



Consumer Federation of America

**U.S. OIL MARKET FUNDAMENTALS AND PUBLIC OPINION:
Consistent Concerns and Support for Policies
to Reduce Consumption Despite Wild Price Swings**

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May 2010

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PURPOSE AND OUTLINE

The Consumer Federation of America has been analyzing the oil market for decades, and in the last five years, has regularly conducted public opinion polls to gauge consumer concerns about oil consumption and attitudes toward policies to deal with the nation's "oil addiction."¹ With the recent oil spill in the Gulf of Mexico focusing attention on the oil industry and changing public opinion about offshore drilling,² a close look at market fundamentals and long-term consumer attitudes toward oil policy is in order.

A month **before** the oil spill, CFA conducted its eleventh survey in the series. This study reports the results of that recent survey, puts those results into long-term perspective, and introduces a new approach to assessing the importance of consumer knowledge about the oil market. We find that, although oil prices have gone on a wild ride in recent years, consumer attitudes have been more consistent, reflecting the fact that market fundamentals have not changed all that much.

The paper is organized as follows: Section I discusses the basics of supply and demand providing the context for public opinion and also providing direct reference data for several questions that CFA has asked repeatedly; Section II examines the trends of key public attitudes about the U.S. oil situation. The discussion begins with the most recent poll results, then places those results in the context of the five years of polling CFA has conducted on these issues. This section also presents an analysis of the impact of providing survey respondents with accurate information about the U.S. oil situation on their attitudes toward policy responses to the U.S. oil situation.

I. MARKET FUNDAMENTALS

Supply, Demand, Imports and Reserves

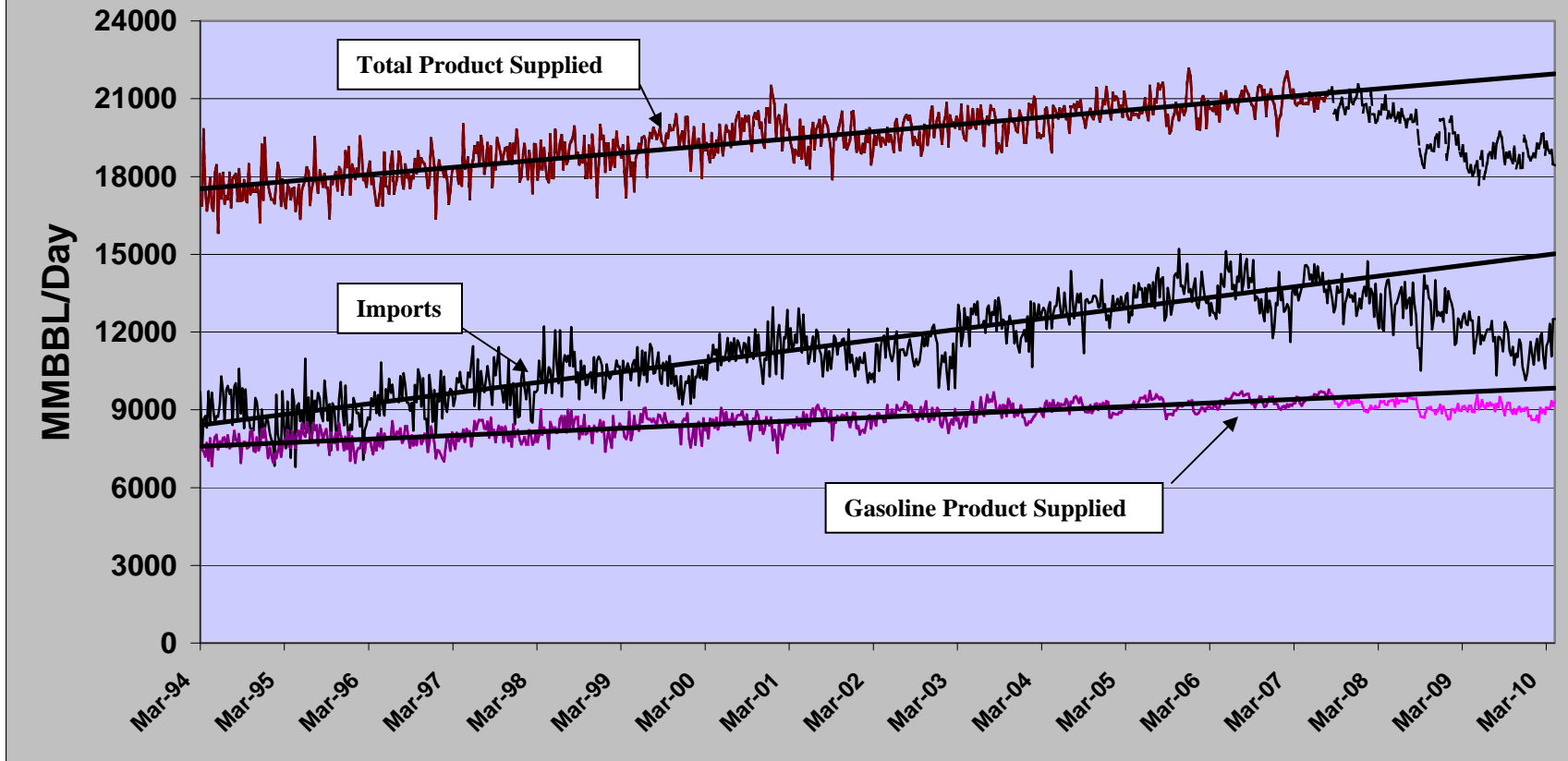
Although the recent recession sharply lowered the demand for gasoline, as usually happens during a recession, the fundamentals of the U.S. oil situation remain the same. As shown in Figure 1, the U.S. still imports the majority of the oil it consumes, and gasoline is by far the largest single petroleum product consumed. However, there are several observations about the recent recession that are important.

