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ERRATA Exploring price increases in 2021 and previous periods of inflation

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By Edwin Bennion, Trevor Bergqvist, Kevin M. Camp, Joseph Kowal, and David Mead

Measures of price change in the United States recently experienced the largest period of inflation since 2008. How did the latest bout of price increases compare to previous periods of inflation? In 2021, large and consistent price increases impacted a variety of products across the global economy.[1] The factors contributing to these increases were the ongoing complications from the COVID-19 pandemic and supply chain disruptions. In 2021, a semiconductor shortage caused decreased production in a variety of industries. A related factor was port congestion caused by an inability to offload ships and secure trucking services.[2] The resulting delays in product delivery translated to substantial supply shortfalls and upward price pressure. Data from the Bureau of Labor Statistics (BLS) provide more detail on the nature of rising prices in 2021.

BLS tracks price changes via price surveys including the Consumer Price Index (CPI), the Producer Price Index (PPI), and the Import and Export Price Indexes (MXPI). The CPI measures changes in prices paid by urban U.S. residents for goods and services, tracking inflation at the retail level to consumers. By contrast, the PPI publishes changes in the prices U.S. producers receive for selling their goods and services—that is, inflation from the seller's perspective. Finally, the MXPI describes inflation at the international level, measuring price changes for goods and services traded between the United States and other countries worldwide.

This **Beyond the Numbers** article examines the 2021 CPI, PPI, and MXPI price increases in the context of historical periods of high inflation, as measured by the surveys. Finally, the data are examined to explore whether trends from the previous year continued into the first quarter of 2022.

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Why inflation matters

Inflation is often called the "silent thief" because price increases over time leave people with less disposable income (so long as price inflation surpasses wage inflation). To see how, take the example of hypothetical consumer Sam detailed in table 1. Sam made $5,000 a month in 2020. In that year, Sam had monthly expenditures of $200 on gasoline; $500 on food; $1,500 on rent; and $2,300 on items other than food, shelter, and energy. At the end of the month, the $500 left over from Sam's expenses went into savings.

Table 1. Example of the impact of inflation on individual expenditures

Good	2020 average consumption by month	Change in the CPI from December 2020 to December 2021	2021 average consumption per month
Total	$5,000	–	$5,327
Gasoline	$200	49.6%	$299
Food	$500	6.3%	$532
Rent	$1,500	3.3%	$1,550
All items other than food, shelter, and energy	$2,300	6.4%	$2,447
Savings	$500	–	$500

Note: All changes in CPI data are drawn from the Bureau of Labor Statistics. All else is author's calculations based on CPI data from the U.S. Bureau of Labor Statistics.
Dash indicates that data is not available.
Source: U.S. Bureau of Labor Statistics.

From December 2020 to December 2021, gasoline prices rose nearly 50 percent, food prices rose 6.3 percent, and rent prices rose 3.3 percent. Prices for items other than food, shelter, and energy advanced 6.4 percent. As a result, to consume the same amounts of each, Sam would need to set aside an additional $327.40 of total income. The outcome would be manageable if wages increased by about 6.6 percent, enough to cover the additional costs. But wages typically do not keep up with inflation.

According to other BLS data, from December 2020 to December 2021, average wages and salaries for civilian employees rose 4.5 percent.[3] In other words, wages advanced in 2021, but not as much as Sam's market basket in the example. A 4.5-percent advance in wages for Sam would equate to a new average monthly salary of $5,225. Because of the rise in price levels, Sam has to make some choices. One option would be to cut other discretionary spending. For

example, Sam could stay home instead of going to the movies. Alternatively, Sam might reduce monthly savings. Another possibility might be to change the composition of food consumption. In contrast to meat prices, which rose 14.8 percent, fresh vegetable prices only increased 2.4 percent in 2021. Sam could substitute more fresh vegetables in place of meat. Regardless, the increase in price level forces Sam to make changes in consumption patterns.

Consumer Price Index inflation: 1970–2021

The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of goods and services. For example, the June 2022 value for the CPI all items index was 296.311. Compared to the index value in June 2021 of 271.696, consumer prices rose 9.1 percent over the period. Since 1970, there have been four notable periods of high inflation as tracked by the CPI. Each period coincided with a global shift in either the supply or demand of oil, which consequently impacted the 12-month percent change of the CPI.

Table 2. Peak 12-month percentage change during periods of high inflation, CPI-U, U.S. city average

