

# Economic Outlook

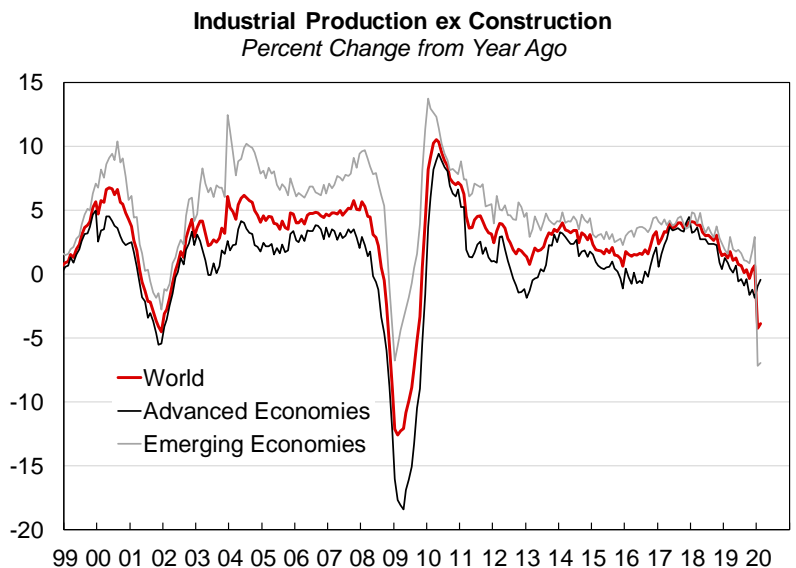
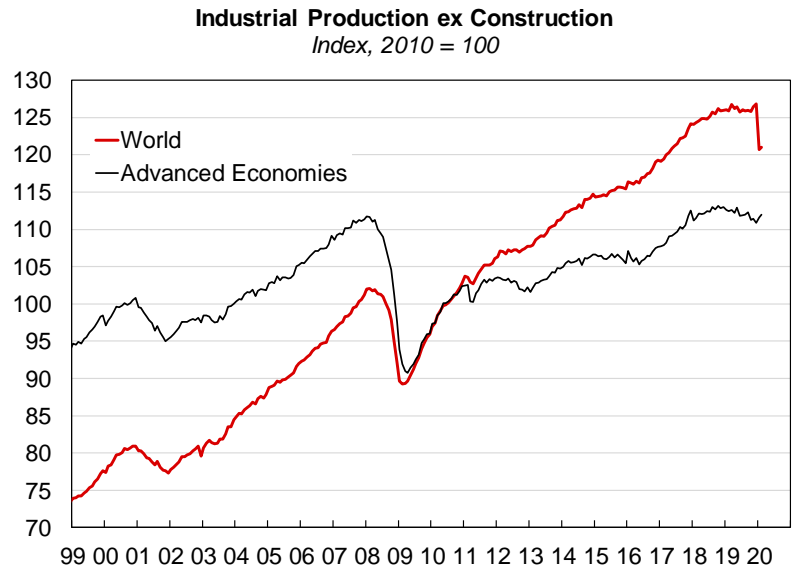
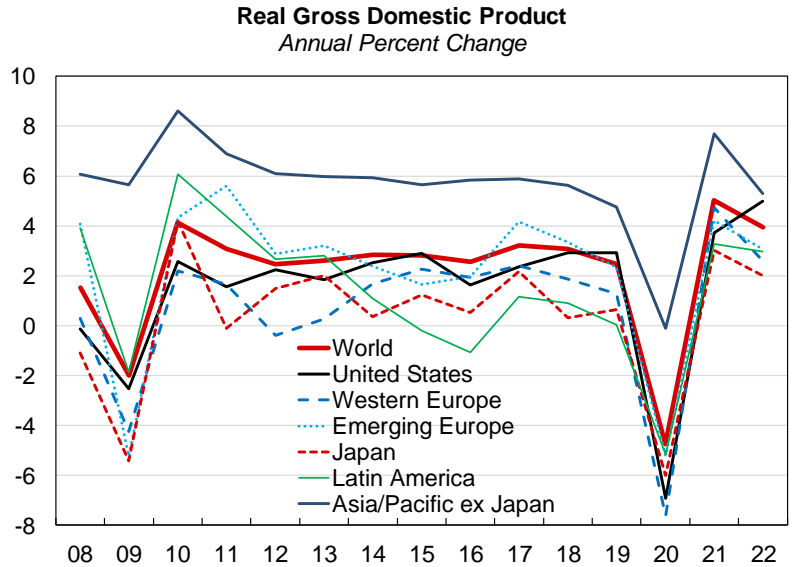
Robert C. Fry, Jr., Ph.D.

May 8, 2020

- The global economy, which seemed to be accelerating as 2020 began, has fallen into what will likely be the deepest global recession since the Great Depression. Unlike most prior recessions, which were the result of policy mistakes, oil price shocks, and natural cyclical swings resulting from human extrapolations/overreactions, this recession is the result of a global pandemic. COVID-19, the disease caused by the SARS-Var-2 coronavirus, arose in China in late 2019 and spread to the rest of the world in early 2020. Its economic impact hit China in January and February and the rest of the world in March. The impact will be severe whether businesses are shut down because of government mandates or customers are afraid to risk exposure to the virus at businesses where people congregate. The government policy response around the world has been unprecedented in both its speed and its size, but even the best response won't avert a very deep recession.
- Real Gross Domestic Product in the United States fell at a 4.8% annual rate in the first quarter after rising at a 2.1% rate in the prior two quarters. This was the first quarterly decline since the first quarter of 2014 and the largest since the fourth quarter of 2008. Consumer spending on services suffered its biggest decline since quarterly data began in 1947. Real GDP will decline much more sharply in the second quarter. I expect a 40% annualized decline, by far the largest decline since quarterly data began. For the year, I expect real GDP to decline by 6.7%, the biggest decline since the demobilization from World War II in 1946. Industrial production in manufacturing fell 6.3% in March, the biggest decline since 1946. I expect an even larger decline in April.
- Chinese real GDP fell 6.8% year-over-year in the first quarter, the first decline since the data series began in 1992. Value Added of Industry, China's official measure of industrial production, was down 14% from prior year levels in January/February combined. Year-over-year "growth" recovered to -4.1% in March. Until this year, growth has been negative only once, in January/February 2009, since the data series began in 1998. My preferred measure of growth in industrial production, the median growth rate of 100 industrial products, fell to -21.3% in January/February and stood at -3.6% in March.
- Real GDP for the European Union, which no longer includes the United Kingdom, fell 3.5% (13.2% at an annual rate) in the first quarter, by far the largest decline since the data series began in 1995. France, Italy, and Spain all suffered quarter-to-quarter declines of at least 4.7%. Year-over-year growth for the EU fell from 1.3% in the fourth quarter of 2019 to -2.7% in the first quarter of 2020. This was the biggest year-over-year decline since the third quarter of 2009. Industrial production in European Union manufacturing for March will be reported on May 13; a large decline is expected.
- Industrial production in Japanese manufacturing fell 3.8% in March, leaving it down 6.8% year-over-year.
- Year-over-year growth in Indian industrial production in manufacturing, which went negative in late 2019, stood at 1.3% in the three months ending in February. The IMF has lowered its forecast for 2020 GDP growth to 1.9%.
- Global Real Gross Domestic Product (based on market exchange rates, not purchasing power parity), which grew by 2.5% in 2019, is expected to shrink by 4.8% in 2020. Strong growth is expected in 2021 and 2022, but not strong enough to return GDP to its pre-COVID-19 trend. Global industrial production is expected to shrink by 7.6%, about the same annual decline as in 2009.
- Because the timing and speed of the recovery from the recession depend on medical breakthroughs (treatments, vaccines) that are difficult for an economist to predict, there is more than the usual amount of uncertainty surrounding these forecasts. Multiple scenarios should be considered in planning for the future.