The severity of the downturn reduced demand more sharply than in past recessions. Nevertheless, the recent upturn in economic activity has begun to increase demand. While the recession reduced the rate of growth of product supplied, it had a much smaller impact on gasoline consumption, which reflects the low elasticity of demand for gasoline. On the other

¹ See the Appendix for a list of CFA analyses available online.

² Initial public opinion polls that allow before and after assessment of public opinions with identically worded questions indicate a large reduction in support for drilling (e.g. 14% in Rasmussen and Pew polls, and a sharp increase in concern about the environmental impact of offshore drilling. See <http://tpmdc.talkingpointsmemo.com/2010/05/poll-support-for-offshore-drilling-takes-big-hit-after-of-gulf-spill.php?ref=fpb> and <http://pewresearch.org/pubs/1590/poll-gulf-oil-disaster-obama-bp-support-for-drilling>).

Figure 1
Imports, Gasoline and Total Product Supplied



Source: Energy Information Administration, Petroleum Database.

hand, imports declined much more than consumption. Two factors account for this. Ethanol, which affects gasoline and not other products, continued its dramatic increase in share of product supplied. The increase in ethanol equals two thirds of the difference between the decrease in import and the decrease in consumption. Domestic production also increased, accounting for the other one-third of the difference between the change in imports and consumption. This may reflect the playing out of exploration and development activities during the period of high prices prior to the recession or the structure of payments for crude oil. When prices are low, it may make more sense to produce domestically to avoid royalty payments to foreign crude owners.

It remains to be seen whether the economic recovery will return the U.S. to the previous trend line, or growth will be slower or from a lower base. Shifts in consumer attitudes resulting from the severity of the recession could influence future growth rates³ and new policies (e.g. higher fuel economy standards) could reinforce that change,⁴ but the underlying pattern of consumption and import dependence will not change any time soon.

Given the focus of attention on the Gulf of Mexico, it is important to note that while the Gulf plays an important part in U.S. domestic oil production, accounting for about a quarter of current production and 15 percent of proven reserves, it plays a much smaller role in the global oil market, accounting for less than one percent of global production and about 0.3 percent of global reserves.⁵ The Energy Information Administration has estimated that expanded drilling in the Gulf of Mexico would have virtually no impact on U.S. oil prices in the next couple of decades.⁶

Prices and Household Expenditures

Gasoline is the dominant product derived crude oil in the U.S. It accounts for almost half of all petroleum products sold in the U.S. The second most important product is diesel, which accounts for about one-fifth of the total. In the past decade, gasoline prices rose from a low of around a dollar in 2002 to a high over \$4 in mid 2008, to \$1.67 last May, to over \$2.80 this May, as shown in Figure 2.

- As a result, household expenditures for gasoline increased from about \$1300 per year to over \$2700 per year and are projected to be over \$2200 this year (See Figure 3a).

³ Egol, Matthew, Andrew Clyde, Kasturi Rangan and Richard Sanderson, 2010, *The New Consumer Frugality: Adapting to the Enduring Shift in U.S. Consumer Spending and Behavior*, Booz&Co; Fabrikant, Geraldine, "Not-as-Big Spenders," *New York Times*, April 10, 2010, B1.

⁴ Mark Cooper, "Comments of the Consumer Federation of America," Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, Environmental Protection Agency, 40 CFR Parts 86 and 600; Department of Transportation 49 CFR Parts 531,633, 537, et al. 49 CFR Parts 531,633, 537, et al., November 28, 2009

⁵ Global reserves, <http://www.eia.doe.gov/emeu/international/reserves.html>
Global production and consumption, <http://www.eia.doe.gov/emeu/ipsr/t21.xls>
U.S. production, http://tonto.eia.doe.gov/dnav/pet/pet_crd_crpdn_adc_mbbbl_m.htm,
U.S. Reserves, http://tonto.eia.doe.gov/dnav/pet/pet_crd_pres_dc_u_nus_a.htm

⁶ Energy Information Administration, *Impacts of Increased Access to Oil and Natural Gas Resources in the Lower 48 Federal Outer Continental Shelf*, (available at <http://www.eia.doe.gov/oiaf/aco/otheranalysis/ongr.html>)

**Figure 2
Gasoline Prices**



Source: Energy Information Administration, Petroleum Database.

