



Gasoline Prices: An Update

Michael J. Hicks, Ph.D. *Director and Associate Professor*

This brief report reviews historical trends in gasoline prices and compares them with current events affecting today's gasoline prices.

INTRODUCTION

American consumers once again face significant gasoline price increases that risk stalling several months of encouraging economic news. In 2011, we reported the results of a simulation model that identified a significant slowing of the Indiana economy as a consequence of higher gasoline prices.^[1] That study estimated that an increase in the price of gasoline from \$3.00 to \$4.00 per gallon would cause Indiana's economy to grow at a rate that was 1.2 percent smaller than it would have otherwise been, and would lead to more than 60,000 fewer jobs than would otherwise have been created. While that study focused on Indiana, a similar effect would be felt nationwide. It appears that the rise in gasoline prices through the second and third quarters of 2011 contributed to the slower recovery experienced last summer.

Rising gasoline prices this winter suggest an eerily similar story. While our 2011 study focused on the effects of higher gasoline prices, this policy brief discusses causes. We focus on three issues: demand, regulation and international unrest. (Note: all the following gasoline prices are expressed in inflation adjusted 2012 dollars, for a gallon of unleaded gasoline, at the U.S. city average price).



DEMAND FOR GASOLINE

Despite the worldwide economic downturn that began in 2007, global demand for petroleum continues to rise. In the span of one generation, worldwide consumption of petroleum has grown from roughly 66 million to over 85 million barrels per day. While this demand is also equal to the supply of petroleum, this type of demand growth in any commodity is typically associated with price increases. The long-term effects of higher gasoline demand are also attenuated

by the very large growth in the money supply as a consequence of international efforts to stimulate the economy. This presence of an excess supply of money will place upward pressure on gasoline prices through the simple mechanism of inflation, but only as the world economy enters a stronger recovery. Demand for gasoline may place pressure on prices over the long run; it does not explain the rapid increase in prices we now see for gasoline at the pump.

1. See Thaiprasert, Nalitra and Michael J. Hicks "The Effect of Higher Fuel Prices on Indiana's Economy," Center for Business and Economic Research, Ball State University, January 2011.

FIGURE 1: Yearly Comparison of Real Average Gas Prices, January–May Season, 1976–1990



SOURCE: U.S. Energy Information Administration GRAPHIC: Christine Bradway

REGULATION

Two major regulatory efforts have targeted gasoline since 1972. These were the Clean Air Act (CAA) and the 1990 Amendments to the Clean Air Act. The CAA phased out the use of leaded gasoline, a major contributor to air pollution, while the 1990 amendments required states to develop and implement programs to cut smog (ground level ozone). The legislation required the use of reformulated gasoline that varied the oxygen content and vaporization rate by season. While benzene levels, lead and other contents were also regulated, the seasonal change in gasoline mixtures have resulted in significant processing changes for gasoline across the U.S. as winter recedes. The result is fairly apparent as well in the change in gasoline prices from February

through May before and after the implementation of the 1990 Amendments to the Clean Air Act. From 1976 through 1990, the annual price increase from February through May was 1.9 percent, with the price actually declining for two-thirds of the years in this sample. From 1991 through 2011 the average price of gasoline rose 12.6 percent from February to May, with only two years of decline out of the 21 years in the sample period. This strongly suggests that the annual reformulation of gasoline, which closes significant refinery capacity for brief periods contributes to part of the current price increases we now experience. See Figures 1 and 2.

UNREST IN THE MIDDLE EAST

Print and broadcast media are awash with speculation that Israel will in the

coming months take military action against the development of nuclear weapons capacity in neighboring countries. There are precedents for the effect of actual or anticipated military action in oil producing countries on gasoline prices. We review some of them below.

Raid on Osirik (Operation Opera): On June 7, 1981, the Israeli launched an attack on the Osirik Nuclear Reactor near Baghdad, Iraq. Gasoline prices from May through July dropped from \$3.55 to \$3.43 in current dollars. There was no apparent effect of the strike on gasoline prices in the United States.

Iran-Iraq War (Operation Earnest Will, Nimble Archer and Praying Mantis): In response to Iranian mining of the Persian Gulf (a consequence of the all too brief Iran-Iraq War), the United States attacked Iranian naval vessels and oil platforms. Both 1987 and 1988 saw enormously stable gasoline prices, ranging from a low of \$1.75 (in December 1988) to a high of \$1.98 in June of 1987.

First Persian Gulf War (Operation Desert Shield/Storm): Following the Iraqi invasion of Kuwait in August 1990, a U.S. led coalition deployed forces to Saudi Arabia and the Persian Gulf and ejected the Iraqi military from Kuwait and southern Iraq. Gasoline prices rose from \$1.88 in July 1990 to \$2.35 by October of that year (in current U.S. dollars). However, by the time widespread combat began in mid-January, prices had eased to \$2.10 per gallon, and following the cease fire dropped to \$1.82 in March.

