
# U.S. Trade Deficit and the Impact of Changing Oil Prices

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# Summary

Petroleum prices have risen sharply since September 2010, at times reaching more than $100 per barrel of crude oil. Although this is still below the $140 per barrel price reached in 2008, the rising cost of energy is beginning to affect the rate of growth in the economy. While the price of oil has increased, the volume of oil imports, or the amount of oil, has increased slightly, reflecting the increase in economic activity that has occurred since the steepest part of the economic recession in 2009. Turmoil in the Middle East caused petroleum prices to rise sharply in the first three months of 2011 and could add $100 billion to the U.S. trade deficit in 2011. The increase in energy import prices is pushing up the price of energy to consumers and could spur some elements of the public to pressure the 112th Congress to provide relief to households that are struggling to meet their current expenses. With oil prices rising to over $100 per barrel in early 2011, the International Energy Agency cautioned that the rising price of oil was becoming a threat to the global economic recovery. This report provides an estimate of the initial impact of the changing oil prices on the nation's merchandise trade deficit.

# Contents



## Figures



## Tables



## Contacts

# Background

According to data published by the Census Bureau of the Department of Commerce,[1] the prices of petroleum products over the first half of 2008 rose sharply, generally rising considerably faster than the change in demand for those products, before falling at a historic rate.[2] After falling each month between August 2008 and February 2009, average petroleum prices reversed course and rose by 85% between February and December 2009, climbing to nearly $80 per barrel at times. In 2010, petroleum prices reached a peak average price of about $77 per barrel in April before falling to around $72 per barrel in July 2010. Average prices dropped from May to July, one of only three times average monthly petroleum prices have declined since January 2009. In December 2010, petroleum import prices averaged nearly $80 per barrel and continued to increase, reaching over $100 per barrel at times in February and March 2011. Oil futures contracts indicate, however, that crude oil prices are expected to peak at the $100 per barrel range before falling to under $90 per barrel by mid-fall. Turmoil in the Middle East, natural disasters, and oil refining problems associated with the flooding Mississippi river, however, could have a significant impact on the course of oil prices for the foreseeable future. As a result of changing petroleum prices, the price changes in imported energy-related petroleum products worsened the U.S. trade deficit in 2006-2008, 2010, and likely will again in 2011.[3] *Energy-related petroleum products* is a term used by the U.S. Census Bureau that includes crude oil, petroleum preparations, and liquefied propane and butane gas. Crude oil comprises the largest share by far within this broad category of energy-related imports.

In 2009, the slowdown in the rate of growth in the U.S. economy reduced the amount of energy the country imported and helped push down world energy prices. As economic growth has improved, energy imports have increased and energy prices have risen. In isolation from other events, lower energy prices tend to aid the U.S. economy, which makes it a more attractive destination for foreign investment. Such capital inflows, however, place upward pressure on the dollar against a broad range of other currencies. To the extent that the additions to the merchandise trade deficit are returned to the U.S. economy as payment for additional U.S. exports or to acquire such assets as securities or U.S. businesses, the U.S. trade deficit could be mitigated further.

Summary data from the Census Bureau for the change in the volume, or quantity, of energy-related petroleum imports and the change in the price, or the value, of those imports for 2010 and estimated values for 2011 are presented in **Table 1**. The data indicate that during 2010, the United States imported about 4.3 billion barrels of energy-related petroleum products, valued at $323 billion. On average, energy-related imports for 2010 were up 0.3% in volume terms from the average in 2009 and cost an average of 31% more than similar imports during the same period in 2009. These data demonstrate that U.S. demand for oil imports is highly resistant to changes in oil prices. According to various studies, U.S. demand for oil is correlated more closely to U.S. per

[1] U.S. Department of Commerce, U.S. Census Bureau, Report FT900, *U.S. International Trade in Goods and Services*, Table 17, May 11, 2011. The report and supporting tables are available at http://www.census.gov/foreign-trade/Press-Release/current_press_release/ftdpress.pdf.

[2] For information about the causes of the run up in oil prices see: Hamilton, James, Causes and Consequences of the Oil Shock of 2007-2008, *Brookings Papers on Economic Activity*, Spring 2009.