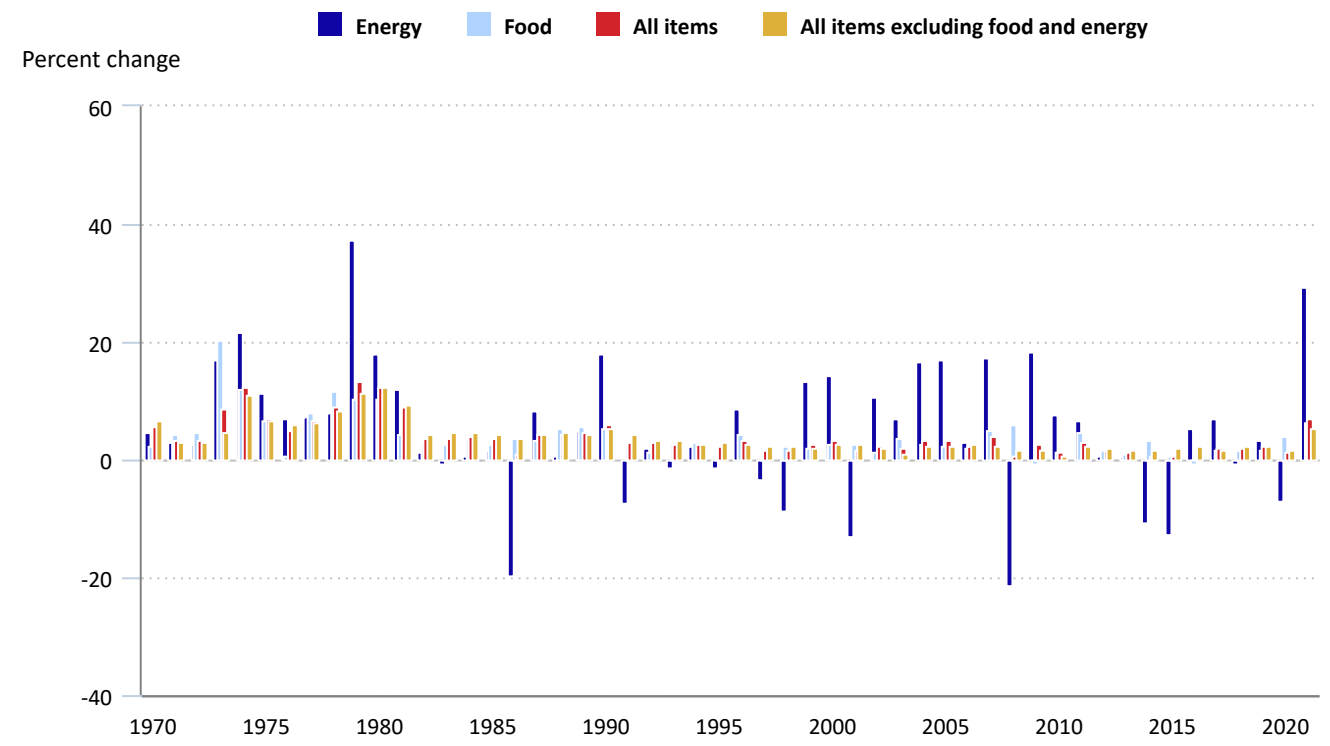
Period	All Items	Energy	Food	All Items Less Food and Energy
1973–76	12.3 (Dec. 1974)	33.7 (Sep. 1974)	20.3 (Dec. 1973)	11.7 (Feb. 1975)
1977–82	14.8 (Mar. 1980)	47.1 (Mar. 1980)	13.1 (Feb. 1979)	13.6 (Jun. 1980)
2005–08	5.6 (Jul. 2008)	34.8 (Sep. 2005)	6.3 (Oct. 2008)	2.9 (Sep. 2006)
2021	7.0 (Dec. 2021)	33.3 (Nov. 2021)	6.3 (Dec. 2021)	5.5 (Dec. 2021)
Source: U.S. Bureau of Labor Statistics.				

2021

Consumer prices increased throughout 2021 in all four of the major indexes analyzed in this paper: all items, energy, food, and all items less food and energy. As shown in table 2, the all items index reached a 7.0-percent 12-month rate of change in December 2021, which was then the largest recorded 12-month advance since rising 7.1 percent in June 1982. Food prices followed suit, increasing a substantial 6.3 percent in December 2021—the highest since October 2008.

Energy, a historically volatile category, also advanced considerably in 2021. Following a period of deflation in 2020, the energy peak of 33.3 percent in November 2021 was the 15th largest in the history of CPI (since 1970) and the largest since September 2005. The swing from price decreases in 2020 to high inflation in 2021 primarily arose from the COVID-19 pandemic. Pandemic lockdowns in 2020 caused the largest demand-side shock to petroleum since the 2008–09 global recession.[4] Reduced economic activity sharply lowered petroleum demand and led to a decrease in global prices at the beginning of 2020. However, after COVID-19 restrictions ended and demand recovered, prices rose again.

Chart 1. Twelve-month percent change of the Consumer Price Index in U.S. city average, all urban consumers, not seasonally adjusted



Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

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The elevated inflation of 2021 is put into perspective when analyzing previous periods of inflation in the CPI. Taking this into consideration, here is a brief look at three historical periods of high inflation.

CPI: Comparing 2021 to previous periods

1973–76

In 1973, the Organization of Petroleum Exporting Countries (OPEC) instituted an oil embargo on the United States. This embargo resulted in a strong shock to the supply side of U.S. energy, causing a period of high inflation as seen in the CPI.[5] During this period, several categories of the CPI reached higher levels than their 2021 counterparts. The energy index of the CPI peaked in September of 1974 with a 33.7-percent increase, just larger than the 33.3-percent increase in the energy index in 2021. Likewise, the food and all items categories peaked in December 1973 with 20.3-percent and 12.3-percent 12-month changes, respectively. The rise over the previous year is over three times larger than the largest CPI increase in 2021 for food and 5 percentage points higher than 2021's largest annual change for all items. The December 1973 20.3-percent increase for food was the all-time highest on record for food inflation, a record still currently standing nearly 50 years later. 4 years later, a second oil crisis would follow and bring an acceleration of the inflation occurring in the early 1970s.[6]

1977–82

The 1979 Oil Crisis resulted from lower domestic crude oil production, instability in the Middle East, and a cut in crude oil production by OPEC. From 1977 to 1982, inflation, as measured by the CPI, hit historic highs. Specifically, the all items, energy, and all items less food and energy indexes reached all-time highs during this period.

Energy reached a record high 12-month change of 47.1 percent in March 1980. An all-time peak came the same month for the all items category, rising 14.8 percent on a 12-month basis. All items less food and energy also rose to an all-time peak of 13.6 percent a few months later in June 1980. Food did not reach its highest ever peak during this period, but still increased substantially. In fact, the 12-month change of 13.1 percent in February 1979 was the largest advance for food outside of the 1973–76 period of high inflation.