Figure 3a

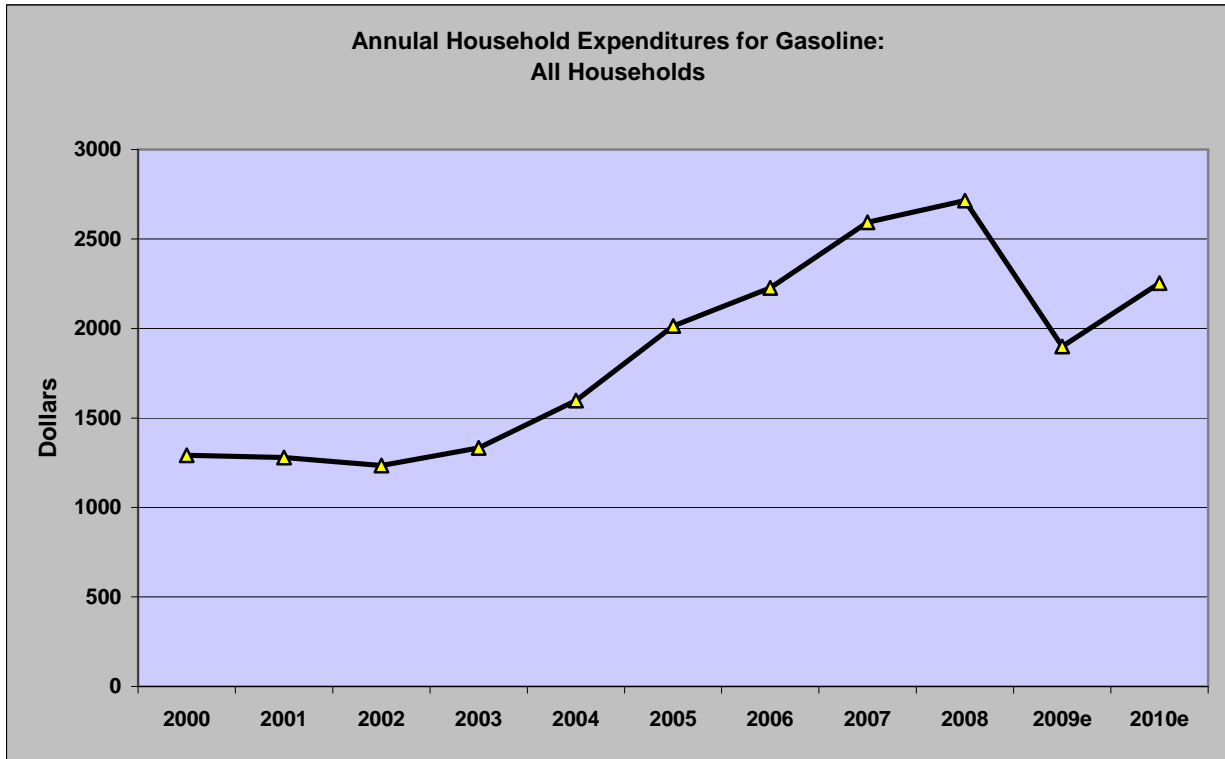
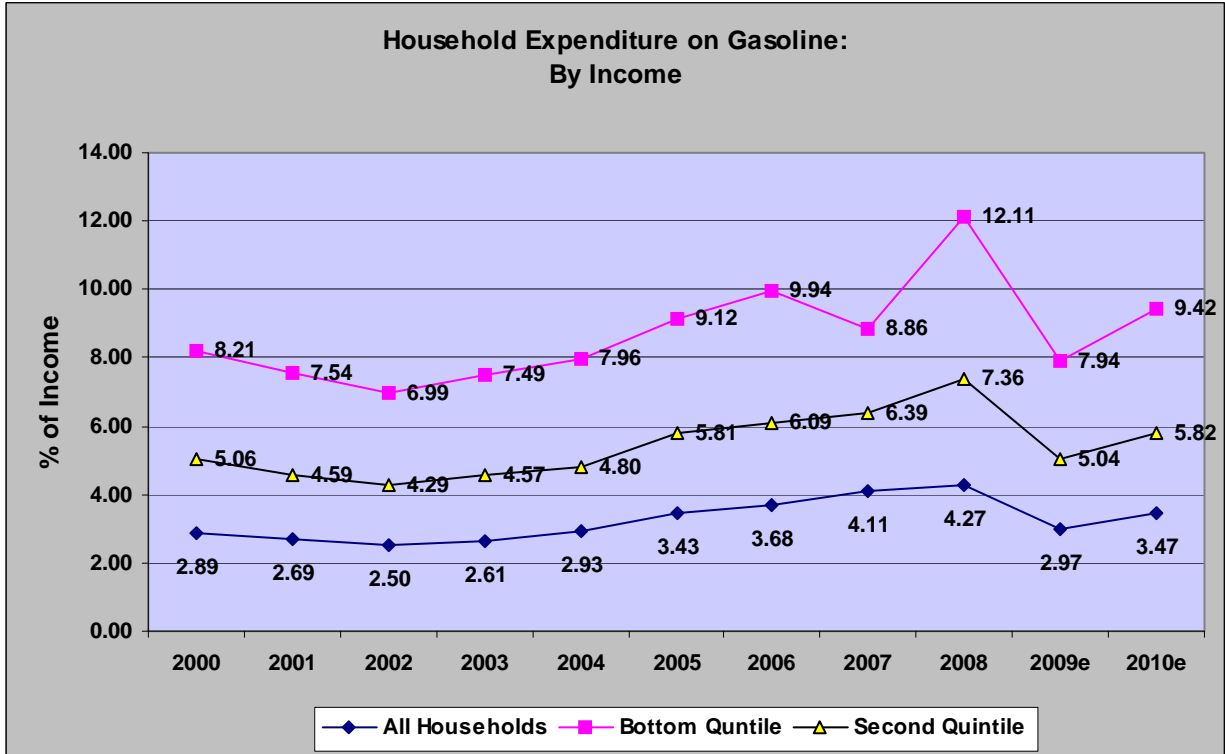