## Global Macroeconomic Overview

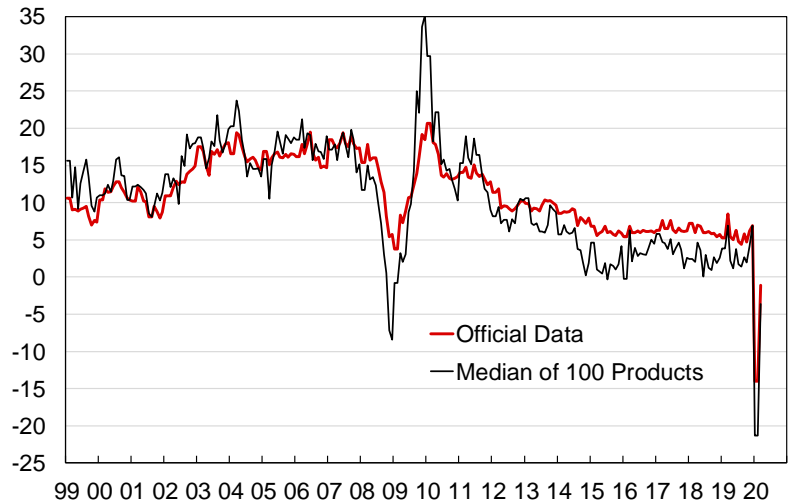
- Global real Gross Domestic Product (based on market exchange rates, not purchasing power parity) is expected to decline by 4.8% in 2020, after rising 2.5% in 2019. This would be by far the biggest decline since the Great Depression.
- Strong growth is expected in 2021 and 2022, but this would still leave the level of GDP below the pre-COVID-19 trend.
- Rich countries will be affected by self-inflicted shutdowns to slow the spread of the virus. Poor countries will be affected more by reduced exports to rich countries.
- Global industrial production, as measured by the CPB Netherlands Bureau for Economic Policy Analysis, fell sharply in January and recovered little in February.
- The January decline was due almost entirely to the decline in industrial production in China caused by shutdowns in response to COVID-19.
- February data (last point on chart) show little or no impact from COVID-19 in the rest of the world. March data will show a sharp decline.
- Global industrial production was down 4.2% year-over-year in January. This was the largest year-over-year decline since 2009. It was down 3.9% in February.
- Growth in Emerging Economies was pulled down by China in January and February.
- Data to be released over the next two months will show that year-over-year growth in Advanced Economies declined sharply in March and April.



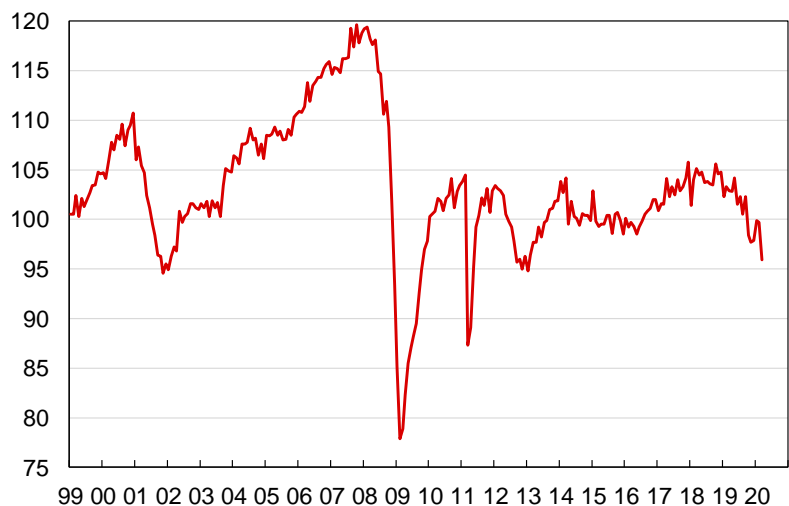
## Asia

- Shutdowns in response to COVID-19 caused economic activity in China to contract sharply in January and February.
- Value Added of Industry, China's official measure of industrial production, was down 14% from prior year levels in January/February combined. Year-over-year "growth" recovered to -1.1% in March.
- My preferred measure of growth in industrial production, the median year-over-year growth rate of 100 industrial products, fell to -21.3% in January/February and stood at -3.6% in March.
- Although Japan has suffered fewer cases of COVID-19 than most other countries, industrial production in Japanese manufacturing fell 3.8% in March, leaving it down 6.8% year-over-year and down 9.2% since October 2018.
- As a major exporter, Japan will feel a major economic impact from the pandemic even if it is relatively successful in dealing with the virus.
- Year-over-year growth in Indian industrial production (manufacturing), which went negative in late 2019, stood at 1.3% in the three months ending in February.
- The International Monetary Fund has lowered its forecast for 2020 GDP growth to 1.9%, down from 4.2% in 2019 and 8.3% in 2016, but expects growth to rebound to 7.4% in 2021. GDP growth in India has surpassed the growth rate in China. India's population will surpass China's by 2030.
- Poor countries like India cannot afford to shut down their economies to stop the spread of COVID-19.

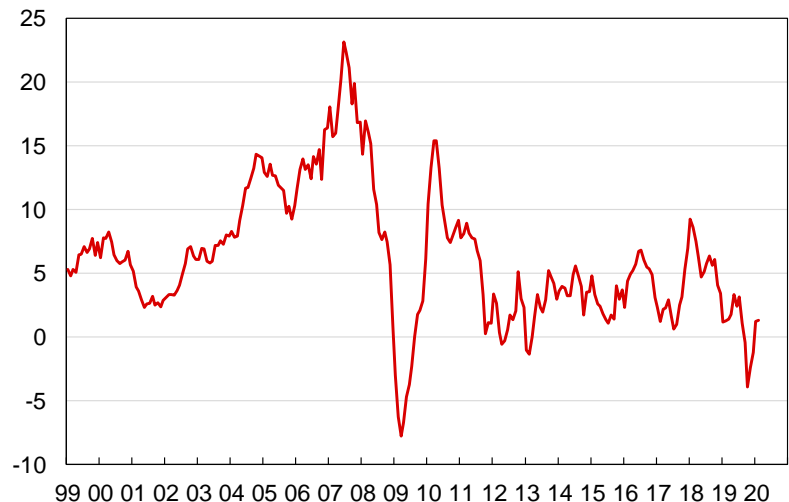
**Value Added of Industry (Industrial Production): China**  
Percent Change from Year Ago



**Industrial Production, Manufacturing: Japan**  
Index, 2015 = 100



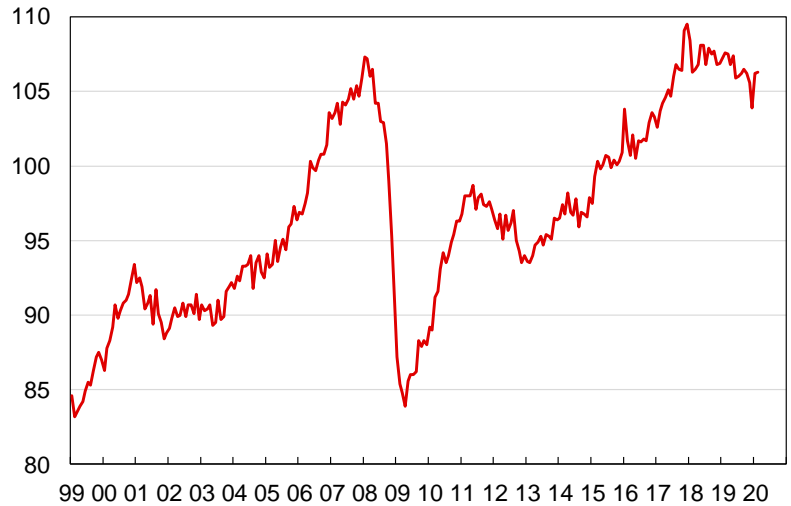
**Industrial Production, Manufacturing: India**  
Percent Change from Year Ago, Smoothed



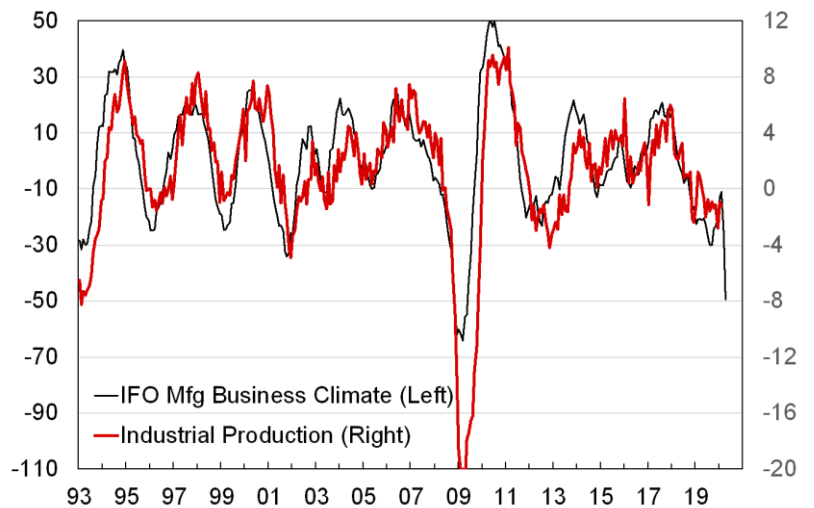
## Europe

- Real GDP in the European Union, which no longer includes the United Kingdom, fell 3.5% (13.2% annual rate) in the first quarter. Year-over-year growth fell to -2.7%, the slowest since 2009.
- Industrial production in EU manufacturing, was down 1.2% year-over-year in February, before the economic impact of COVID-19 was felt.
- The 12-month change in the German IFO manufacturing business climate index has historically led year-over-year growth in European Union manufacturing production by three months and is reported in a timelier manner.
- The IFO index plummeted in March and April to its lowest level since March 2009. Its 12-month change fell to its lowest level since May 2009. Year-over-year growth in industrial production is likely to fall much further into negative territory in coming months.
- Industrial production in Polish manufacturing hit another all-time high in February; it was up 4% year-over-year.
- Production was near its all-time high in Hungary but was up only 2% year-over-year.
- Production was up only 0.1% year-over-year in the Czech Republic, the economy of which has started to behave more like a mature Western European economy than an emerging economy.

