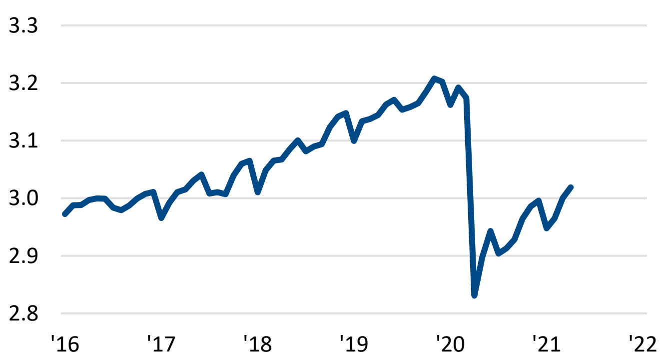
Unlike past recessions, the COVID-19 recession wasn't due to economic factors, like a hike in interest rates meant to control inflation (early '80s) or the bursting of an asset bubble caused by falling home prices ('08 – '09). The COVID-19 recession started when state and local governments mandated that schools and businesses shut down to contain the spread of the virus. It was as if elected officials had flipped the proverbial switch and the lights went out on the economy. In February, the nation was enjoying the longest expansion in U.S. history. By April, the nation was in the deepest recession since the Great Depression.

As quickly as they acted to shut down the economy, government officials, believing the economic costs far outweighed the social benefits, allowed the economy to partially reopen. Restaurants and bars were serving customers again, but at reduced capacity. GDP rebounded quickly. Job growth surged initially, but then tapered off.

HOUSTON'S RESPONSE

Houston, like the rest of the world, took dramatic steps to contain the spread of the virus. This began with shutting down the Houston Livestock Show and Rodeo eight days into a three-week run. By the end of March, "Stay Home, Work Safe" became the local mantra. The region shed 361,400 jobs in March in April '20, one in every nine in Houston. The losses hit every sector of the economy, but were especially steep for health care, restaurants, bars, hotels, retail, the arts, and recreation. As of April '21, Houston had only recouped 52 percent of the jobs lost.

Houston Payroll Employment



Source: Texas Workforce Commission

Houston's struggles can be seen in other indicators as well:

- The Houston Purchasing Managers Index (PMI) fell to 34.6 in April, the lowest reading on record. Readings above 50 indicate expansion of the overall economy, below 50 with contraction.
- The Houston Airport System (HAS) handled fewer than 250,000 passengers in April '20. That compares to 4.9 million passengers the same month the year before.
- City of Houston sales tax collections for March and April '20 fell 13.5 percent compared to the same two months in '19.
- Local auto dealers sold only 30,000 vehicles the first three months of the pandemic compared to 50,000 in March, April, and May the year prior.
- Office leasing activity fell 54 percent, industrial leasing activity 52 percent in Q2/20 compared to Q2/19.

As the global economy shut down to control the spread of the virus, those sectors of Houston's economy tied to global trade especially suffered.

- Port of Houston tonnage fell 12.8 million metric tons (6.6 percent) during the pandemic, nearly all the decline occurring in shipments of crude and refined products. Shipments of chemicals were flat and plastics marginally up.
- The Houston Airport System handled 3.9 million international passengers in '20, down from 12.0 million the prior year. Over sixty percent of those passengers traveled in Q1/20, before countries imposed restrictions on international travel.
- The poor job market, international travel restrictions, and anti-immigrant rhetoric slowed the flow of newcomers from aboard. International migration fell to 24,587 residents, the lowest level in over 20 years.

The pandemic dented FDI as well. The Partnership maintains a database of businesses that have relocated, expanded, or established operations in Houston. This information is gathered from real estate firms, media outlets, newsletters, and company announcements. In a typical year, the Partnership's research team might capture 250 to 300 such announcements, of which 30 to 40 are for companies headquartered overseas. Last year, the organization identified only 158 new businesses, of which only 11 involved foreign-owned companies.

The pandemic had the greatest impact on demand for the commodity most identified with Houston—crude petroleum. Global demand fell by over 20 million barrels last April. The average price of West Texas Intermediate (WTI), the benchmark for U.S. light, sweet crude, fell 71 percent. The North American rig count fell to 244 rigs, the lowest point record.