Figure 3b



Source: Bureau of Labor Statistics, Consumer Expenditure Survey, various issues.

- For all households in the U.S., we estimate that expenditures on gasoline represent about 3.5 percent of income (Figure 3b). For household with incomes in the bottom fifth of the income distribution, expenditures are about \$1,000, but that represents almost 10 percent of their income. Even for the second quintile, gasoline expenditures are a burden on household budgets, about \$1,6000, equaling almost 6 percent of income.

II. PUBLIC OPINION ABOUT THE U.S. OIL SITUATION

Introduction

Earlier this spring, a new phase in national policy affecting light duty vehicles began with two new major initiatives. The Federal government and the state of California settled a long running dispute over California's more stringent standard for greenhouse gas emissions under the Clean Air Act. At the same time, the Environmental Protection Agency and the National Highway Safety Traffic Administration adopted an integrated approach to regulating gasoline consumption and greenhouse gas emissions in the light duty fleet. The agreement accelerated the increase in fuel economy significantly, compared to what had been proposed by the previous administration. In recent years, public opinion polls have shown that consumers are very supportive of increases in the new fuel economy standards, but will they fully support substantial increases in the standard?

At regular intervals over the past half decade, the Consumer Federation of America has surveyed the American public about various aspects of oil consumption and fuel economy, focusing on three broad areas: personal concerns, knowledge of the U.S. oil situation, and policy responses, particularly with respect to fuel economy of cars and light trucks. The eleventh survey in the series was conducted in March with an eye toward addressing the new fuel economy policy environment.

- Baseline questions on concerns and knowledge were repeated.
- The policy question was adjusted to reflect the higher levels of proposed standards.
- A unique, quasi-experimental design was introduced to provide the basis for a more penetrating analysis of the relationship between concerns, knowledge and policy support.

We split the survey in half, with one sub-sample asked the knowledge questions and the other sub-sample given correct information. After the concern and initial knowledge questions, half the respondents were given the correct information about the U. S. energy situation. They were then asked about responses to the situation. Given the correct information, the respondents were much more likely to support policies to reduce oil consumption.

Concerns

The question on concerns about oil has been standard across the surveys: “Thinking about the next five years, how concerned, personally are you about the following three issues (A) Gasoline prices; (B) U.S. dependency on Mid-Eastern oil; (3) Global Warming.”

As Figure 4 shows, the public remains very concerned about gasoline prices and dependence on foreign oil.

- 75% of the respondents express concern about gasoline prices, with 51% expressing great concern.
- They express almost the same level of concern about Mid-East imports, with 69% expressing concern and 48% expressing great concern.

Public opinion has been remarkably consistent, especially in light of the wild fluctuations of gasoline prices. The national average price of gasoline in the month before the surveys were put in the field has varied from a low of \$1.84 per gallon to a high of \$4.11, as shown in Figure 5. The relative ranking of concerns has been stable over time. Price has been the primary concern, with the percentage running in the range of mid-70s to the mid-80s. Concern about Mid-East oil dependence has been next, with the percentage running in the low to mid-70s. Concern about global warming has run in the range of 45 to 60 percent. All three concerns are in the lower end of their respective ranges in the most recent survey.

However, as shown in Figure 6, the strength of concern about prices has fluctuated somewhat more than the concern over Mid-East dependence and global warming. Those saying they are very concerned about price have varied by 25 percentage points, from 50 to 75. The range on Mid-Eastern oil has been 15 percentage points (45 to 60) and on global warming only 12 percentage points (31-43).⁷