2005–08

Although prices rose more moderately between 2005 and 2008 compared with the other periods discussed in this paper, the energy index recorded significant inflation. In September 2005, the energy index increased 34.8 percent, a percent change larger than any energy index increase recorded in 2021 and an advance not seen since April 1980. Following this peak, the 12-month percent change in energy prices trended high until the middle of 2006. After briefly remaining stable, energy prices rose substantially on a 12-month basis from October 2007 to October 2008, before falling shortly thereafter. Even though food inflation remained lower than in the 1970s and 1980s, starting in June 2007, it rose sharply, peaking at 6.3 percent in October 2008. In all, the volatility of energy and food prices during this period resulted from the simultaneous oil shock and financial crisis of 2007–08.[7]

The different effects of the two events are reflected in their relatively isolated impact on the prices for different types for goods. Specifically, the peak 12-month change for the all items index was 5.6 percent in July 2008. By contrast, the all items less food and energy index did not experience the same pronounced inflation faced by energy during this period. All items less food and energy peaked around 2 years earlier in September 2006, at a much lower 2.9 percent. After removing energy and food, the peak 12-month change for the all items index substantially decreased. Following shocks to oil, energy prices change rapidly. Energy's role as a major input to food production means food prices will usually follow suit after a delay; nonetheless, consumer food prices were impacted rapidly enough in the late 2000s to experience inflation before the financial crisis. The all items less food and energy index likely did not reflect significant inflation because the financial crisis hit before other consumer prices could be impacted by the shocks to oil in this period.[8]

Table 3. Ten highest 12-month percentage change values in energy, CPI-U

Month	Energy
Mar-80	47.1
Feb-80	46.6
Apr-80	43.5
Jan-80	41.5
May-80	39.3
Dec-79	37.5
Nov-79	36.2
Oct-79	35.7
Sep-79	35.3
Sep-05	34.8
Sep-74	33.7
Source: U.S. Bureau of Labor Statistics.	

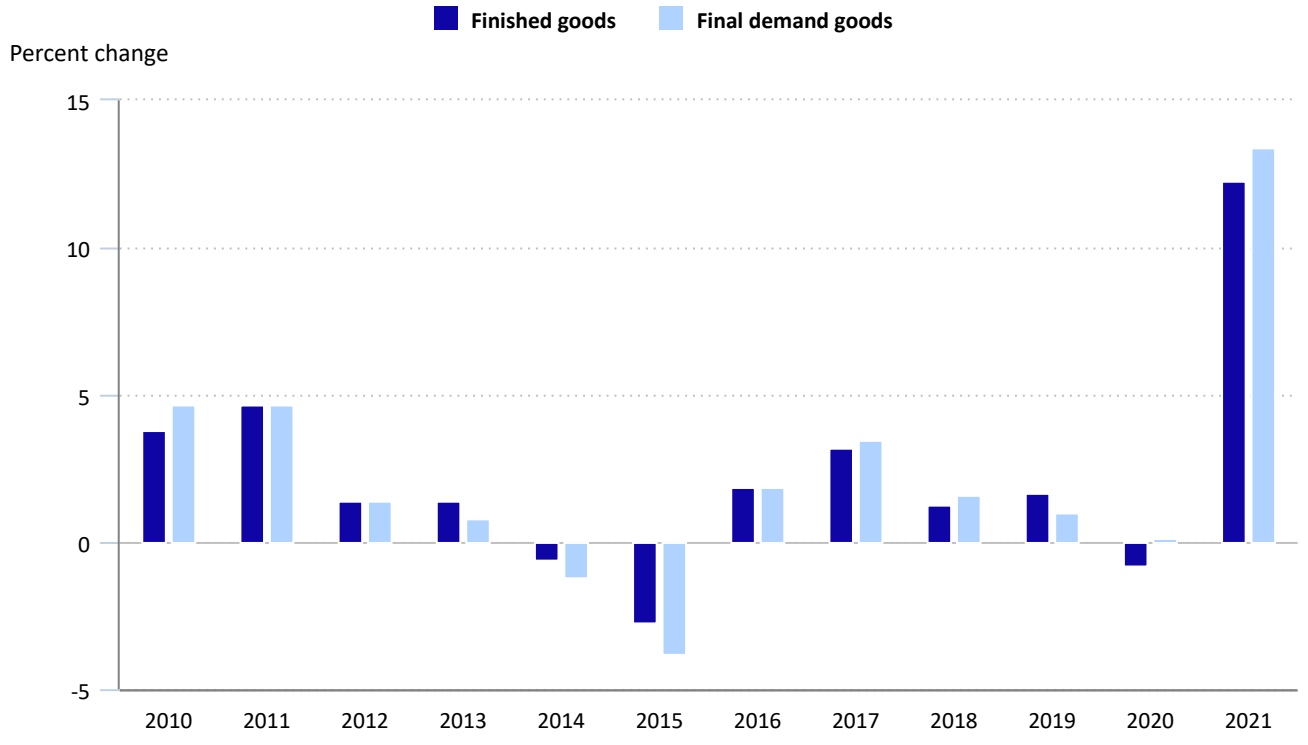
Producer Price Index: 1973–2001

The Producer Price Index (PPI) is a measure of the average change over time in the prices domestic producers receive for their output. The PPI Final Demand-Intermediate Demand (FD-ID) aggregation system was introduced in 2014. The FD-ID system includes 12-month percent change data for the final demand goods index going back to November 2010. The FD-ID system superseded the Stage of Processing (SOP) system, which included the finished goods PPI as its main index. The PPI for finished goods, a component of final demand goods with similar product categories, provides index data going back to the 1940s.[9]

2021

The runup to 2021 included volatile movements in producer prices. Producer prices in 2020 saw a steep drop through April, then a subsequent reinflation of prices by the end of the year. In 2021, material-input supply disruptions related to the COVID-19 pandemic, logistical distribution issues, and labor shortages came into force. By the end of 2021, 12-month inflation rates for final demand and its major components—final demand goods, final demand services, and final demand construction—had reached or come close to record highs.[10] Chart 2 shows that the 12-month increase for final demand goods was 13.4 percent in 2021. Finished goods prices advanced 12.3 percent during that period. Price movements for this pair of PPIs generally paralleled each other during the earlier years of overlapping index calculation. Given their similar courses, the remainder of the PPI section of this article uses the index for finished goods and its component indexes to analyze producer inflation for goods going back to the 1970s.[11] (See table 4.)

Chart 2: Producer price indexes for finished Goods and final demand goods, 12-month percent change for December, 2010–21



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Source: U.S. Bureau of Labor Statistics.