[3] For additional information about U.S. oil imports see: CRS Report R41765, *U.S. Oil Imports: Context and Considerations*, by Neelesh Nerurkar.

capital income than to changes in oil prices.[4] Estimates for 2011 indicate that with the average price of around $100 per barrel, U.S. imported petroleum costs could rise by nearly $100 billion in 2011 to reach $408 billion.

**Table 1. Summary Data of U.S. Imports of Energy-Related Petroleum Products, Including Oil (not seasonally adjusted)**

| | January - March | | | | | |
|---|---|---|---|---|---|---|
| | 2010 | | 2011 | | | |
| | Quantity (millions of barrels) | Value ($ billions) | Quantity (millions of barrels) | % change 2010 to 2011 | Value ($ billions) | % change 2010 to 2011 |
| Total energy-related petroleum products | 1,012.0 | $75.5 | 1,054.0 | 4.2% | $95.1 | 25.9% |
| Crude oil | 788.1 | $58.1 | 828.2 | 5.1% | $73.3 | 26.1% |
| | **January through December** | | | | | |
| | 2010 | | 2011 | | | |
| | (Actual values) | | (Estimated values) | | | |
| | Quantity (millions of barrels) | Value ($ billions) | Quantity (millions of barrels) | % change 2010 to 2011 | Value ($ billions) | % change 2010 to 2011 |
| Total energy-related petroleum products | 4,,278.5 | $323.6 | 4,,456.2 | 4.2% | $407.8 | 25.9% |
| Crude oil | 3,377.7 | $252.2 | 3,549.6 | 5.1% | $318.1 | 26.1% |

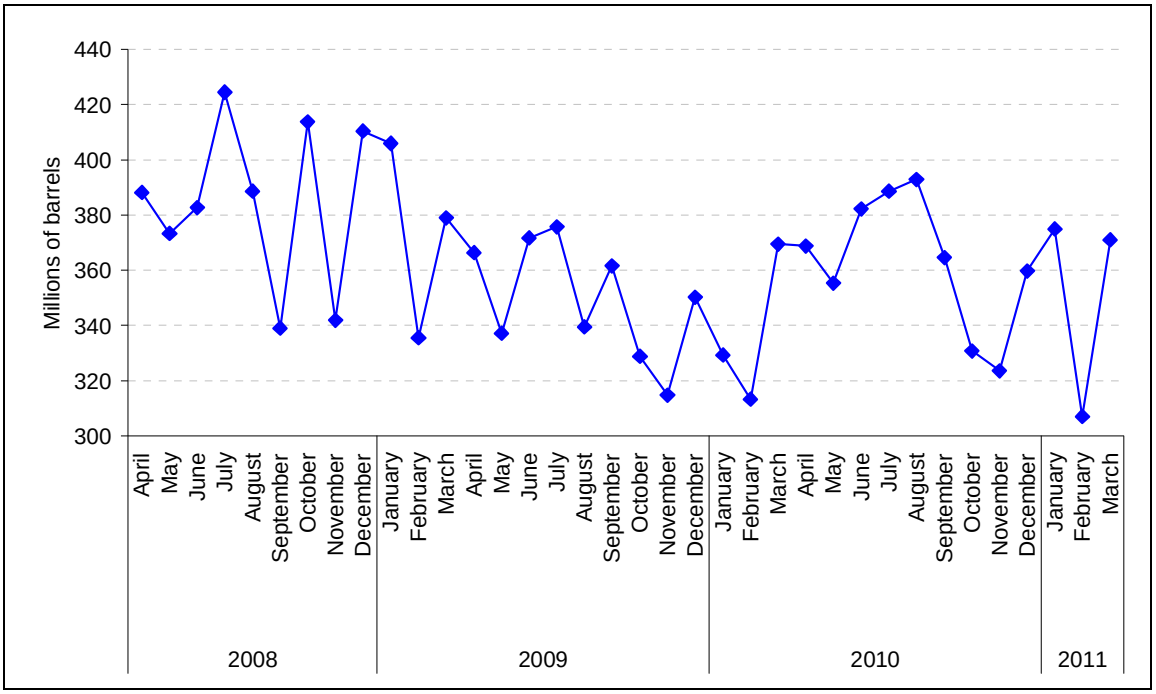
**Source:** U.S. Department of Commerce, U.S. Census Bureau, Report FT900, *U.S. International Trade in Goods and Services,* Table 17, May 11, 2011.