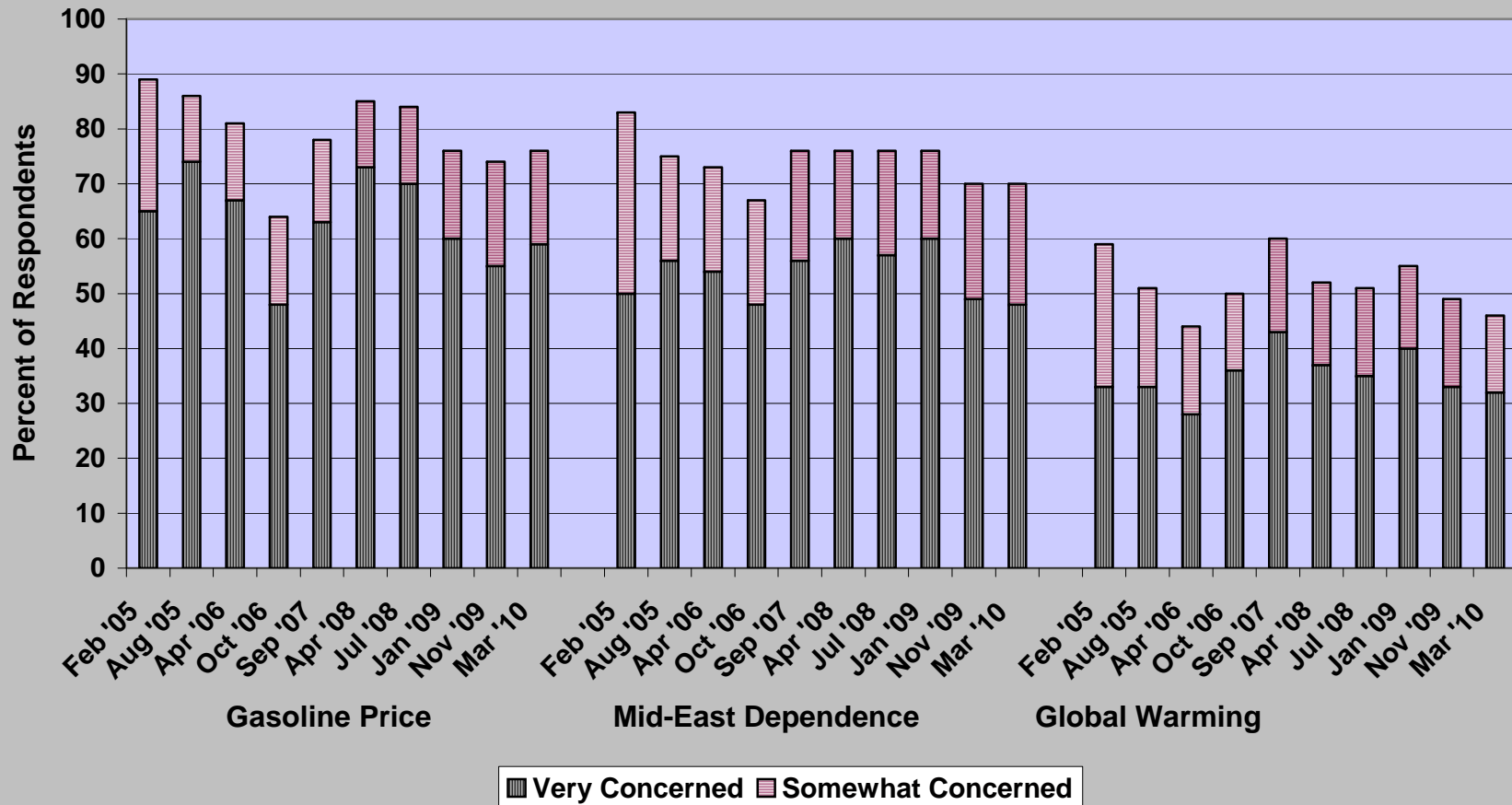
Given the earlier analysis of household expenditures on gasoline, we should not be surprised to find that lower income households and respondents with less education are more likely to indicate that future prices are a concern, as shown in the bottom graph in Figure 6.

Knowledge of Basic Oil Fact

Knowledge questions were asked in 2005, 2008 and this past March: “About what percentage of the oil consumed in the United States would you say is imported from other countries? Your best estimate is fine. What percentage of the world’s oil reserves do you think is in or offshore the United States?”