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Table 4. Peak inflation rates for the Producer Price Index Finished Goods Index and its major component indexes for major inflation events since 1970, 12-month rates of change

Index	1973–75	1978–81	2007–08	2021
Finished goods	19.6	14.9	9.9	13.3
Finished consumer foods	28.8	12.8	8.8	12.3
Finished goods, excluding foods	21.9	18.4	10.1	14.0
Finished consumer energy goods	44.2[1]	73.6	28.6	45.4
Finished goods excluding foods and energy	17.7	12.2	4.7	6.5

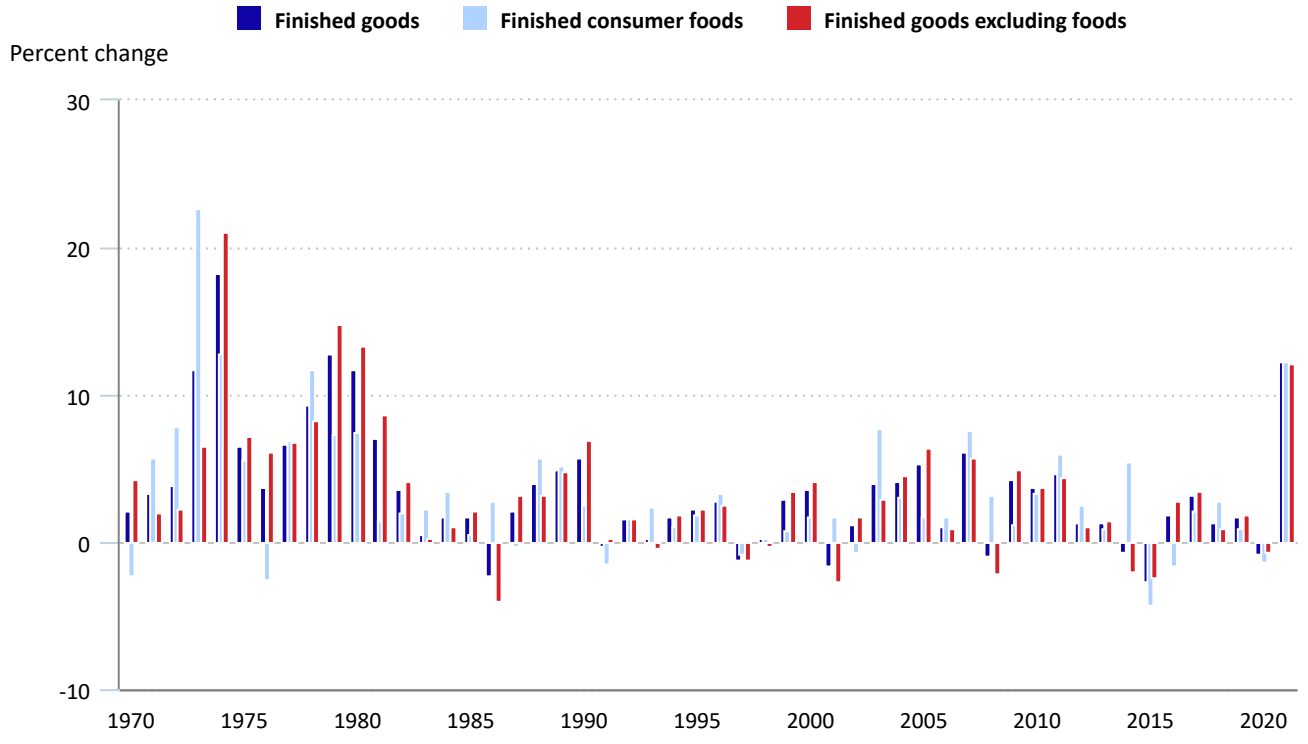
[1] This index began in January 1974, with 12-month percent change data available back to January 1975. Inflation for refined petroleum products was nearly 90 percent in late 1974.
Source: U.S. Bureau of Labor Statistics.

PPI: Comparing 2021 to previous periods

1973–75

The period from 1973 to 1975 recorded the highest level of producer inflation observed over the last half century. Two major economic events defined this period: the wage-price spiral of the early 1970s and the OPEC oil embargo of 1973.[12] Food prices increased on a broad basis, encompassing unprocessed goods such as grains, livestock, slaughter poultry, and raw milk. These price increases passed through to finished consumer foods such as cereals, meats, processed poultry, and dairy products. Food inflation accelerated beginning in early 1973 and crested in August. Starting in mid-to-late 1973 and continuing through the peak 12-month increase of 19.6 percent in November 1974, finished goods inflation moved even higher. The acceleration in 1974 was led by higher prices for finished consumer energy goods and for finished goods excluding foods and energy. In response to the oil embargo, the 12-month rate of inflation for refined petroleum products rose to nearly 90 percent by late 1974.[13] (See chart 3.)

Chart 3. Producer Price Indexes for finished goods, finished consumer foods, and finished goods excluding foods, 12-month percent change for December, 1970–2021



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Source: U.S. Bureau of Labor Statistics.

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1978–81

The period from 1978 through 1981 brought more inflation as measured by the PPI. As with consumer prices around this time, producer prices were heavily impacted by the 1979 Oil Crisis. Finished consumer energy goods inflation spiked 73.6 percent in the 12 months ended March 1980, dwarfing 12-month increases in finished consumer energy prices in other periods. Similarly, the 12-month percent change for finished goods reached a high of 14.9 percent in August 1980, an increase larger than any other period aside from 1973–75. This bout of high inflation lingered until early 1982.