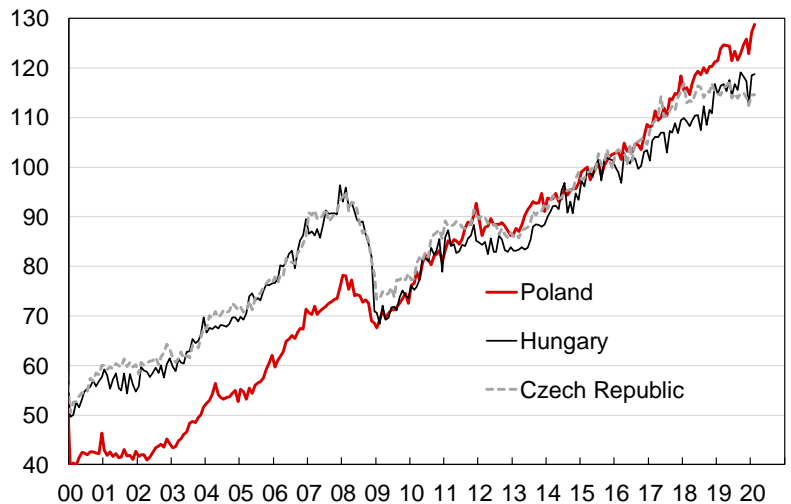
**Industrial Production, Manufacturing: European Union**  
Index, 2015 = 100



**Industrial Production, Manufacturing: European Union**  
Change/Percent Change from Year Ago



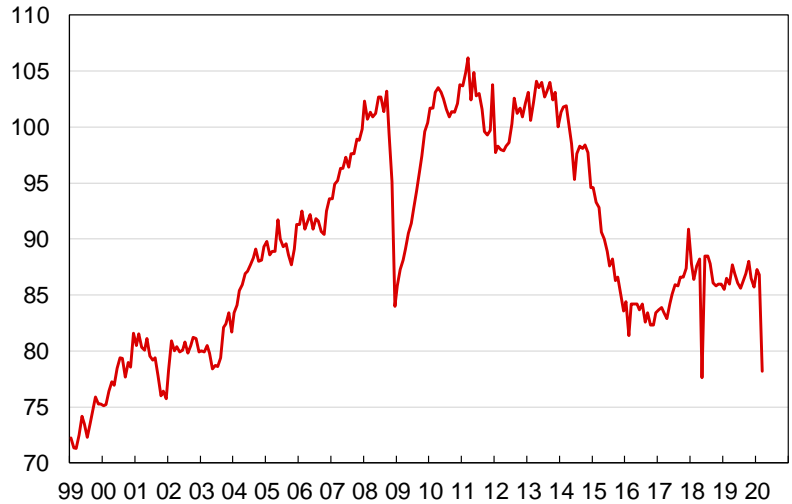
**Industrial Production, Manufacturing: Central Europe**  
Index, 2015 = 100



## Americas

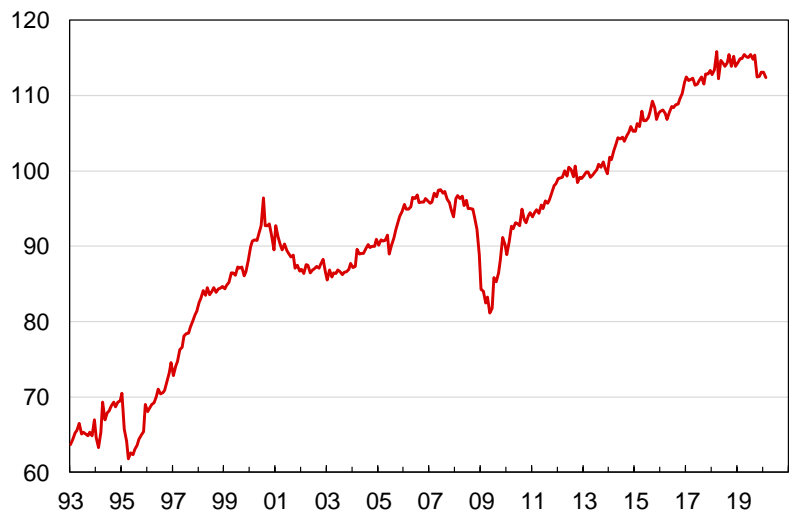
- Brazil has been hit hard by COVID-19.
- Industrial production in Brazilian manufacturing fell 9.9% in March, leaving it down 9.1% year-over-year.
- Another big decline is expected for April.

**Industrial Production, Manufacturing: Brazil**  
Index, 2012 = 100



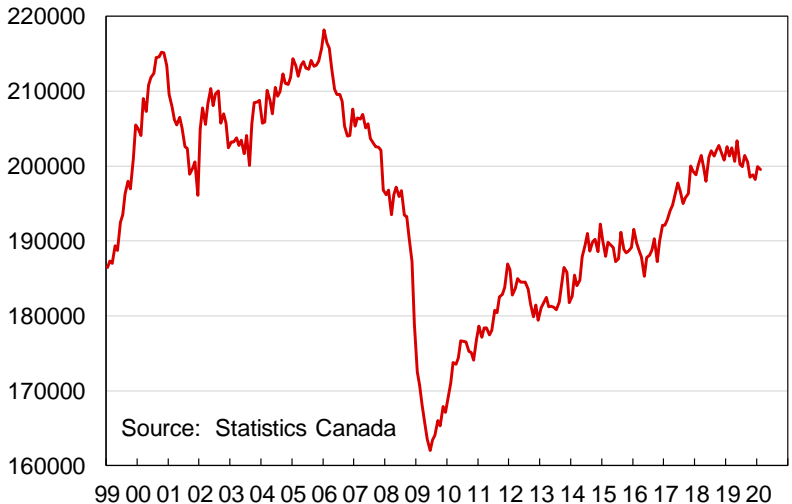
- The Mexican economy was weakening even before COVID-19. Gross Domestic Product fell 1.6% in the first quarter and was down 2.4% year-over-year.
- Industrial production in Mexican manufacturing fell sharply last October and had not recovered through February, when production was down 2.2% year-over-year. I expect big declines in March and April.
- COVID-19 will hit the Mexican economy directly, but also indirectly through reduced exports and reduced remittances from Mexicans working in the United States.

**Industrial Production, Manufacturing: Mexico**  
Index, 2008 = 100



- Unlike most countries, Canada reports Gross Domestic Product monthly rather than quarterly and for various sectors of the economy.
- Real GDP in manufacturing, which is comparable to industrial production in other countries, declined through most of 2019. Despite an upturn in January, it was down 0.9% year-over-year in February. It remains 8.6% below its January 2006 peak.
- I expect big declines in March and April, led by the shutdown of major North American motor vehicle producers.

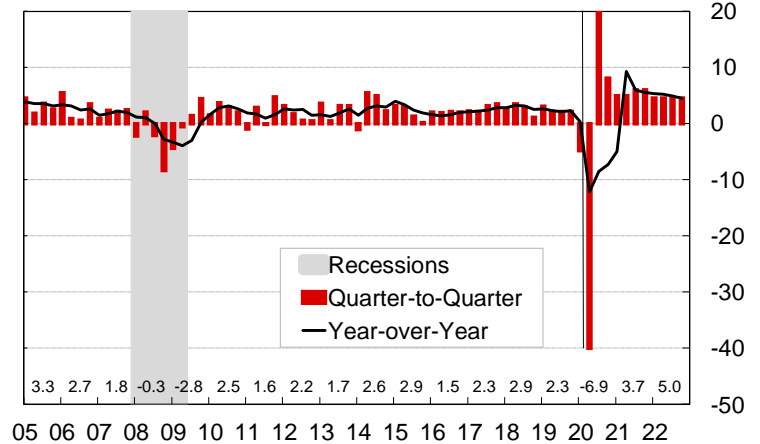
**Real GDP at Basic Prices, Manufacturing: Canada**  
Million 2012 Chained Canadian Dollars