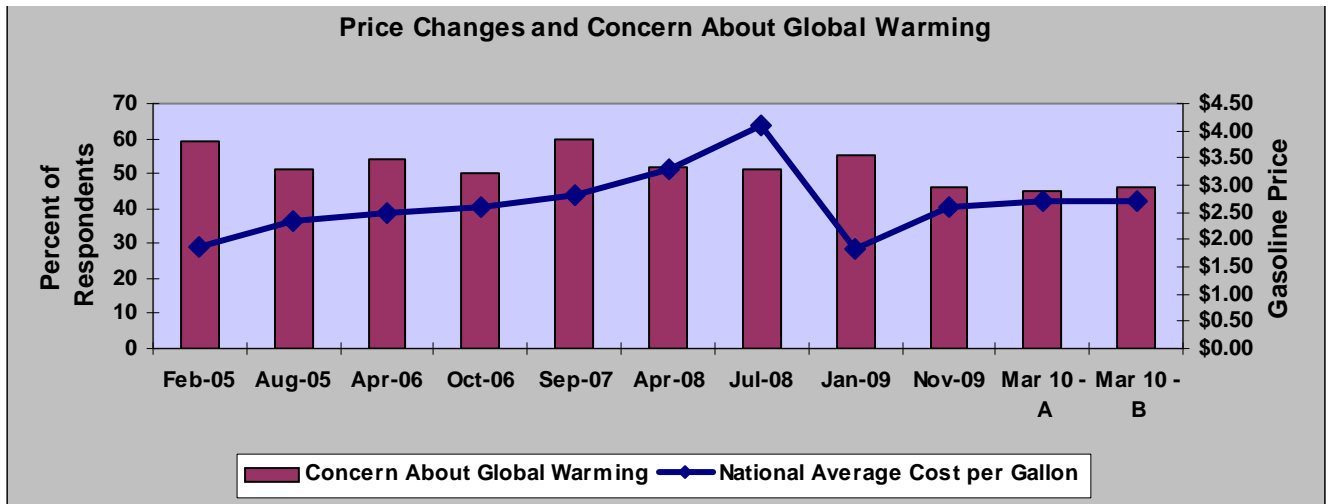
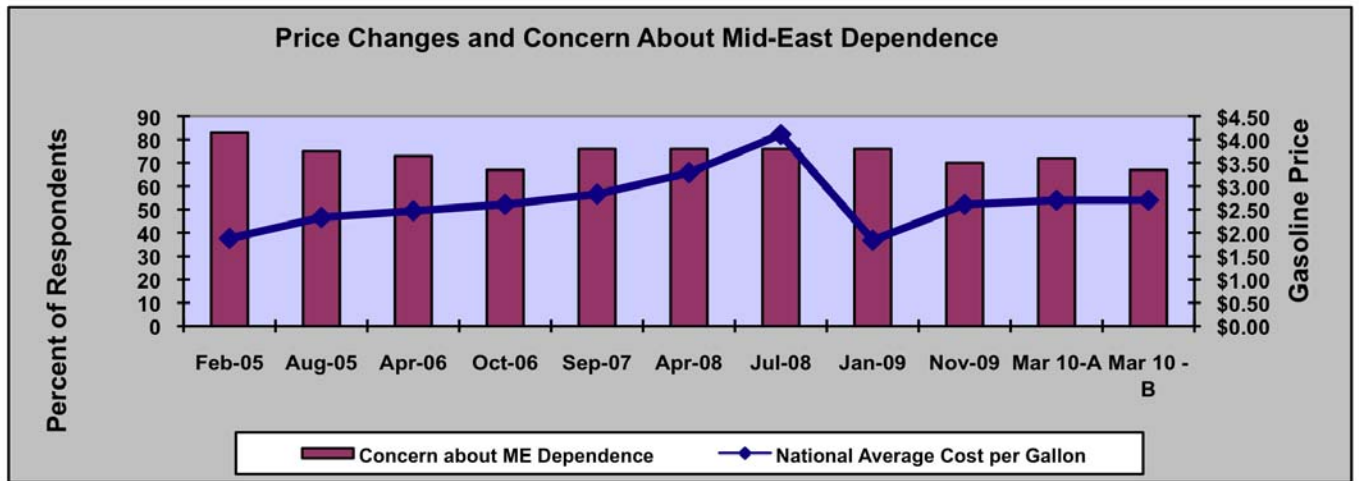
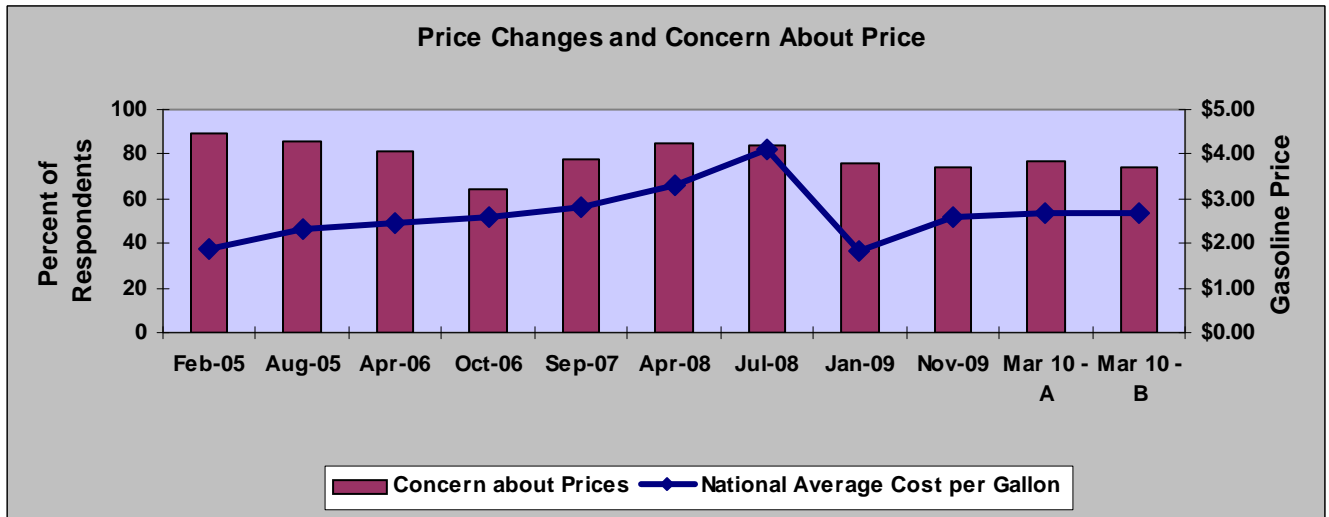
⁷ The fact that concern about price fluctuates more than the other concerns is consistent with the fact that price has fluctuated. The correlation between the price level and strong concern about price ($r = 0.27$) is larger than the correlation between the price level and strong concern about Mid-East oil dependence ($r = 0.19$). There is no correlation between the price level and strong concern about global warming. The differences from overall concern and price is even sharper. There is no correlation between the price level and overall concern about price, whereas the correlation is negative between the price level and concern about Mid-East oil dependence ($r = -0.14$) and global warming ($r = -0.26$).