**Note**: Estimates for January through December 2011 were developed by CRS from data in January 2011 and data through 2010 published by the Census Bureau using a straight line extrapolation.

The data also indicate that the United States imported 4.3 billion barrels of total energy-related petroleum products in 2010, valued at $323 billion, compared with a total value of $246 billion in 2009. Also, in 2009, the quantity of energy-related petroleum imports fell by 4.0% compared with the comparable period in 2008; crude oil imports also fell by 2.7% from the same period in 2008. Year-over-year, the average value of energy-related petroleum products imports fell by 44% in 2009, while the average value of crude oil imports fell by 45%. As **Figure 1** shows, imports of energy-related petroleum products can vary sharply on a monthly basis. In 2010, imports of energy-related petroleum products averaged about 356 million barrels per month.

[4] Hamilton, Causes and Consequences of the Oil Shock of 2007-2008; *World Economic Outlook*, Chapter 3, International Monetary Fund, April 2011. According to the IMF, for developed economies, a 10% increase in oil prices is estimated to result in a .2% decrease in oil consumption, but a 10% increase in income leads to a 6.8% increase in oil consumption.

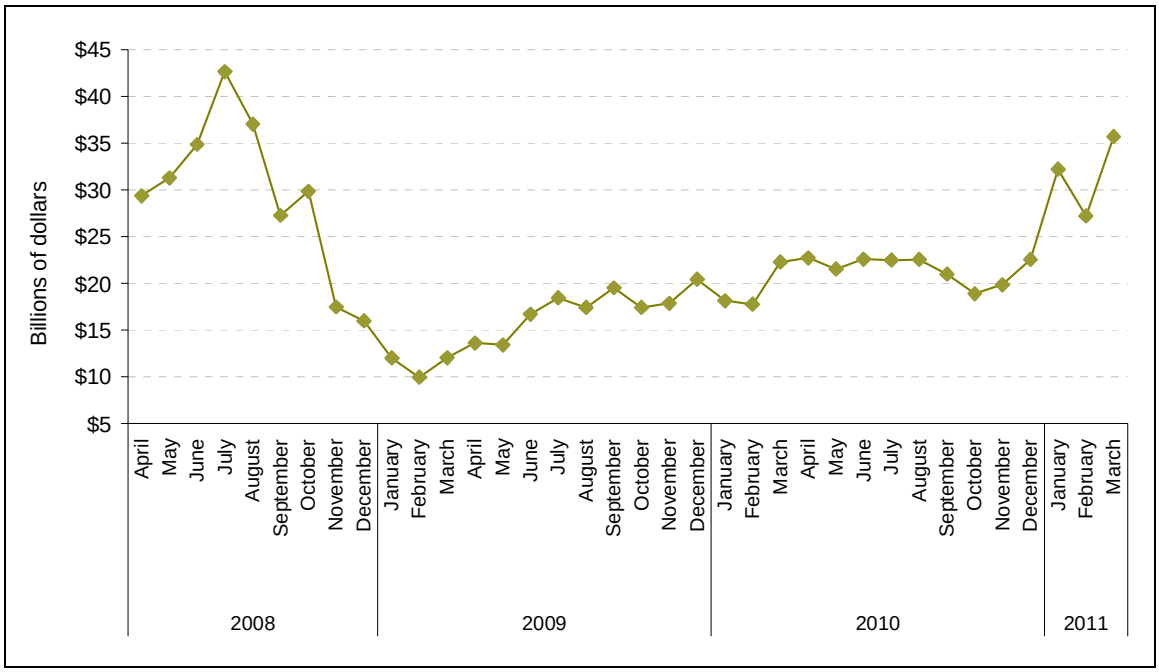
**Figure 1. Quantity of U.S. Imports of Energy-Related Petroleum Products**