Energy companies shifted to survival mode, cancelling equipment orders, cutting back on exploration, and laying off staff. Over 50 energy-related companies announced layoffs large enough to be reported in the media or require a filing with the Texas Workforce Commission under the Worker Adjustment and Renotification (WARN) Act. This doesn't include the dozens of smaller, private companies that silently let their workers go. Last year, the energy industry shed 40,000 workers, one in six jobs in the industry. (Note: This includes jobs in exploration and production, oil field services, oil field equipment manufacturing, fabricated metal products and engineering services.) Energy employment today stands at its lowest point since '06, when Houston's GDP was only two-thirds of today's level, and the region had 500,000 fewer jobs.

Even with the pandemic raging, Houston led the nation in exports last year, something it's done for eight of the past ten years. Though the region's exports fell, Houston still outranked New York, Chicago, Los Angeles, and Dallas.

Leading U.S. Exporting Metros

		Exports - $ Billions		Change, '19 – '20	
Rank	Metro	'20	'19	$ Billions	%
1	Houston	104.5	128.0	-23.5	-18.3
2	New York	75.7	87.0	-11.2	-12.9
3	Los Angeles	50.2	61.9	-11.7	-18.9
4	Chicago	41.3	42.5	-1.2	-2.9
5	Dallas	35.6	39.6	-3.9	-9.9
6	New Orleans	31.1	33.7	-2.6	-7.7
7	Detroit	30.7	41.4	-10.7	-25.9
8	Miami	29.1	35.5	-6.4	-18.0
9	Portland	27.8	23.8	4.0	16.7
10	El Paso	27.2	32.7	-5.5	-16.8
	All Others	453.3	526.1	-72.8	-13.8
	Total	1,431.4	1,643.2	-211.8	-12.9

Source: U.S. Census Bureau

The U.S. Census Bureau, which gathers the data, has yet to publish any industry-specific details for '20, but for the past decade Houston's top five exports have been oil exploration services, crude and refined products, chemicals and plastics, industrial machinery, and computers and electronics.

Metro Houston's Top Exports – '19*

Description	$ Billions	% of Total
Oil and Gas Extraction	40.2	31.0
Crude & Refined Products	33.1	25.6
Petrochemicals	31.1	24.0
Industrial Machinery	6.7	5.2
Computers, Electronics	5.4	4.1
Everything Else	13.2	10.2
Total	129.7	100.0

* Latest data available
Source: U.S. International Trade Administration

In a much-cited study, The Brookings Institution found that exports supported 17.3 percent of Houston's gross domestic product in '17 and 330,340 direct and indirect jobs. Brookings has not updated the study since, but a back-of-the-envelope calculation suggests exports contribution could be even higher today. According to the U.S. International Trade Administration (ITA), exports supported 1.1 million Texas jobs in '19. Houston accounted for about 42 percent of Texas' exports that year. On a pro rata basis, that suggests exports support about 470,000 jobs, direct and indirect, in the region. While this is more a "ballpark" number, it underscores the point that as global growth picks up, the demand for Houston's exports will heat up, and in turn growth in Houston should rev up.

A few other points to consider:

- Houston has trading relationships with more than 200 countries.
- The Houston-Galveston Customs District ranked first in tonnage handled (exports + imports) in '20, a position it's held 11 of the last 15 years. The district ranked sixth in value of shipments (exports + imports) last year.
- The value of exports via the district have exceed imports since '13.
- Since '09, foreign-owned firms have announced nearly 700 plant, warehouse or office expansions, start-ups or relocations in Houston.
- Nearly 150 Houston-headquartered companies operate nearly 3,000 offices, plants, or distribution centers in over 100 countries.

Things Are Looking Better

What a difference a year makes—that and trillions in fiscal and monetary stimulus from governments around the world. As noted earlier, the U.S. and China are leading the global recovery. The IMF expects Brazil, France, India, Indonesia, Germany, Japan, Mexico, Russia, Turkey, and the U.K. to make solid contributions as well. The good news for Houston is that all of Houston's major export markets are expected to have solid growth this year and next.