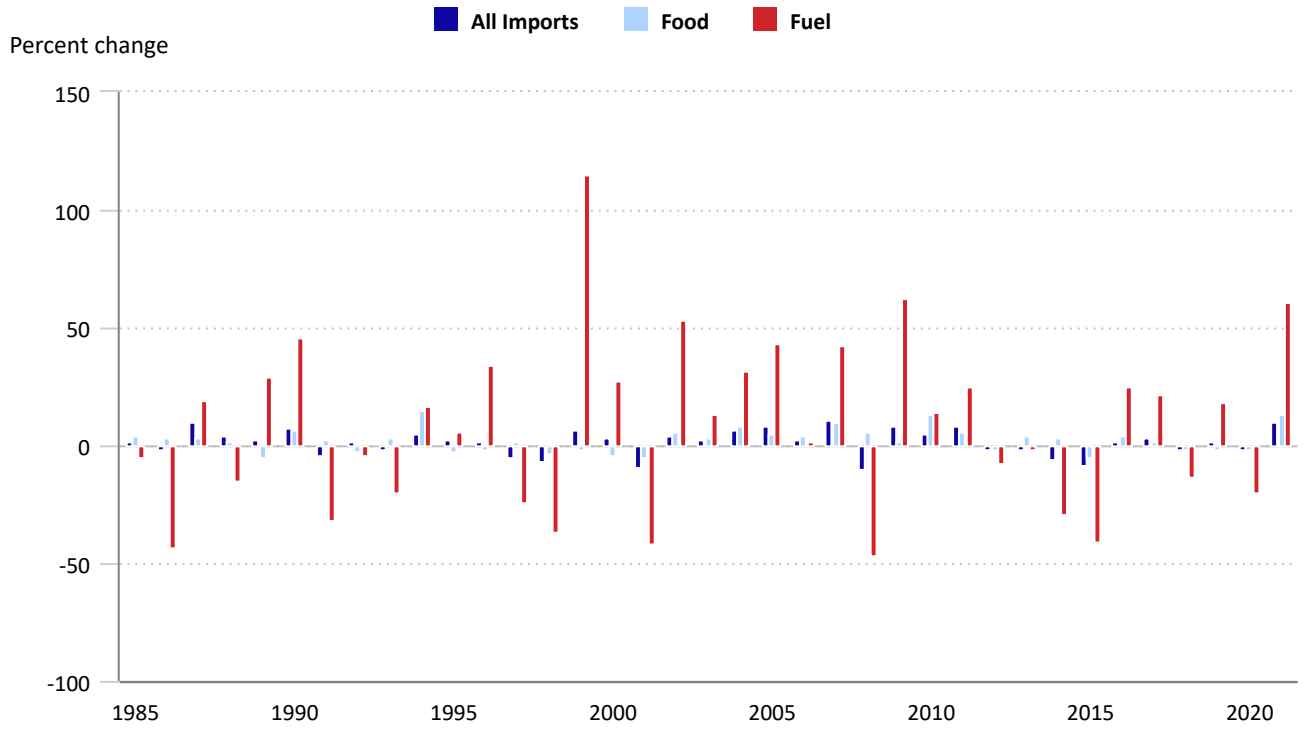
2007–08

The surge in inflation in 2007 and 2008 arose primarily from higher prices for food and energy products. Peak inflation during this period occurred in July 2008, as prices for finished goods, finished consumer foods, and finished consumer energy goods rose at 12-month rates of 9.9 percent, 8.8 percent, and 28.6 percent, respectively. The acceleration in energy and food inflation can be traced to supply-side issues: a reduction in OPEC production and a weather-induced surge in grain prices that impacted the markets for prepared animal feeds, meats and poultry, and dairy products.[14] The inflationary spike ended abruptly with the onset of the 2008 financial crisis, which dominated economic and financial events in the latter half of that year.

Import and Export Price Index Movements: 1987–2021

The import and export price indexes (MXPI) measure changes in the prices for goods imported to and exported from the United States. The indexes only date back to the early 1980s, and as such do not capture the high-inflation periods in the 1970s reflected in the CPI and PPI. The all-import index was first published in December 1982, followed by the first all-export index in December 1983. The data in chart 4 for imports and chart 5 for exports date back to 1985, the first year of publication for fuel data.

Chart 4. Import Price Indexes for all commodities, food, and fuel, 12-month percent change for December, 1985–2021



Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

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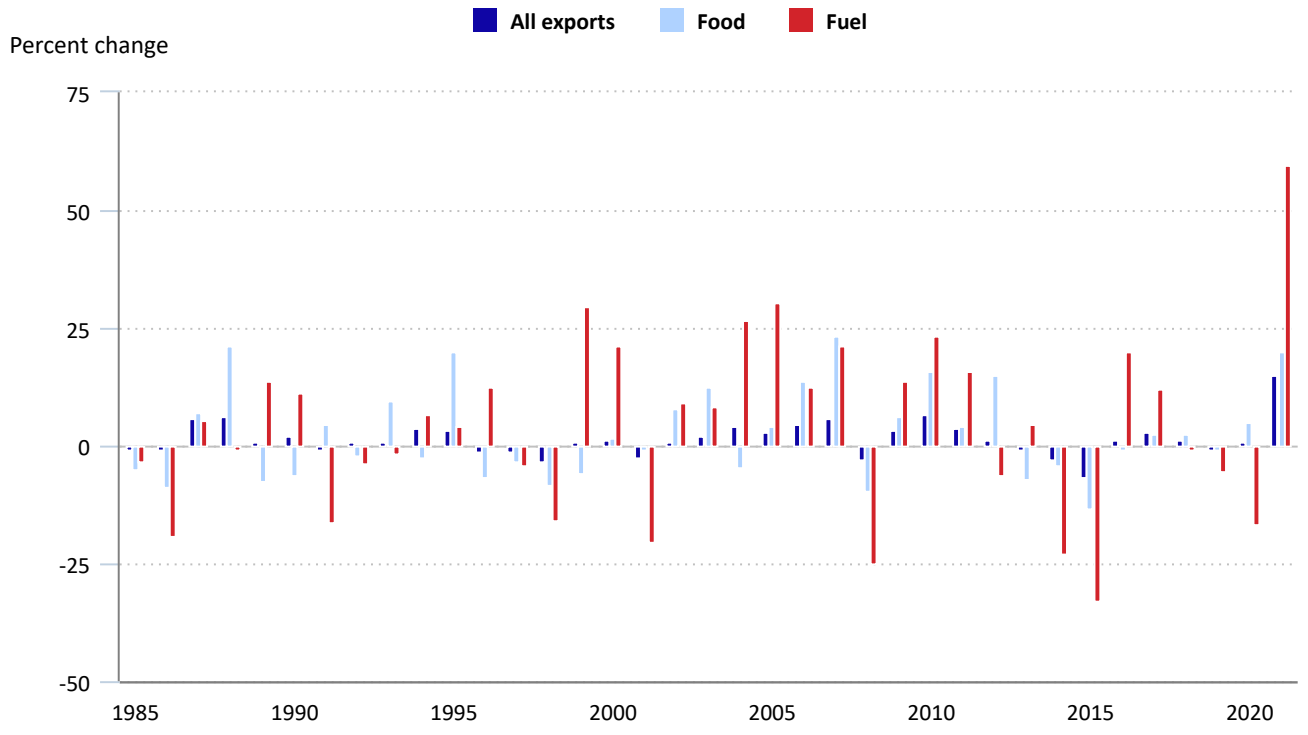
Chart 5. Export Price Indexes for all commodities, food, and fuel, 12-month percent change for December, 1985–2021



Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

View Chart Data

2021

Mirroring trends seen in the CPI and PPI indexes, the first year of the COVID-19 pandemic was marred with falling export and import prices amid economic lockdowns before seeing a large rebound when the economy reopened in 2021. Much like the consumer and producer price indexes, import and export price indexes rose sharply in 2021. The increases followed a volatile 2020. Throughout the year, prices fell markedly amid COVID-19 economic lockdowns, then rose as the year progressed when the economy reopened. The index for overall import prices increased 10.3 percent on a 12-month basis in December 2021, advancing in 10 out of 12 months for the year. Export prices also increased, rising 14.9 percent for the 12 months prior to December 2021. In the 12 months prior to October 2021, the increase was higher: over 18 percent. The 2021 increase in export prices was the largest calendar-year advance on record. The primary reason was an increase in crude petroleum prices. From 1975 to 2015, U.S. exporters were prohibited from exporting crude petroleum. Since the ban's end in late 2015, crude exports grew to 8.63 billion dollars in 2021.[15] From December 2020 to December 2021, import and export fuel prices advanced 60.9 percent and 59.4 percent, respectively. Over the same period, import and export prices for foods, feeds, and beverages were up 13.7 percent and 20.2 percent, respectively.

MXPI: Comparing 2021 to previous periods

1987–88

The first time that U.S. import prices rose in double digits over a calendar-year was a 10.0-percent advance from December 1986 to December 1987. The magnitude of the increase was unique to import prices and was driven by a sharp drop in the value of the U.S. dollar. Just prior to this period, between January 20, 1981, and a peak on September 11, 1985, the U.S. dollar rose 41.1 percent against a broad base of major currencies.[16] This made imports more affordable, contributing to a rise in the total value of imports and the largest trade deficit in U.S. history up to that point.[17]

In September 1985, the financial leaders from the G5 (France, Japan, the United Kingdom, the United States, and West Germany) met and ratified what became known as the Plaza Accord. The Plaza Accord was an agreement that the five national banks would intervene to devalue the U.S. dollar to raise import prices and reduce the U.S. trade deficit.[18] The first part of the plan was successful. The U.S. dollar fell 34.0 percent from the September 1985 peak to the end of 1988. That, in turn, led to a rise in import prices starting in 1987 and continuing through 1990. The policy had limited impact on the trade deficit; the value of U.S. exports rose, but import trade remained robust despite the higher prices. In contrast, the value of the U.S. dollar had little impact on import or export prices in 2021. Rather than rising as in 1981, the U.S. dollar fell 4.2 percent from the start of the pandemic on March 13, 2020, to the end of 2021.[19]