**Source:** Department of Commerce.

In value terms, energy-related imports fell from a total value of $439 billion in 2008 to $245 billion in 2009, or a decrease of 44%, to account for about 16% of the value of total U.S. merchandise imports. Energy prices rose sharply in 2007 and continued rising from January through July 2008, not following previous trends of falling during the winter months. The cost of U.S. imports of energy-related petroleum products rose from about $17 billion per month in early 2007 to $53 billion a month in July 2008, but fell to $13.6 billion a month in February 2009, reflecting a drop in the price and in the volume of imported oil. The average price of imported oil in January 2011 was $84 per barrel, an increase of 14% over the average price per barrel of $74 in January 2010. As **Figure 2** shows, the value of total energy imports (reflecting the change in the amount of imports and the change in the price of those imports) in March 2011 rose 8% from February 2011 to $35.7 billion, nearly equal to the total value of energy imports in March 2010, as indicated in **Table 2**.

**Figure 2. Value of U.S. Imports of Energy-Related Petroleum Products**




**Source:** Department of Commerce.

As a result of the drop in the overall value of energy-related imports in 2009, the trade deficit in energy-related imports amounted to $204 billion, down by nearly half from the $386 billion recorded in 2008, and accounted for 40% of the total U.S. trade deficit of $517 billion for the year. In 2010, the rise in oil prices, year over year, combined with a slight increase in energy imports, pushed up the overall value of energy imports, which accounted for 41% of the total merchandise trade deficit. In March 2011, the share of the U.S. trade deficit arising from energy imports was 50%, up slightly from the 47% share recorded in March 2010.

**Table 2. U.S. Imports of Energy-Related Petroleum Products, Including Crude Oil (not seasonally adjusted)**

| | Total energy-related petroleum products[a] | | Crude oil | | | |
|---|---|---|---|---|---|---|
| Period | Quantity (millions of barrels) | Value ($ billions) | Quantity (millions of barrels) | Thousands of barrels per day (average) | Value ($ billions) | Unit price (dollars) |
| | | | 2010 | | | |
| Jan.-Dec. | 4,278.5 | $323.6 | 3,377.7 | 9,254 | $252.2 | $74.66 |
| Jan.-March | 1,012.0 | 75.5 | 788.1 | 8,756 | 58.1 | 73.76 |
| January | 329.2 | 24.7 | 245.3 | 7,912 | 18.1 | 73.89 |
| February | 313.3 | 23.0 | 243.3 | 8,689 | 17.7 | 72.92 |
| March | 369.5 | 27.8 | 299.5 | 9,660 | 22.3 | 74.32 |
| April | 368.7 | 28.8 | 294.1 | 9,804 | 22.7 | 77.13 |
| May | 355.3 | 27.6 | 280.0 | 9,033 | 21.5 | 76.93 |

| Period | Total energy-related petroleum products[a] | | Crude oil | | | |
|---|---|---|---|---|---|---|
| | Quantity (millions of barrels) | Value ($ billions) | Quantity (millions of barrels) | Thousands of barrels per day (average) | Value ($ billions) | Unit price (dollars) |
| June | 382.2 | 28.0 | 311.9 | 10,398 | 22.6 | 72.44 |
| July | 388.7 | 28.4 | 311.7 | 10,056 | 22.5 | 72.09 |
| August | 392.8 | 29.2 | 306.9 | 9,900 | 22.5 | 73.47 |
| September | 364.7 | 26.6 | 289.7 | 9,656 | 21.0 | 72.36 |
| October | 330.7 | 25.0 | 254.5 | 8,209 | 18.9 | 74.18 |
| November | 323.6 | 25.2 | 258.2 | 8,606 | 19.8 | 76.81 |
| December | 359.8 | 29.2 | 262.6 | 9,115 | 22.5 | 79.78 |
| | | | **2011** | | | |
| Jan.-March | 1,054.0 | $95.1 | 828.2 | 9,202 | $73.3 | $88.53 |
| January | 375.3 | 32.2 | 290.7 | 9,376 | 24.5 | 84.34 |
| February | 307.3 | 27.2 | 242.4 | 8,656 | 21.1 | 87.17 |
| March | 371.4 | 35.7 | 295.1 | 9,520 | 27.7 | 93.76 |