Projected GDP Growth Rates, Houston's Top Trading Partners

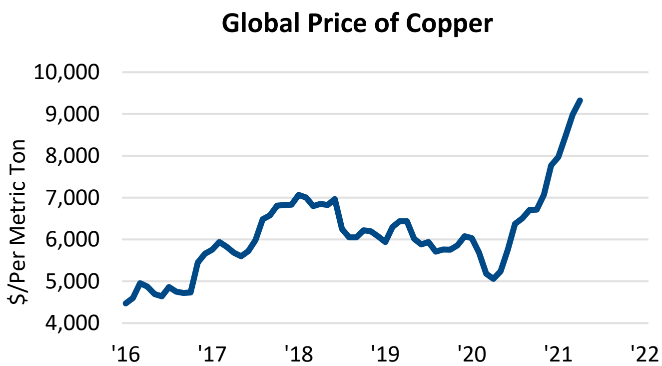
		GDP Change				GDP Change	
#	Country	'21	'22	#	Country	'21	'22
1	China	8.4	5.6	11	Belgium	4.0	3.1
2	Brazil	3.7	2.6	12	Germany	3.6	3.4
3	Mexico	5.0	3.0	13	France	5.8	4.2
4	Netherlands	3.5	3.0	14	Chile	6.2	3.8
5	Japan	3.3	2.5	15	Colombia	5.1	3.6
6	India	12.5	6.9	16	Canada	5.0	4.7
7	South Korea	3.6	2.8	17	Spain	6.4	4.7
8	United Kingdom	5.3	5.1	18	Italy	4.2	3.6
9	Taiwan	4.7	3.0	19	Peru	8.5	5.2
10	Singapore	5.2	3.2	20	Saudi Arabia	2.9	4.0

Source: International Monetary Fund

A detailed analysis of trade patterns for Houston's top 20 markets can be found under the Business Resources tab at http://www.houston.org/publication/global-houston-trade-2021.

Doctor Copper's Prognosis

"Doctor Copper" is lingo for this metal that has a "Ph.D. in economics" because of its ability to predict turning points in the global economy. Copper is used in everything from new home construction, computer assembly and video games to power transmission lines, and vehicle manufacturing. When copper prices are rising, that indicates strong demand and an expanding global economy. When prices are falling, that indicates weak demand and a sluggish global economy. In April, global copper prices were up 84.4 percent compared to April '20.



Source: International Monetary Fund

A wealth of data supports Doctor Copper's prognosis.

- IHS Markit and JPMorgan Chase's snapshot of the health of global manufacturing, based on surveys of multiple purchasing managers, came in at 55.8 in May. A number above 50 signals expansion.
- The Baltic Dry Index (BDI), a measure of shipping capacity versus the supply of ocean-going bulk carriers, is at its highest level since '10.
- Global trade in goods during Q1/21 surpassed pre-pandemic levels, according to UNCTAD. However, trade in services (including travel) has yet to recover.
- In a mid-April survey of corporate executives, McKinsey & Company found 73 percent expect global economic conditions to be moderately to substantially better over the next six months. That's up from 56 percent in mid-January.
- The Conference Board's Global Consumer Confidence Index improved from 98 in Q4/20 to 108 in Q1/21. Readings above 100 are considered positive. The Q1/21 level exceeds the pre-pandemic reading of 106 and is at the highest level since the survey began in '05.
- According to the U.S. Energy Information Administration (EIA), the world consumed 96.2 million barrels per day (b/d) of petroleum and liquid fuels in April, an increase of 15.8 million b/d from April '20 and only 6.0 million b/d below the pre-COVID peak.

WAITING FOR THE SURGE

Trying to determine whether this surge has reached Houston poses a challenge. Not enough data has been reported year-to-date for '21 to compare with data for '20. Statistics for the Houston Airport System and the Ports of Houston, Galveston, Freeport, and Texas City are only available through March of this year. The pandemic didn't fully impact Houston's economy until April of '20. Data for April '21 won't be available until June at the earliest. And even then, the data may not tell much. Some chemical plants in the region have yet to fully recover from the mid-February freeze, thus affecting waterborne trade. Bans on international travel remain in place for the U.S. and many foreign nations, limiting the number of foreign flights into Houston.

The one April data set that is available, container traffic at the Port of Houston, does show a pickup in international activity. Through the first three months of '21 its up 4.3 percent. But the activity is lopsided. Containerized imports are up 24.5 percent while containerized exports are down 13.4 percent. The consumer buying binge of the last 12 months is driving the growth in imports.

A New Set of Problems

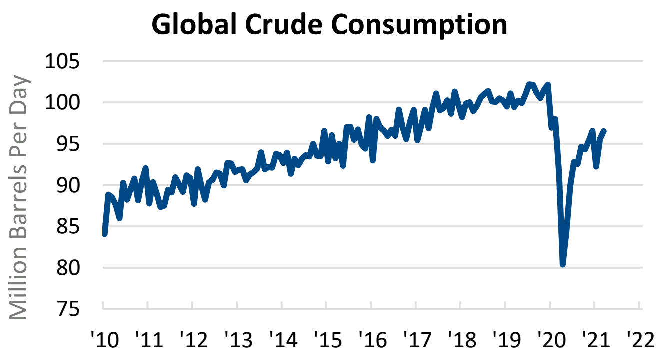
The global recovery has created a new set of problems that will impact Houston if it hasn't already. Surging consumer and business demand is upending global supply chains. In an article titled, *The World Economy Is Suddenly Running Low on Everything*, Bloomberg explained:

> Copper, iron ore and steel. Corn, coffee, wheat, and soybeans. Lumber, aluminum cans, semiconductors, plastic, and cardboard for packaging. The world is seemingly low on all of it. Corporations are buying more than they need to survive the breakneck speed at which demand for goods is recovering and assuage that primal fear of running out.