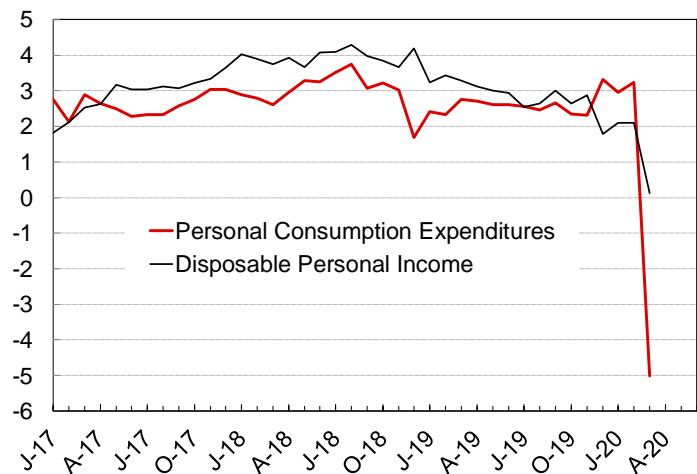
## US Macroeconomic Overview

- Real Gross Domestic Product in the United States fell at a 4.8% annual rate in the first quarter after rising at a 2.1% rate in the prior two quarters. Year-over-year growth slowed to 0.3%, the lowest since 2009.
- I expect a 40% annualized decline in the second quarter; it will be by far the largest decline since quarterly data began in 1947.
- Consumer spending on services, the largest component of GDP, fell at a 10.2% annual rate in the first quarter. Previously, the biggest decline in the history of the series was a 3.0% decline in 1953.
- Real personal consumption expenditures fell 7.3% from February to March. It was by far the biggest decline since the data series began in 1992. Spending on nondurable goods rose as consumers stocked up before the lockdowns. Spending on durable goods and on services fell sharply.
- Real disposable personal income fell 1.7% in March; it would have fallen much further if not for government transfer payments and the extension of income tax deadlines.
- Light vehicles sales fell from a 16.7 million seasonally adjusted annual rate in February to an 11.4 million rate in March. This was the biggest monthly decline ever. It left sales at the lowest level since 2009.
- Sales fell further, to an 8.6 million annual rate, in April. Vehicles sales, which are especially sensitive to employment growth and consumer confidence, are likely to remain depressed until employment rebounds and economic uncertainty fades.
- I expect annual sales to fall to 12.5 million in 2020, down from 16.9 million in 2019.

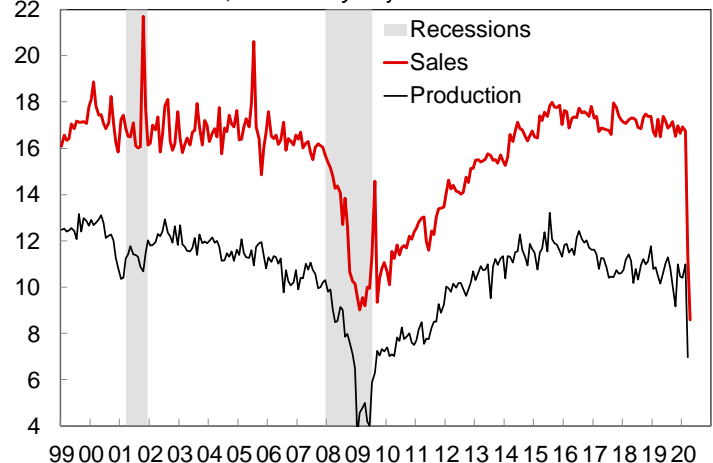
**US Real Gross Domestic Product**  
*Annualized Growth Rates*



**US Real Consumer Spending & Disposable Income**  
*Percent Change from Year Ago, Chained 2012 Dollars*



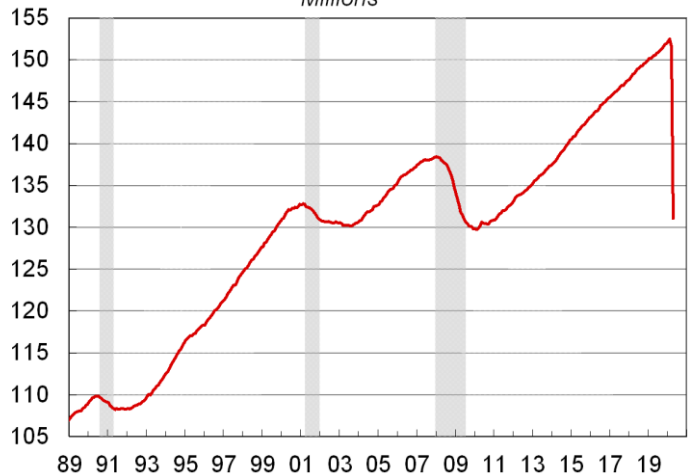
**US Light Vehicle Sales & Production**  
*Millions, Seasonally Adjusted Annual Rate*



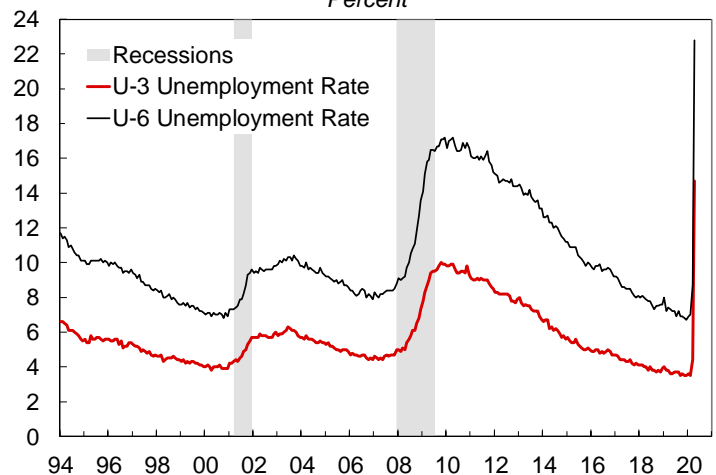
## US Labor Market

- Nonfarm payrolls shrank by 20.5 million in April. The decline dwarfs the previous record decline of 1.959 million in September 1945 and is much larger than the peak-to-trough decline from January 2008 to February 2010.
- Further big declines are likely in May. Employers that initially avoided layoffs in anticipation of a short recession (or out of a desire to receive forgiveness of Paycheck Protection Program loans) have reevaluated their situations and have announced layoffs this month.
- The civilian unemployment rate rose to 14.7% in April, the highest since the Great Depression in the 1930s. It would have been five points higher if those “employed but absent from work” had been counted as unemployed.
- Because people who have not looked for a job within the last month are **not** counted as unemployed in the headline (U-3) unemployment rate, that rate understates the rise in unemployment. Those people (and people working part time for economic reasons) **are** counted as unemployed in the U-6 “underemployment” rate.
- Initial claims for unemployment insurance, the best weekly measure of U.S. economic activity, showed the economic impact of COVID-19 before other economic data.
- Claims rose from 211,000 in the week ending March 7, close to an all-time low, to more than 6.8 million in the week ending March 28. Before the recent spike, the record for claims was 695,000.
- Claims have declined from their late-March peak but remain well above historical levels. Almost 33.5 million, a fifth of the U.S. labor force, have filed for unemployment over the last seven weeks.

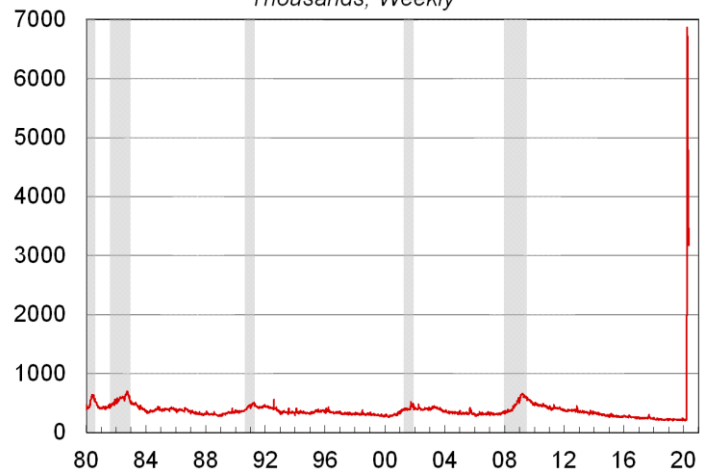
**US Nonfarm Payroll Employment**  
*Millions*