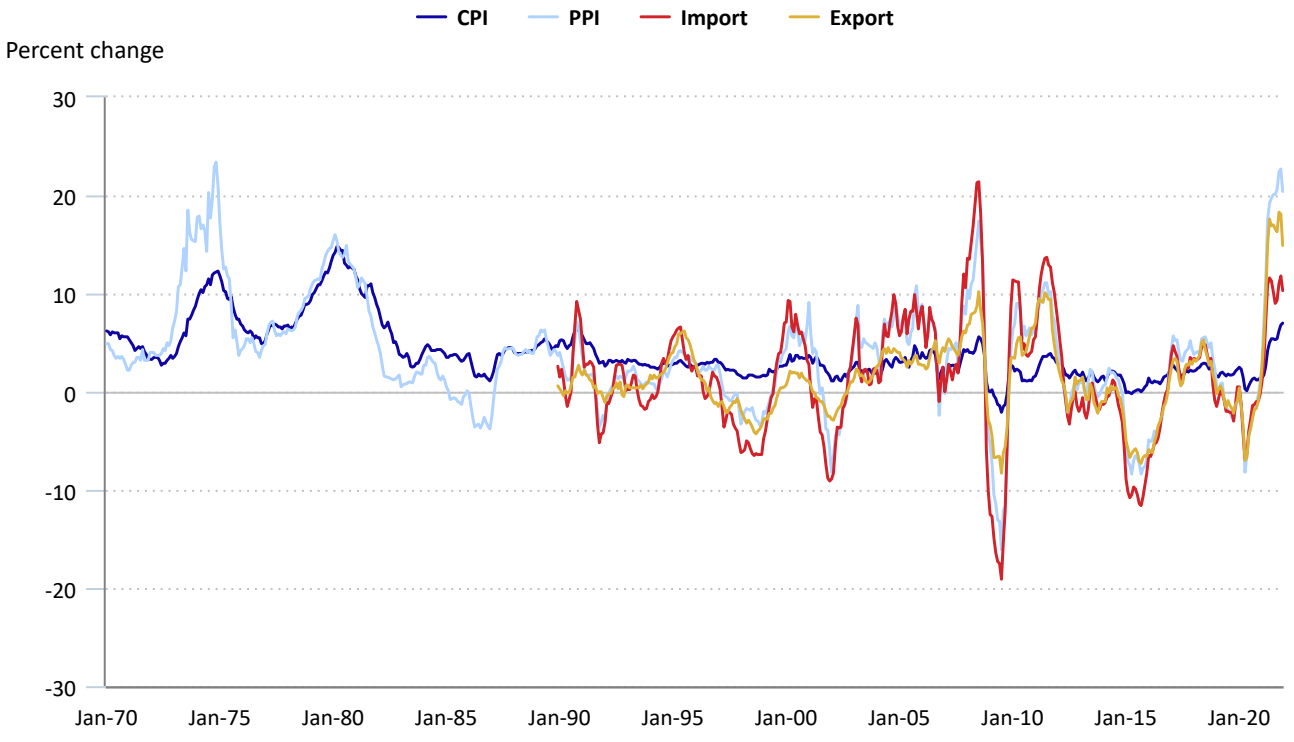
2007–08

In 2007 and 2008, export and import prices advanced sharply, driven by rising prices for agricultural commodities and fuels. A reduction in oil production by OPEC member states as well as a tight global market for grains contributed to inflation during this period. Increases in import prices reached a record high of 21.4 percent for the 12 months prior to July 2008. In the same period, the prices for import foods, feeds, and beverages rose 15.7 percent. Prices for overall exports reached a high of 10.2 percent for the 12 months ended in July and export prices for food, feeds, and beverages increased 41.8 percent. All four increases set records at the time. Fuel prices, as measured by the MXPI, also increased to substantially high levels in 2008. In July, import and export fuel prices advanced at 12-month rates of 75.2 percent and 53.9 percent, respectively. Shortly thereafter, prices declined with the onset of the 2008–09 Great Recession. Prices for imports and exports would not rebound until 2011 and 2010, respectively.

Patterns of inflation since 1973

Analyzing data from each BLS price survey reveals similar patterns of inflation throughout historical timeframes. During the mid-1970s, both the CPI and PPI indexes showed high rates of inflation. As prices for raw food advanced sharply on a 12-month basis in 1973, the producer side of the market faced substantial inflation. The producer price increases generated inflation in finished food prices for consumers later in the year. Then, higher oil prices drove both indexes upward through 1975. A few years later, in the late-1970s, oil prices once again drove increases in the CPI and PPI indexes. Chart 6 shows 12-month price increases across all the price indexes. As the chart shows, in 2007 and 2008, import prices experienced inflation the earliest. Finally, higher energy prices led inflation across all BLS indexes in 2021, with producer and export price advances outpacing those for import and consumer prices.

Chart 6. Consumer Price Index, Producer Price Index, and Import and Export Index for all commodities, 1970–2021, 12-month percent changes by month



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Source: U.S. Bureau of Labor Statistics.

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Price trends continuing in early 2022

The 2021 trend of price increases persisted in early 2022. Global events contributed to continued increases in import, export, producer, and consumer prices as evidenced by BLS indexes. Renewed lockdowns in China amid further COVID-19 outbreaks factored into the price advances. Economic sanctions imposed in the first quarter of 2022 also impacted commodity prices worldwide. Given the importance of Russian energy exports, uncertainty surrounding the country's invasion of Ukraine resulted in price advances for crude oil and natural gas. Wheat and corn, other substantial exports from the region, also recorded price increases in the first quarter of 2022.[20] The resulting restrictions on production put more burden on global supply chains, impacting production of everything from automobiles to computer chips.[21]

Data from 2021 and early 2022 indicate a global economy impacted by continued spillover effects from the COVID-19 pandemic, as well as new geopolitical issues. The ongoing strain on global supply chains translated to persistent upward price pressure across various goods and industries. Remaining to be seen is how persistent inflation will be as the economy continues to reopen and supply chain disruptions abate.

This **Beyond the Numbers** article was prepared by David Mead, a supervisory economist in the Information and Analysis Section, Edwin Bennion and Kevin M. Camp, economists in the Information and Analysis Section, Trevor Bergqvist, an economist in the Index CW and SP Section, and Joseph Kowal, an economist in the office of Index Analysis and Public Information, Bureau of Labor Statistics. For more information, you can reach out to the authors by email at Bennion.Edwin@bls.gov, Bergqvist.Trevor@bls.gov, Camp.Kevin@bls.gov, Kowal.Joseph@bls.gov, or Mead.Dave@bls.gov. Alternatively, they can be reached by phone. Edwin Bennion can be reached at 202-691-7142, Kevin Camp at 202-691-7166, Joseph Kowal at 202-691-7706, and Dave Mead at 202-691-7154.

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Notes

Notes

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[3] Employment Cost Index News Release Table 8. Employment Cost Index for wages and salaries, for civilian workers, by occupational group and industry. U.S. Bureau of Labor Statistics. January 28, 2022. https://www.bls.gov/news.release/archives/eci_01282022.htm.

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[5] U.S. Department of State: Office of the Historian. "Oil Embargo, 1973–1974." *Milestones: 1969-1976*, no date. https://history.state.gov/milestones/1969-1976/oil-embargo.

[6] Memorandum by Secretary of Energy Schlesinger to President Carter, January 4, 1979, Foreign Relations of the United States, 1969-1976, Volume XXXVII, Energy Crisis, 1974–1980, Document 181, Department of State: Office of the Historian,. https://history.state.gov/historicaldocuments/frus1969-76v37/d181: This source details a memorandum from the Secretary of Energy to President Carter during the 1979 Oil Crisis. In this memorandum, Secretary Schlesinger emphasizes the impacts of the oil embargo on the supply side of the economy.

[7] Hamilton, James D. “Causes and Consequences of the Oil Shock of 2007–08,” *Brookings Papers on Economic Activity*, (Spring 2009), pp. 215–283, https://www.brookings.edu/wp-content/uploads/2016/07/2009a_bpea_hamilton-1.pdf.