The reasons for the shortages vary by commodity. Early in the pandemic the lumber industry assumed business was about to go sour and cut back on production. They failed to see the surge in remodeling or the boom in new home construction. A fire at a Japanese chip-making factory, the shutdown of U.S. factories during the February freeze, under-investment in new manufacturing capacity, and U.S. sanctions on China have led to a global chip shortage. With bars and restaurants closed during the pandemic, breweries had to shift their packaging from 16-gallon kegs to 12-ounce containers ramping up the demand for aluminum cans. A massive shipping container shortage has made it difficult for Brazil to export its coffee beans and China to export furniture. The shortages mean consumers will have to pay more, wait longer, and may face limited selection of products. They are also one reason why economists are worried about inflation, at least in the short run.

OIL'S OUTLOOK

There's no shortage yet, but the global recovery has driven up the demand for crude, taking prices up with it. The world now consumes about 96 million barrels per day, up from 80 million barrels at the pandemic trough but still below the 102 million barrels per day of the December '19 peak.



Source: U.S. Energy Information Administration

Prices have risen with demand, breaching $40 per barrel in July, $45 in late November, $50 in January, and $60 in May. There's always a lag between when oil prices recover and when the rig count begins rising again. According to a recent survey by the Federal Reserve Bank of Dallas, the average breakeven prices to profitably drill a new well in the U.S. ranges from $46 to $58 per barrel. The rig count didn't begin to recover until late August, a few weeks after crude topped $45 per barrel.

As of mid-May, the U.S. rig count stood at 455, well below the 790 working at the start of the pandemic. Though more rigs are working, the U.S. is unlikely to return to its previous production peak of 12.9 million barrels per day reached in November '19. Wells currently being drilled or slated for the future must first replace production from depleted older wells.

The EIA expects global demand to top 102 million barrels per day by the end of '22. Based on EIA forecasts, 18 months from now, U.S. production will still be 600,000 barrels shy of pre-pandemic levels. Any increase in global demand will likely be met by OPEC, Russia, and other nations. OPEC still has 6 to 8 million barrels per day of spare capacity and Russia won't let environmental concerns interfere with the chance to sell more crude on global markets. Yet Houston still has a role to play, providing the state-run oil companies with the technology they need to find and produce the crude needed until the world transitions from carbon-based fuels to other sources of energy. Even then Houston will have a role to play as the region recasts itself as the Energy Transition Capital of the World. Then as now, Houston will work to be at the heart of the global energy industry.

CONCLUSION

As the Partnership put the finishing touches on this report, Dr. Anthony Fauci, the nation's leading expert on infectious diseases, announced the Biden administration should reach its goal of vaccinating 70 percent of American adults with at least one COVID-19 shot by July 4. Fauci limited his comments to just the U.S. Other nations aren't there yet.

Case in point: The World Economic Forum (WEF) is normally held in the Swiss ski resort of Davos each year. About 3,000 political, business, and civil society leaders meet to discuss global economic, political, and environmental concerns. The pandemic in Europe prompted a decision to move this year's event to the Asian city-state of Singapore, which appeared to have the virus under control. But on May 17, the organizers canceled the event. The coronavirus situation in Singapore had worsened, making it unsafe for world leaders to attend. The cancelation serves as a reminder that the virus still has the potential to derail the global recovery.

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In preparing this analysis, the Partnership used reports and data from the following: Baker Hughes, *Bloomberg*, The Conference Board, *The Economist*, Federal Reserve Bank of Dallas, Houston Airport System, Institute for Supply Management-Houston Chapter, International Labor Organization, International Monetary Fund, Investopedia, McKinsey & Company, Moody's Investor Service, NAI Houston, National Association of Manufacturers, Organization for Petroleum Exporting Countries, Our World in Data, Oxford Economics, Peterson Institute for International Economics, Pew Research Center, Port of Houston Authority, Texas Workforce Commission (TWC), U.S. Energy Information Administration, U.S. International Trade Administration, United Nations Council on Trade and Development, The Wall Street Journal, WISERTrade, The World Bank and The World Trade Organization.

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