**US Civilian Unemployment Rate**  
*Percent*



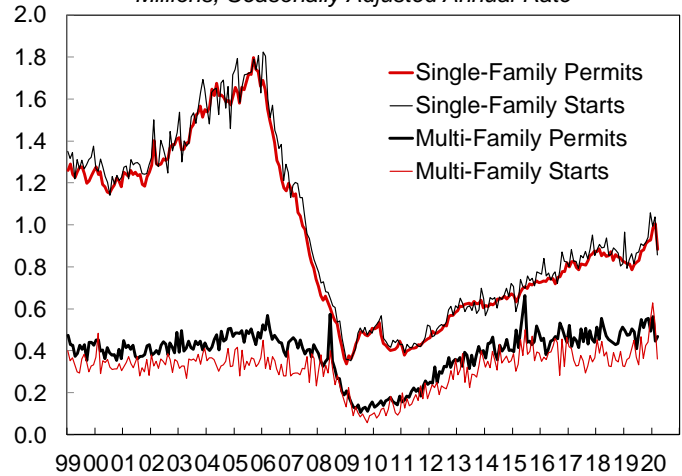
**Initial Claims for Unemployment Insurance**  
*Thousands, Weekly*



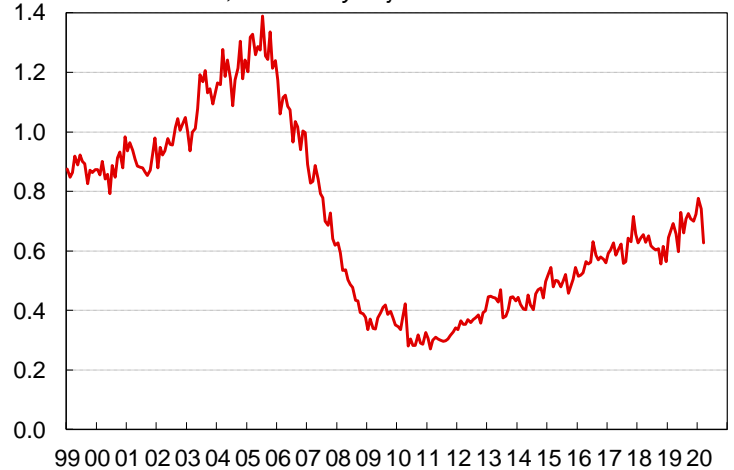
## US Housing

- Housing starts and building permits fell sharply in March after hitting 13-year highs.
- The seasonally adjusted annual rate of building permits for single-family homes (a better indicator of housing market activity than housing starts because they are less sensitive to weather) fell 12.2% in March from February's 13-year high.
- Even though mortgage rates are at record lows, and homebuilding involves less human contact than most industries, economic uncertainty, especially regarding employment, is likely to discourage purchases of big-ticket items like houses.
- New home sales fell sharply in March after a smaller decline in February from January's cyclical high.
- Existing-home sales (not shown) also fell in March, but because data are for settlements, not contracts, they don't yet show much impact from COVID-19. Pending homes sales, based on contracts, fell 20.8% in March. Because of reluctance to tour homes for sale or allow people into a home for sale (or legal restrictions), existing home sales could fall even more than new home sales and housing starts.
- Investment in business equipment fell sharply in the first quarter after smaller declines in the prior two quarters.
- Investment in business structures, which include oil and gas wells, also declined.
- Business investment is one of the more cyclical segments of GDP; it tends to decline sharply in recessions. Further big declines in investment are likely, particularly in structures, where oil and gas drilling is being pulled down by the collapse in oil prices.

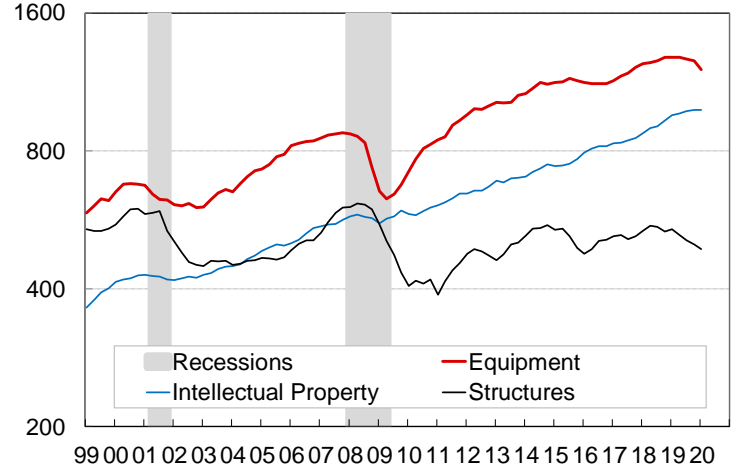
**US Housing Starts & Building Permits**  
*Millions, Seasonally Adjusted Annual Rate*



**US New Single-Family Home Sales**  
*Millions, Seasonally Adjusted Annual Rate*



**US Nonresidential Fixed Investment**  
*Billion Chained 2012 Dollars*

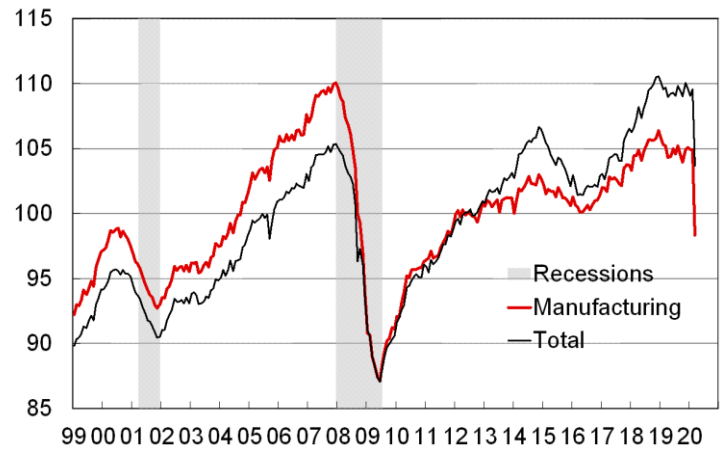




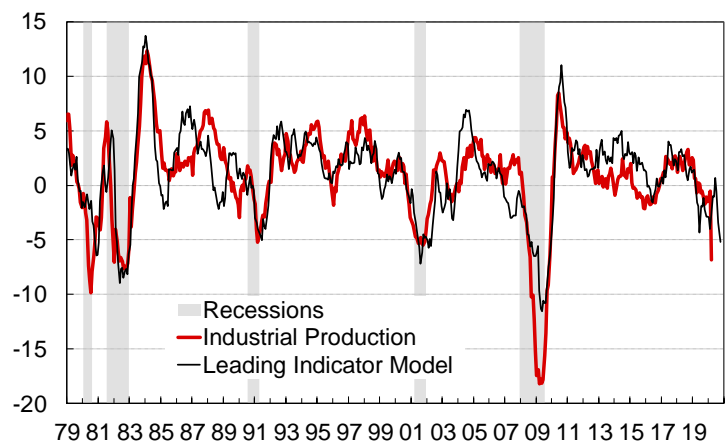
## Industrial Production & Leading Indicators

- Industrial production in U.S. manufacturing fell 6.3% in March. It was the largest monthly decline since January 1946, during the demobilization from World War II. Production was down 6.6% year-over-year; this was the largest decline since 2009.
- I expect an even larger decline in production in April.
- Manufacturing is being hit from both the supply side and the demand side. Plants are being shut down to halt the spread of the virus (supply) and because demand for most goods is declining.
- Industrial production for manufacturing (excluding computers, communication equipment, and semiconductors) was down 6.9% year-over-year in March.
- Because the March decline was driven by non-economic factors rather than the economic factors summarized by leading indicators, year-over-year growth fell well below the level indicated by my leading indicator model.
- The model suggests that year-over-year growth will remain negative over the next six months.
- The Organization for Economic Cooperation and Development (OECD) publishes leading indicators for OECD members and six non-member developing countries. Their broadest leading indicator is highly correlated with year-over-year growth in global industrial production.
- The OECD “leading” indicator doesn’t lead by much, if at all, but because it doesn’t change direction often, it can confirm whether an apparent turning point in growth in industrial production is a true turning point or just statistical “noise”. The indicator was rising through January, but fell slightly in February and plummeted in March.