Second Persian Gulf War (Operation Iraqi Freedom): The U.S.-led invasion of Iraq in March 2003 was preceded by much

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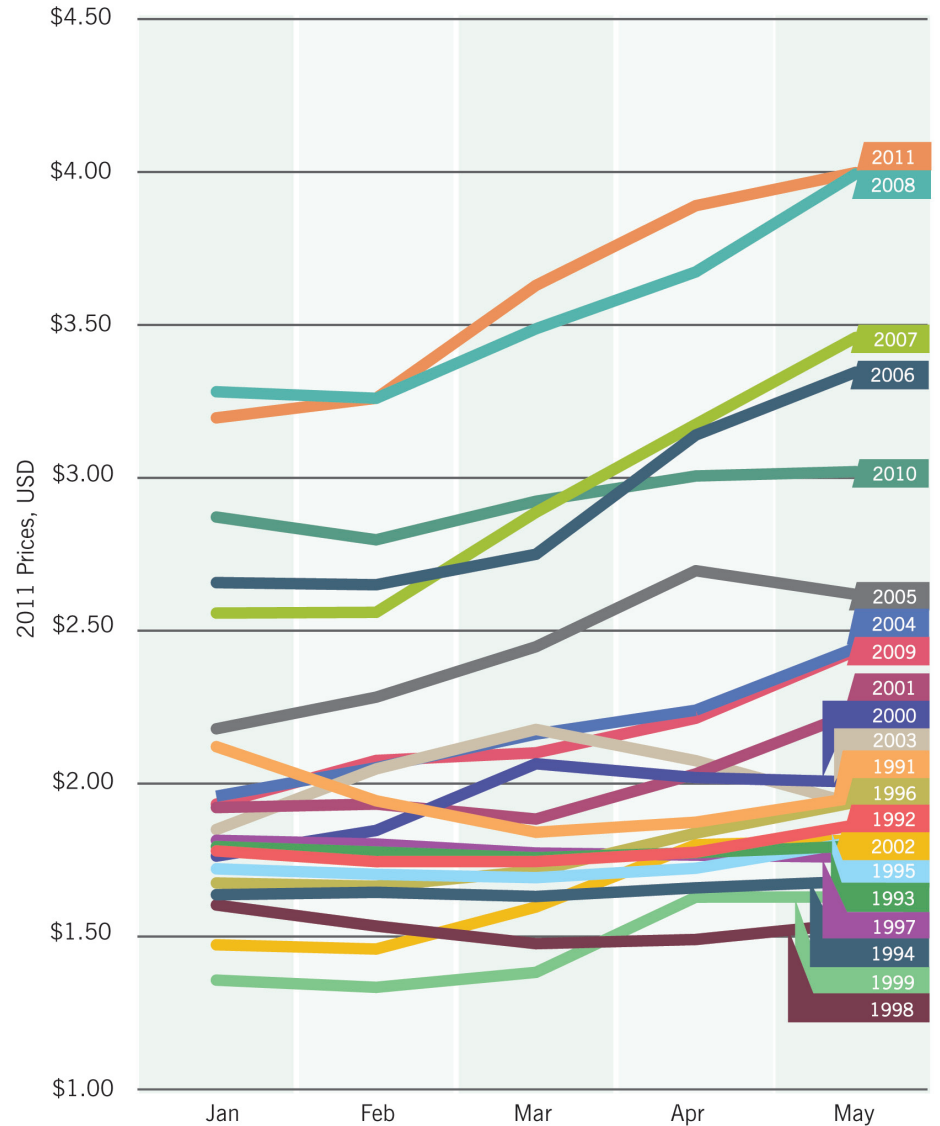
speculation regarding the timing and probability of the conflict. Gasoline prices rose from \$1.78 in September 2002 to \$2.03 in February 2003, spiking to \$2.16 in March but receding to \$1.88 by June of that year.

Over the past 30 tumultuous years, the Middle East has seen sustained wars, intensive mining of the Persian Gulf and short conflicts involving forces across the region. In no instance has the effect on petroleum prices been obviously permanent.

SUMMARY

The current increases in petroleum prices—prices around \$3.80 in Indiana and \$4.00 in several locations—possess permanent, seasonal and transient elements. The effect on the state’s economy will largely be dependent on the persistence and level of the price increase, which unfortunately possess levels of uncertainty about international events that prevent the useful application of forecast tools. However, it is clear that these events can combine to push prices to new record levels by early summer 2012.

FIGURE 2: Yearly Comparison of Real Average Gas Prices, January–May Season, 1991–2011



SOURCE: U.S. Energy Information Administration GRAPHIC: Christine Bradway

BALL STATE CENTER FOR BUSINESS AND ECONOMIC RESEARCH



Center for Business and Economic Research

Miller College of Business, Ball State University
Whitinger Business Building, room 149
2000 W. University Ave. • Muncie, IN 47306

Phone: 765-285-5926 • Email: cber@bsu.edu

www.bsu.edu/cber