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[9] The indexes belonging to the prior PPI main aggregation model, the Stage of Processing (SOP) system, were incorporated into the FD-ID system and provide additional historical data. For the purpose of comparing the rise in producer prices in 2021 with prior periods of higher inflation, SOP indexes for finished goods and its components are analyzed. The PPI for finished goods constitutes about 64 percent of final demand goods. The remaining components of final demand goods include government purchased goods (about 11 percent of final demand goods) and goods for export (about 25 percent of final demand goods). Many of the individual products included in finished goods are also components within the indexes for government purchased goods and goods for export. With that said, the broader definition of final demand goods relative to finished goods means that some products, specifically those with more volatile price movement histories, are more highly weighted within the category for final demand goods. Some examples of highly weighted goods for government purchase and for export include: diesel fuel, jet fuel, basic organic chemicals, carbon steel scrap, steel mill products, oilseeds, drugs and pharmaceuticals, communications equipment, and aircraft/aircraft equipment.

[10] The PPI Final-Demand-Intermediate Demand (FD-ID) aggregation system was introduced in January 2014 with index data going back to November 2009. Most FD-ID indexes include 12-month percent change data going back to November 2010. For more information, visit https://www.bls.gov/ppi/fd-id/. To obtain PPI 12-month percent change data for Final Demand, Final Demand Goods, Final Demand Services, and Final Demand Construction link to https://data.bls.gov/timeseries/wpufd4%26output_view=pct_12mths?from_year=2010, https://data.bls.gov/timeseries/wpufd41%26output_view=pct_12mths?from_year=2010, https://data.bls.gov/timeseries/wpufd42%26output_view=pct_12mths?from_year=2010, and https://data.bls.gov/timeseries/wpufd43%26output_view=pct_12mths?from_year=2010.

[11] To obtain PPI 12-month percent change data back to the 1970s for Finished Goods, Finished Consumer Foods, Finished Goods Excluding Foods, Finished Consumer Energy Goods, and Finished Goods Excluding Foods and Energy see:

https://data.bls.gov/timeseries/wpufd49207%26output_view=pct_12mths?from_year=1970, https://data.bls.gov/timeseries/wpufd4111%26output_view=pct_12mths?from_year=1970, https://data.bls.gov/timeseries/wpufd49209%26output_view=pct_12mths?from_year=1970, https://data.bls.gov/timeseries/wpufd4121%26output_view=pct_12mths?from_year=1970, and https://data.bls.gov/timeseries/wpufd4131%26output_view=pct_12mths?from_year=1970.

[12] In the early-to-mid 1970s, the United States government attempted to use wage and price controls to combat rising rates of inflation that were attributed to a so-called *wage-price spiral*. In retrospect, these efforts are widely perceived as having exacerbated the inflation situation. When “Phase-3” price controls were lifted in mid-summer 1973, the monthly rate of inflation for the All Commodities PPI surged 5.8 percent in August, at that time the largest over-the-month advance since 1946. That rise in the All Commodities PPI has not been matched since then. (See https://data.bls.gov/timeseries/wpu00000000%26output_view=pct_1mth?from_year=1946.) For more information, see Poole, William, “Wage-Price Controls: Where Do We Go from Here,” *Brookings Papers on Economic Activity*, no. 1 (1973), pp. 285-299, https://www.brookings.edu/wp-content/uploads/1973/01/1973a_bpea_poole.pdf.

[13] PPI data for crude petroleum are available at https://data.bls.gov/timeseries/wpu0561%26output_view=pct_12mths?from_year=1970. PPI data for refined petroleum products are available at https://data.bls.gov/timeseries/wpu057%26output_view=pct_12mths?from_year=1970.

[14] Joseph Kowal, Antonio Lombardozzi, Scott Sager, and William Snyders, “Producer inflation accelerates in 2007 due to rising prices for energy and foods.” *Monthly Labor Review* (July 2008), https://www.bls.gov/opub/mlr/2008/07/art1full.pdf. Joseph Kowal, William Snyders, Antonio Lombardozzi, and Lana Borgie, “Producer prices reverse course in 2008,” *Monthly Labor Review* (July 2009), https://www.bls.gov/opub/mlr/2009/07/art2full.pdf.

[15] U.S. Energy Information Association. “Frequently Asked Questions (FAQS): How much petroleum does the United States import and export? ” (March 9, 2022). https://www.eia.gov/tools/faqs/faq.php?id=727&t=6#:~:text=In%202021%2C%20the%20United%20States%20exported%20about%208.63%20million%20b.gross%20petroleum%20exports%20in%202021.

[16] Data on U.S. dollar levels relative to other major currencies were drawn from the St. Louis Federal Reserve’s Nominal Major Currencies U.S. Dollar Index. https://fred.stlouisfed.org/series/DTWEXM. Note that this series has been discontinued but historical data is still available.

[17] Data on U.S. Merchandise trade balance are drawn from the St. Louis Federal Reserve’s Balance on Merchandise Trade dataset. https://fred.stlouisfed.org/series/BOPBMN. Note that this series has been replaced. Of note, even though the U.S. Trade Deficit hit a record high in 1985, that mark has been far surpassed in subsequent years.

[18] Kenneth N Gilpin, “The Dollar's Wild Ride,” *New York Times*, June 19, 1998, https://www.nytimes.com/1988/06/19/business/the-dollar-s-wild-ride.html.

[19] Data on Nominal U.S. dollar values are taken from the Federal Reserve’s “Nominal Broad U.S. Dollar Index” https://fred.stlouisfed.org/series/DTWEXBGS.

[20] Ira Kalish, “How Sanctions Impact Russia and the Global Economy,” *Deloitte*, March 15, 2022, https://www2.deloitte.com/us/en/insights/economy/global-economic-impact-of-sanctions-on-russia.html.

[21] Keith Bradsher, “China’s Covid Lockdowns Set to Further Disrupt Global Supply Chains,” *New York Times*, March 15, 2022, https://www.nytimes.com/2022/03/15/business/covid-china-economy.html.

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U.S. BUREAU OF LABOR STATISTICS Division of Information and Marketing Services PSB Suite 2850 2 Massachusetts Avenue NE
Washington, DC 20212-0001

Telephone:1-202-691-5200_ Telecommunications Relay Service:7-1-1_ www.bls.gov/OPUB Contact Us