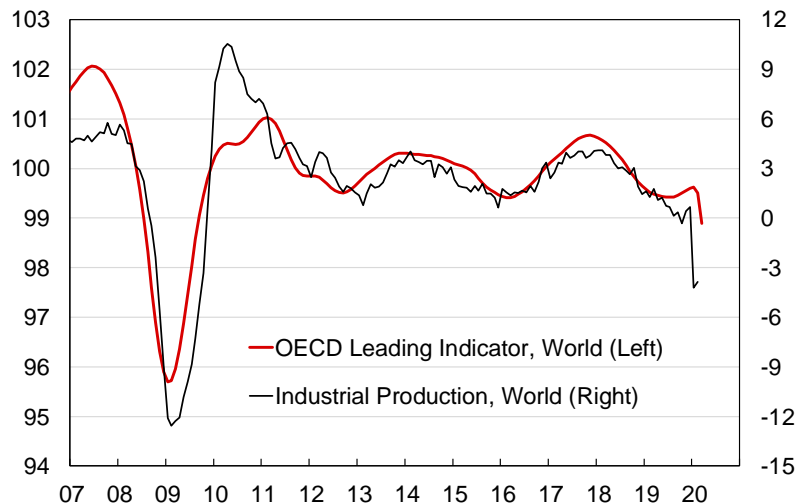
**US Industrial Production**  
*Indexes, 2012=100*



**US Industrial Production: Manufacturing ex high-tech**  
*Percent Change from Year Ago*



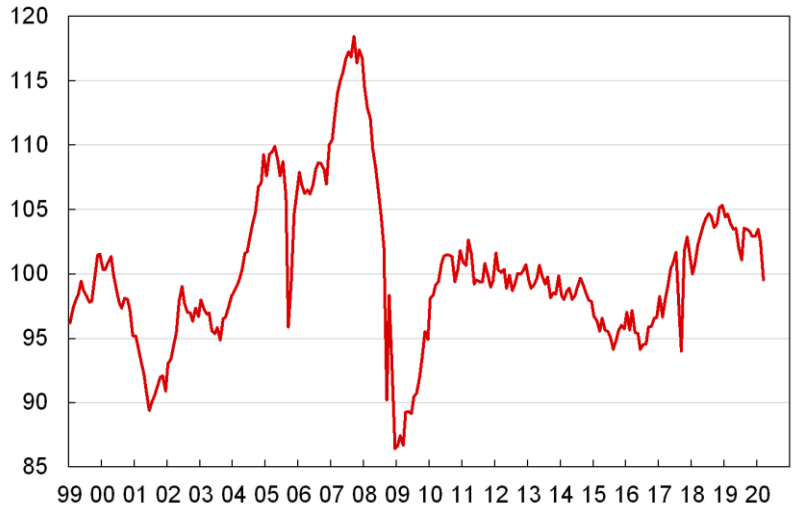
**OECD Leading Indicator & Global Industrial Production**  
*Trend = 100*      *Percent Change from Year Ago*



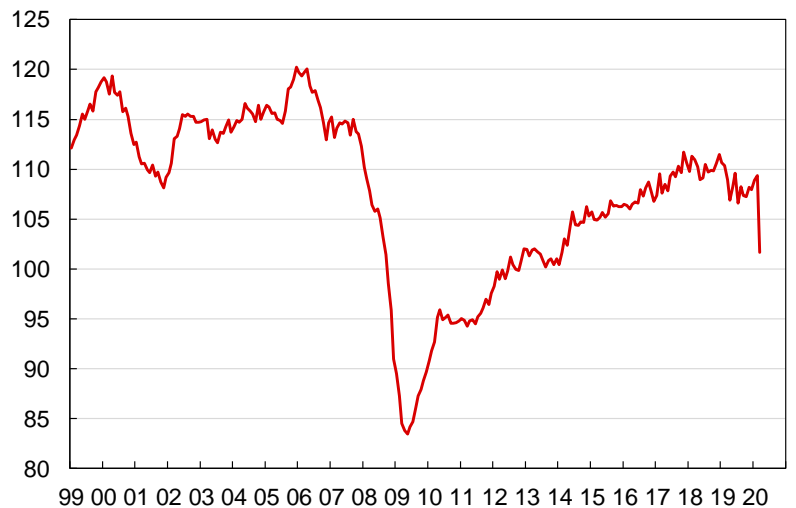
## US Industrial Production

- Industrial production of chemicals (excluding pharmaceuticals) fell 2.8% in March, leaving it down 4.2% year-over-year. A further decline is expected for April.
- Chemical production had been rising as new facilities built to take advantage of an abundance of cheap natural gas liquids came online.
- The sharp decline in oil prices has eliminated the cost advantage that North American chemical producers derived from cheap natural gas liquids. Further capacity expansion is at risk.
- U.S. industrial production of plastic and rubber products fell 7.1% in March, leaving it down 6.8% year-over-year.
- Plastic and rubber production was hit hard by a big decline in motor vehicle production in March. Plastic and (especially) rubber production had already been trending down since 2017 in response to declining vehicle production.
- Demand for plastic packaging has remained strong so far as consumers have stocked up on food, cleaning products, and other nondurable goods.
- Even though natural gas liquids are the primary feedstock for the North American chemical industry, industrial chemical prices are more highly correlated with global oil prices than with natural gas prices because oil-based imports are the marginal source of supply.
- The Producer Price Index for industrial chemicals, which rose after oil prices hit bottom in early 2016, has been trending downward since oil prices peaked in October 2018. Chemical prices are likely to fall sharply in coming months.

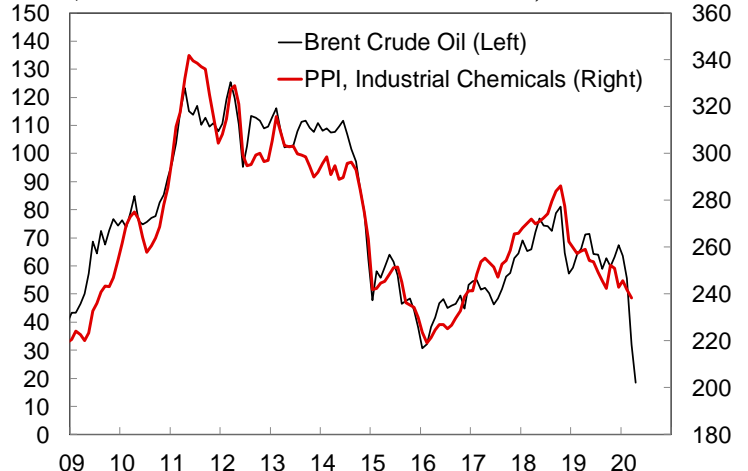
**US Industrial Production: Chemicals ex pharma**  
*Index, 2012=100*



**US Industrial Production: Plastic & Rubber Products**  
*Index, 2012=100*

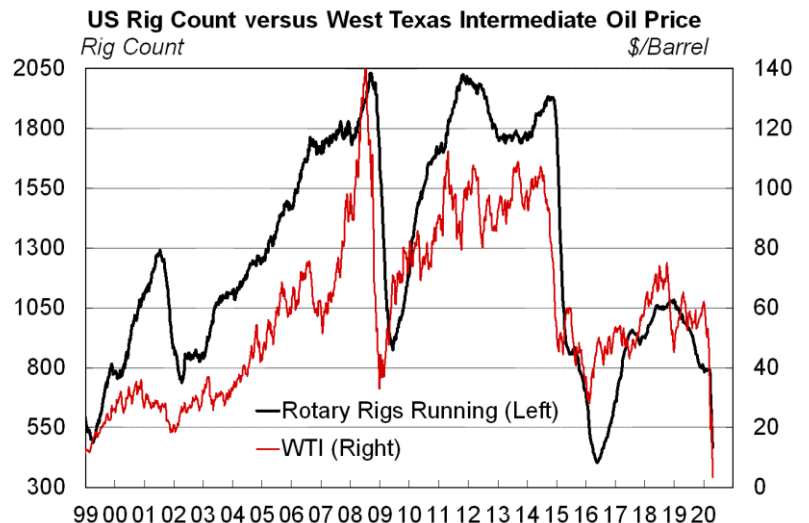
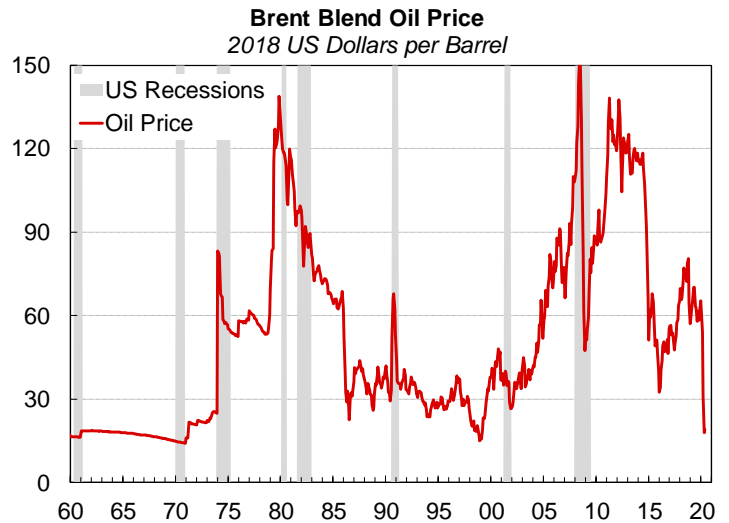
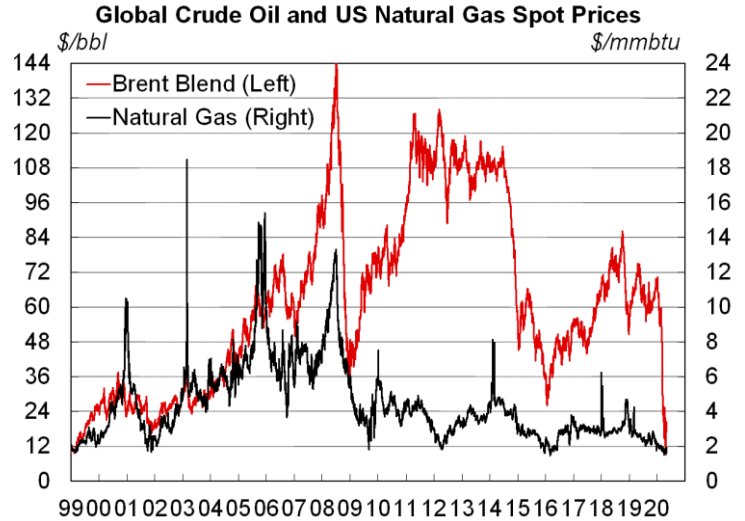