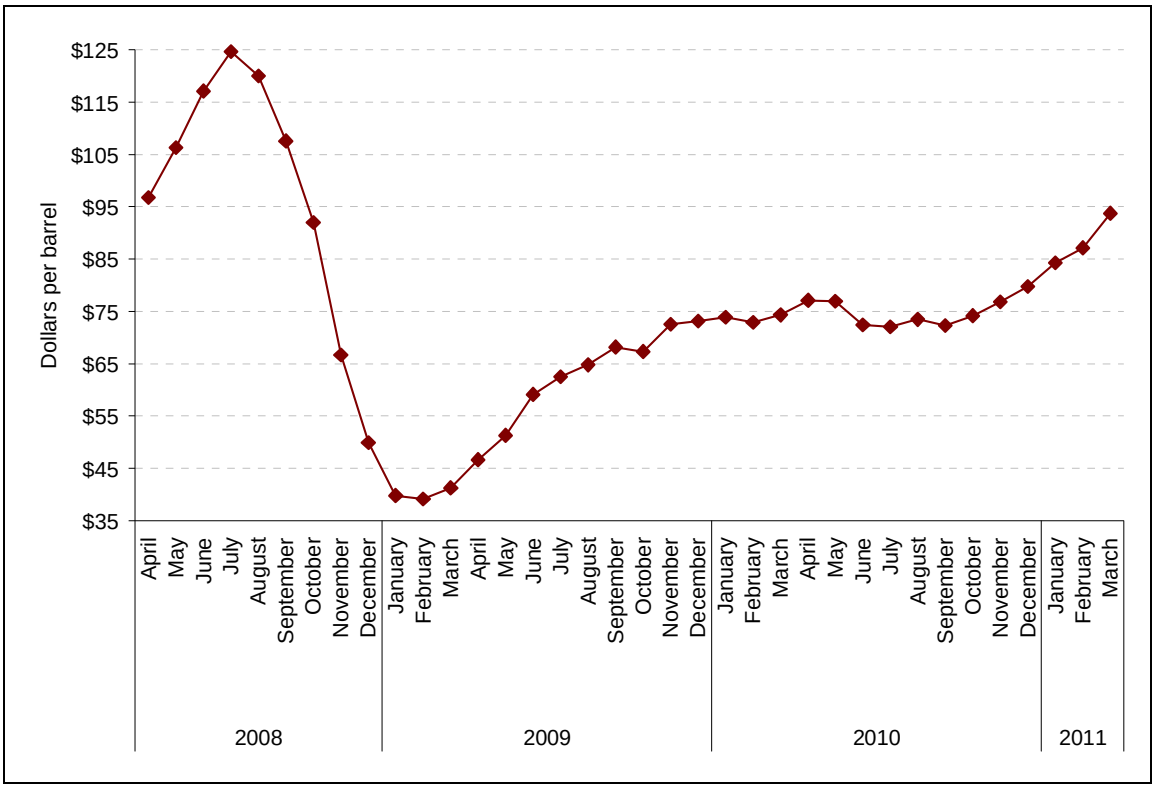
**Source:** U.S. Department of Commerce, U.S. Census Bureau, Report FT900, *U.S. International Trade in Goods and Services,* Table 17, May 11, 2011.

a. Energy-related petroleum products is a term used by the Census Bureau and includes crude oil, petroleum preparations, and liquefied propane and butane gas.

Crude oil comprises the largest share of energy-related petroleum products imports. According to Census Bureau data,[5] imports of crude oil fell from an average of 9.8 million barrels of crude oil imports per day in 2008 to an average of 9.1 million barrels per day in 2009, or a decrease of 7%. In March 2011, such imports averaged 9.5 million barrels per day, or a decrease of about 1.5% from the volume of such imports recorded in March 2010. From January 2008 to June 2008, the average price of crude oil increased from $84 per barrel to $117 per barrel, or an increase of 39%. As a result, the value of U.S. crude oil imports rose from about $27 billion a month in January 2008 to $35 billion a month in June 2008. In 2010, crude oil imports averaged 281 million barrels per month at an average value of $21 billion a month. Oil import prices in 2010 rose from about $74 per barrel in January 2010 to an average of $79.78 in December 2010. As shown in **Figure 3**, oil import prices rose steadily between September 2010 and March 2011, the latest month for detailed data.

[5] Report FT900, *U.S. International Transactions in Goods and Services,* Table 17, May 11, 2011.