**Brent Oil Price vs Industrial Chemical Prices**  
*\$/Barrel (Left) Index, 1982 = 100 (Right)*



## Oil & Gas Prices

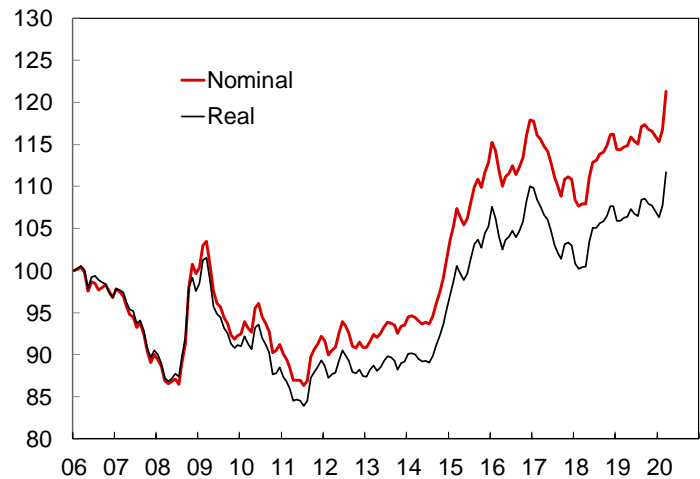
- The price of Brent Blend crude oil, which is tied to what U.S. consumers pay for petroleum products, fell in April to its lowest level since December 1998 as oil demand collapsed around the world because of the COVID-19 pandemic while Saudi Arabia and Russia were waging a price war.
- Natural gas prices have fallen below \$2 per million btu this year, essentially matching the lowest level since December 1998.
- Low prices for natural gas and natural gas liquids, relative to oil prices, boosted the competitiveness of North American chemical producers, which use natural gas liquids as their primary feedstock, vis-à-vis foreign competitors, which rely on naphtha, a crude oil derivative. The sharp decline in oil prices has eliminated this advantage.
- Real (inflation-adjusted) oil prices are nearing the all-time lows hit in 1970 and 1998.
- Historically, the U.S. economy has grown faster when oil prices were low than when oil prices were high. That relationship has been weakened, perhaps even eliminated, by the staggering growth in U.S. oil production since 2008.
- The price of West Texas Intermediate crude oil, which is tied to what U.S. oil producers are paid for their oil, actually turned negative on April 20. (Chart shows weekly data.)
- Oil drilling has plummeted in response to the decline in oil prices. It is likely to fall much further before oil prices recover to levels that make drilling profitable.
- U.S. oil production hit a record high in February. Natural gas production hit a record high in November. Both are likely to decline significantly over the rest of 2020.



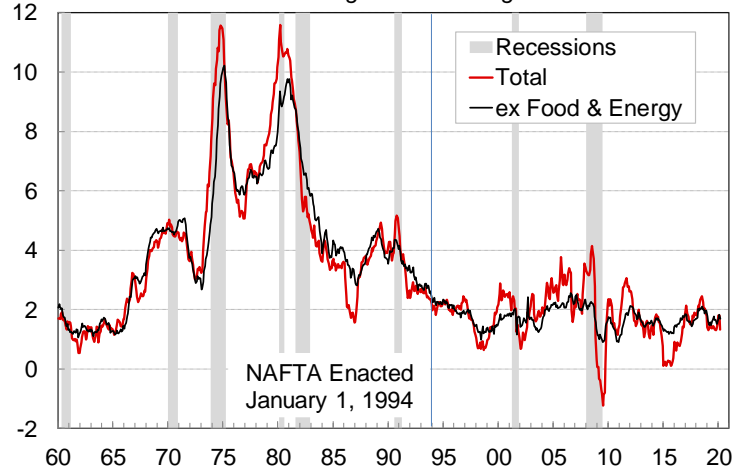
## Exchange Rates, Inflation, and Interest Rates

- The trade-weighted foreign exchange value of the U.S. dollar rose in April to the highest level since the (new) series began in 2006.
- A strong dollar helps keep inflation low, but it reduces the competitiveness of U.S.-produced goods and services, especially in agriculture, manufacturing, and mining.
- The U.S. Federal Reserve seeks to keep inflation, as measured by the year-over-year change in the Personal Consumption Expenditure Price Index, near 2%.
- The total PCE Price Index was up just 1.3% year-over-year in March. The “core” (ex food and energy) index was up 1.7%.
- Inflation is likely decline until after the recession ends.
- The Fed is unlikely to raise interest rates as long as inflation remains below 2%.
- In response to early signs of the collapse in economic activity, the Federal Reserve cut its federal funds rate target by 1.25 percentage points, to a range of 0-0.25%.
- The closing yield on 10-year Treasury notes fell to a record low of 0.54% on March 9. It is currently around 0.7%.
- In addition to cutting interest rates, the Fed has greatly expanded its balance sheet by purchasing a variety of government and corporate bonds and other securities.

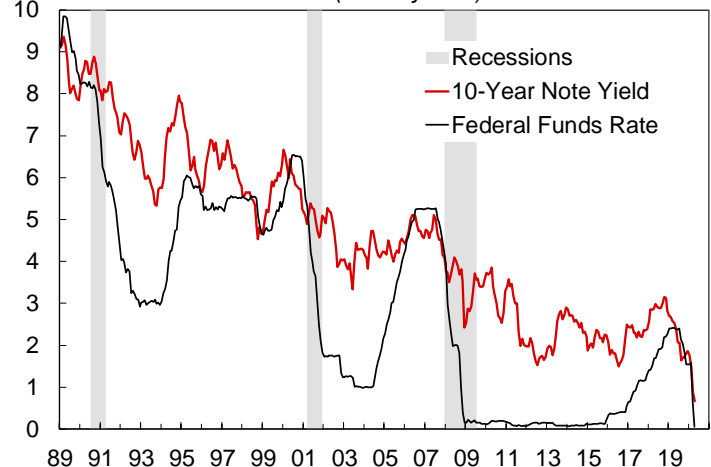
**Federal Reserve Broad Dollar Index**



**US Personal Consumption Expenditures Price Index**  
*Percent Change from Year Ago*



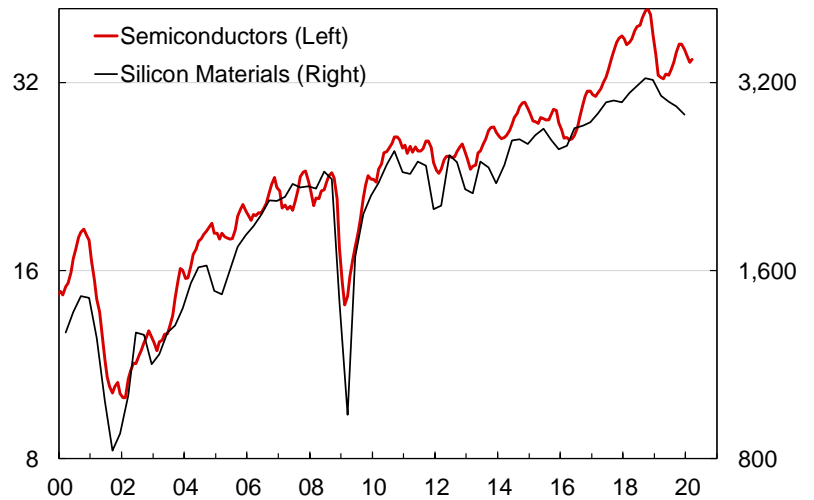
**US Interest Rates**  
*Percent (Monthly data)*



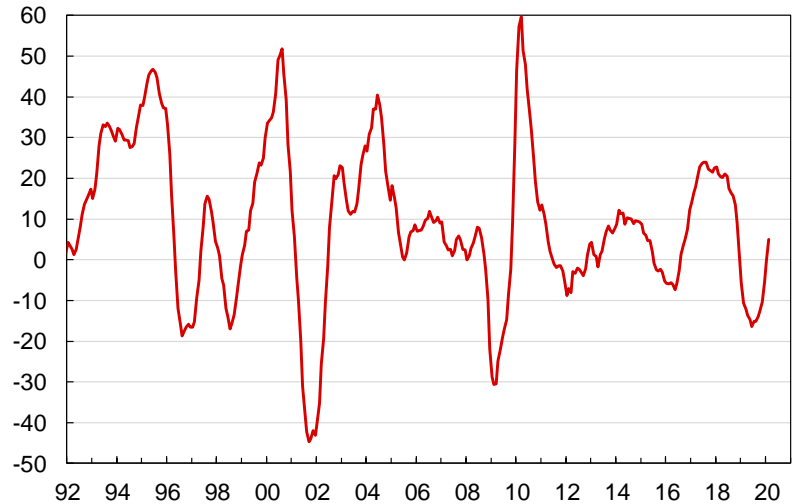
## Electronics & Communication

- Shipments of silicon materials are a good indicator of global demand for products going into the electronics industry. Shipments have fallen for five straight quarters since hitting a record high in the third quarter of 2018. They were down 12.1% year-over-year in the fourth quarter of 2019.
- The data (from SEMI®) are only reported quarterly back to 2000, but silicon wafer area (in square inches) has been strongly correlated with semiconductor shipments (in dollars), which are reported monthly back to 1976.
- Worldwide semiconductor shipments, reported by the Semiconductor Industry Association, fell sharply after reaching a record high in the three months ending in October 2018.
- Shipments bottomed in the first half of 2019 and rose in the second half before the normal seasonal decline in the first quarter of 2020. Year-over-year growth has turned positive – it was 6.8% in the three months ending in March – after falling as low as -16.4% in mid-2019.
- Industrial production of wire and cable used in communication and energy applications fell by two-thirds from its 2000 peak to its 2009 trough. The recovery since then, while significant in percentage terms, has erased little of the 2001-2009 decline.
- Wire and cable production hit an 11-year high in July 2019 but has declined since then. Production was down 0.1% year-over-year in March.
- Electronics and communication will fare better than other industries during the recession because of the needs of people working (and ordering) from home.

**Worldwide Semiconductor & Silicon Material Shipments**  
*Million\$, 3-Month Moving Average      Million Square Inches*



**Worldwide Semiconductor Shipments**  
*Percent Change from Year Ago, 3-Month Moving Average*



**US Industrial Production: Wire & Cable**  
*Index, 2012=100*



# Global GDP Growth

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
<b>World</b>	<b>2.8</b>	<b>2.6</b>	<b>3.2</b>	<b>3.1</b>	<b>2.5</b>	<b>-4.8</b>	<b>5.0</b>	<b>4.0</b>	<b>3.2</b>
<b>North America</b>	<b>2.7</b>	<b>1.6</b>	<b>2.4</b>	<b>2.8</b>	<b>2.8</b>	<b>-6.8</b>	<b>3.8</b>	<b>4.8</b>	<b>3.4</b>
United States	2.9	1.6	2.4	2.9	2.9	-6.9	3.7	5.0	3.6
Canada	0.7	1.0	3.2	2.0	1.6	-6.2	4.2	3.0	1.7
Mexico	3.3	2.9	2.1	2.1	-0.1	-6.6	3.0	4.0	2.3
<b>Western Europe</b>	<b>2.3</b>	<b>1.9</b>	<b>2.4</b>	<b>1.9</b>	<b>1.3</b>	<b>-7.6</b>	<b>4.7</b>	<b>2.6</b>	<b>1.4</b>
France	1.1	1.1	2.3	1.7	1.3	-7.2	4.5	2.5	1.4
Germany	1.7	2.2	2.5	1.5	0.6	-7.0	5.2	2.5	1.2
Italy	0.8	1.3	1.7	0.8	0.3	-9.1	4.8	2.0	0.6
Spain	3.8	3.0	2.9	2.4	2.0	-10.0	7.0	4.0	1.6
U.K.	2.4	1.9	1.9	1.3	1.4	-8.0	4.0	3.0	1.5
<b>C &amp; E Europe</b>	<b>1.7</b>	<b>2.0</b>	<b>4.2</b>	<b>3.4</b>	<b>2.3</b>	<b>-5.2</b>	<b>4.2</b>	<b>3.1</b>	<b>2.8</b>
<b>Middle East &amp; Africa</b>	<b>2.5</b>	<b>3.3</b>	<b>1.7</b>	<b>1.6</b>	<b>1.1</b>	<b>-3.4</b>	<b>3.9</b>	<b>3.4</b>	<b>3.0</b>
<b>Asia/Pacific</b>	<b>4.5</b>	<b>4.6</b>	<b>5.0</b>	<b>4.4</b>	<b>3.9</b>	<b>-1.3</b>	<b>6.7</b>	<b>4.7</b>	<b>4.4</b>
Japan	1.2	0.5	2.2	0.3	0.7	-6.0	3.0	2.0	0.5
ex Japan	5.7	5.8	5.9	5.6	4.8	-0.1	7.7	5.3	5.3
Australia	2.3	2.8	2.5	2.7	1.8	-6.7	6.1	2.7	2.7
China	6.9	6.8	6.9	6.8	6.1	1.2	9.0	5.7	5.6
India	8.0	8.3	7.0	6.1	4.2	1.9	7.4	7.4	7.4
Indonesia	4.9	5.0	5.1	5.2	5.0	0.5	8.2	5.3	5.3
Korea (South)	2.8	2.9	3.2	2.7	2.0	-1.2	3.4	2.9	2.9
Malaysia	5.0	4.5	5.7	4.7	4.3	-1.7	9.0	4.8	4.8
Philippines	6.1	6.9	6.7	6.2	5.9	0.6	7.6	6.5	6.5
Singapore	3.0	3.2	4.3	3.4	0.7	-3.5	3.0	2.2	2.4
Taiwan	1.5	2.2	3.3	2.7	2.7	-4.0	3.5	2.1	2.1
Thailand	3.1	3.4	4.1	4.2	2.4	-6.7	6.1	3.6	3.6
Vietnam	7.0	6.7	6.9	7.1	7.0	2.7	7.0	6.5	6.5
<b>Latin America</b>	<b>-1.1</b>	<b>-2.1</b>	<b>0.9</b>	<b>0.6</b>	<b>0.1</b>	<b>-4.8</b>	<b>3.3</b>	<b>2.7</b>	<b>2.8</b>
Argentina	2.7	-2.1	2.7	-2.5	-2.2	-5.7	4.4	2.3	3.1
Brazil	-3.6	-3.3	1.3	1.3	1.1	-5.3	2.9	2.4	2.4

# Global Industrial Production Growth

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
<b>World</b>	<b>1.7</b>	<b>1.9</b>	<b>3.6</b>	<b>3.1</b>	<b>0.8</b>	<b>-7.6</b>	<b>6.3</b>	<b>5.6</b>	<b>3.5</b>
<b>Advanced economies</b>	<b>0.4</b>	<b>0.2</b>	<b>3.1</b>	<b>2.4</b>	<b>-0.3</b>	<b>-9.8</b>	<b>5.0</b>	<b>5.6</b>	<b>3.0</b>
United States	-1.0	-2.0	2.3	3.9	0.9	-10.1	4.2	5.6	3.4
Japan	-1.2	0.2	2.6	1.0	-2.4	-8.0	4.0	4.0	2.0
Euro Area	2.0	1.7	3.1	0.9	-1.6	-12.0	5.0	6.0	3.0
Other advanced	1.8	1.4	4.3	3.0	0.9	-8.0	7.0	6.0	3.0
<b>Emerging economies</b>	<b>2.9</b>	<b>3.6</b>	<b>4.0</b>	<b>3.7</b>	<b>1.8</b>	<b>-5.2</b>	<b>7.7</b>	<b>5.7</b>	<b>4.0</b>
China		6.0	6.6	6.3	5.7	-3.0	10.0	5.0	4.5
Emerging Asia ex Chi	1.0	3.7	4.2	3.7	0.1	-3.0	8.0	5.0	4.5
C & E Europe	-1.6	1.6	3.2	2.9	2.1	-8.0	7.0	7.0	2.5
Latin America	-2.3	-3.6	-0.7	-2.2	-5.0	-8.0	5.0	6.0	3.0
Middle East & Africa	3.1	3.7	0.7	1.0	-3.3	-8.0	6.0	7.0	4.0

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