**Figure 3. U.S. Import Price of Crude Oil**




**Source:** Department of Commerce.

Data for 2009 indicate that a number of factors, primarily the economic recession, had a large impact on pushing down oil prices in the first three months. As economic growth picked up, the higher demand for oil tended to raise pressure on oil prices, which rose through the end of the year. The rise in oil prices and an increase in the volumes of oil imports during the period combined to raise the overall cost of imported energy. At times, crude oil traded for nearly $148 per barrel in July 2008, indicating that the cost of energy imports would have a significant impact on the overall costs of U.S. imports and on the size of the U.S. trade deficit. Since those record prices, the price per barrel of imported crude oil fell to under $40 per barrel at times in January and February 2009. For the year 2009, the imported volume of energy-related petroleum products fell by 44% compared with 2008, due in large part to a slowdown in economic activity. At an average price of $56 per barrel in 2009, compared with an average price of $95 per barrel in 2008, energy-related imports fell by nearly $130 billion as a component in the overall U.S. trade deficit. For 2010, the total cost of energy imports rose to $323 billion at an average price of $75 per barrel and accounted for 41% of the annual trade deficit. Estimates for 2011 indicate that an average price of imported energy of about $100 per barrel, the total cost of energy imports could rise to $400 to $425 billion, or nearly $100 billion more than the cost of energy imports in 2010.

# Issues for Congress

The rise in the prices of energy imports experienced since early 2000 through February 2011 could have a significant impact on the annual U.S. trade deficit in 2011, should those price increases stick, or run even higher. The rise in energy prices may well affect the U.S. rate of

inflation and could have a slightly negative impact on the rate of economic growth in 2011. Various factors, dominated by the political turmoil in the Middle East and the rate of economic growth in the United States and Western Europe, have combined to push up the cost of energy imports, which will have a slightly negative impact on the pace of the economic recovery. Typically, energy import prices have followed a cyclical pattern as energy prices rose in the summer and declined in the winter. The slowdown in the rate of economic growth in the United States and elsewhere in 2009 sharply reduced the demand for energy imports and caused oil prices to tumble from the heights they reached in July 2008. An important factor that often affects crude oil prices is the impact Atlantic hurricanes have on the production of crude oil in the Gulf of Mexico.

The return to a positive rate of economic growth has placed upward pressure on the prices of energy imports and contributed to the nation's merchandise trade deficit. Some of the impact of this deficit could be offset if some of the dollars that accrue abroad are returned to the U.S. economy through increased purchases of U.S. goods and services or through purchases of such other assets as corporate securities or acquisitions of U.S. businesses. Some of the return in dollars likely will come through sovereign wealth funds, or funds controlled and managed by foreign governments, as foreign exchange reserves boost the dollar holdings of such funds. Such investments likely will add to concerns about the national security implications of foreign acquisitions of U.S. firms, especially by foreign governments, and to concerns about the growing share of outstanding U.S. Treasury securities that are owned by foreigners.

Social turmoil in the Middle East is creating uncertainty in the oil markets and pushing up prices. The duration and intensity of the turmoil likely will continue to be the most important factor driving oil prices. As was the case in 2008, high and sustained oil prices likely will have a detrimental effect on the pace of economic growth in many parts of the world. It is possible for the economy to adjust to the higher prices of energy imports by improving its energy efficiency, finding alternative sources of energy, or searching out additional supplies of energy. Higher oil prices may well cause consumers to increase pressure on Congress to assist in this process. For Congress, the increase in the nation's merchandise trade deficit could add to existing inflationary pressures and complicate efforts to reduce the governments' budget deficit and to stimulate the economy should the rate of economic growth stall. In particular, Congress, through its direct role in making economic policy and its oversight role over the Federal Reserve, could face the dilemma of rising inflation, which generally is treated by raising interest rates to tighten credit, and a slow rate of economic growth, which is usually addressed by lowering interest rates to stimulate investment. A sharp rise in the trade deficit may also add to pressures for Congress to examine the causes of the deficit and to address the underlying factors that are generating that deficit. In addition, the rise in prices of energy imports could add to concerns about the nation's reliance on foreign supplies for energy imports and add impetus to examining the nation's energy strategy.

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