**Figure 4
Intensity of Concerns**

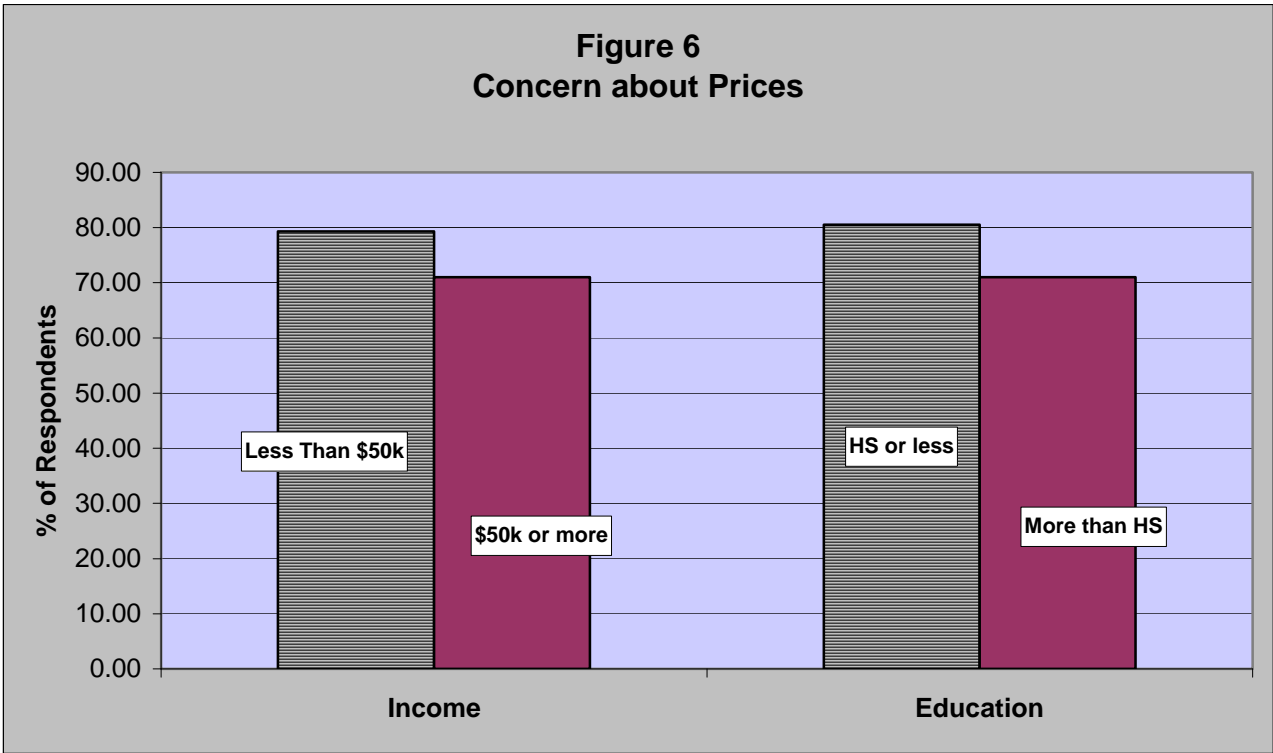


Source: Consumer Federation of America, National Survey, March 25-28, 2010

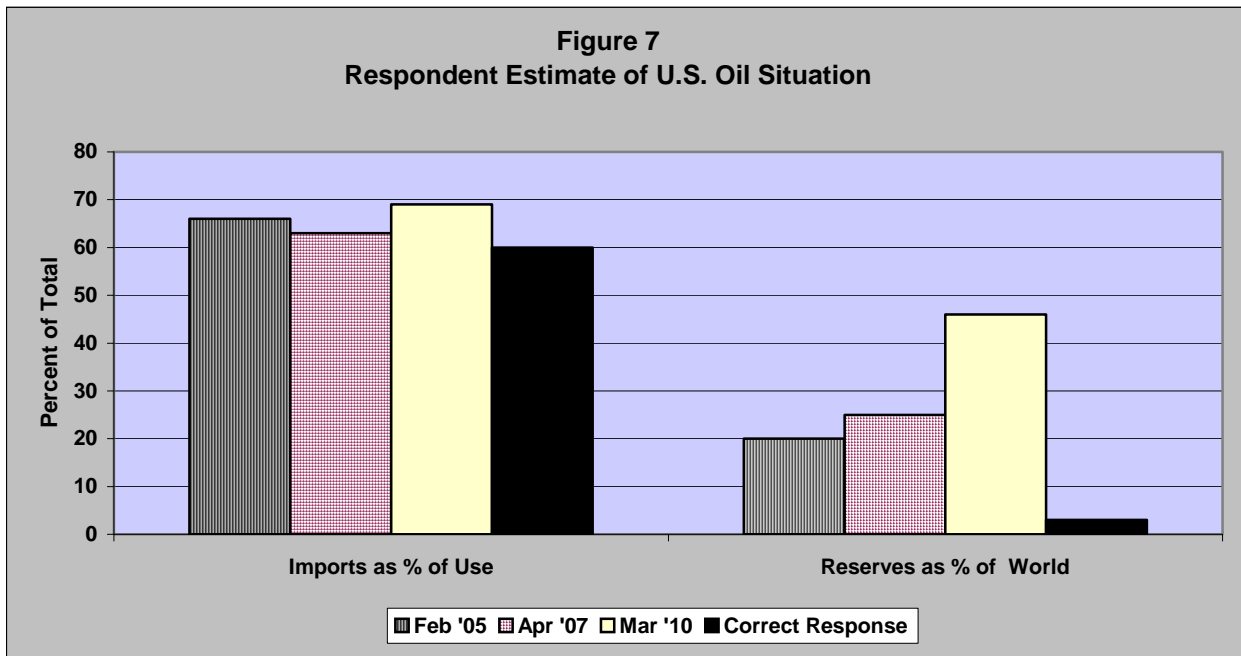
FIGURE 5: LEVELS OF PRICES AND CONCERN OVER THE PAST FIVE YEARS



Source: Consumer Federation of America, National Survey, March 25-28, 2010



Source: Consumer Federation of America, National Survey, March 25-28, 2010

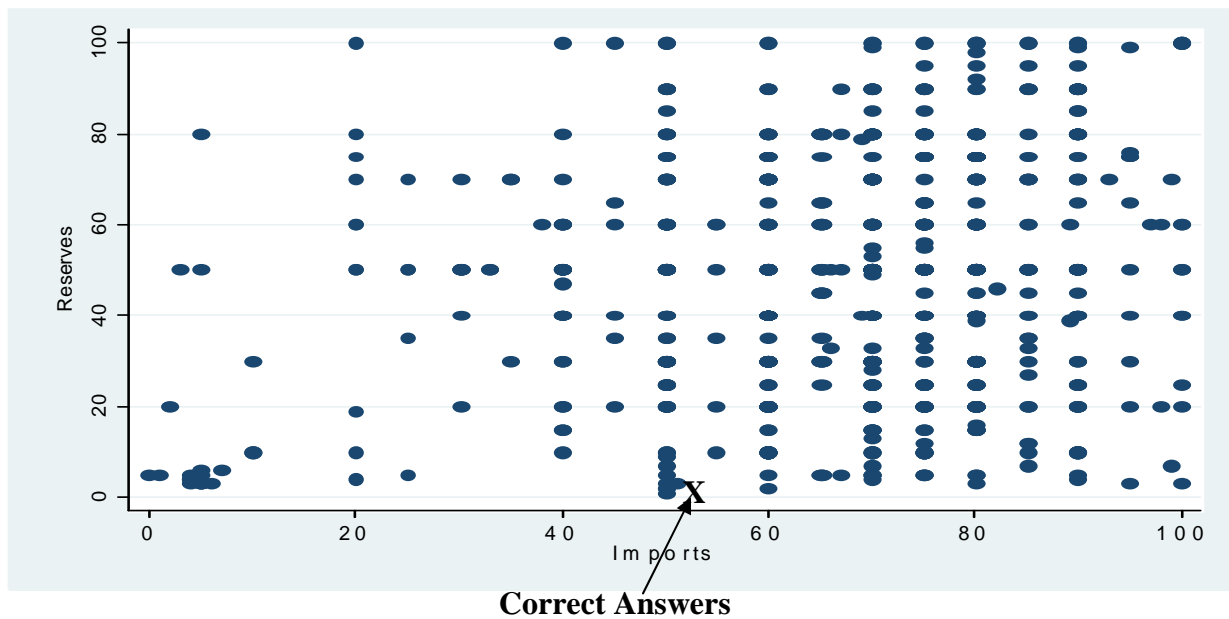


Source: Consumer Federation of America, National Survey, March 25-28, 2010

As in previous surveys, consumers have a pretty good idea of how dependent the U.S. is on oil imports, giving answers in the 60 to 70 percent range on average, as shown in Figure 7. Respondents are much less accurate about oil reserves. In the most recent survey, the respondents estimate the U.S. share at 45 percent, compared to the actual number that is less than 3 percent. The most recent survey respondents were farthest off the mark in terms of the estimated share of global reserves. There was no difference between the two subsets of respondents to the most recent survey.

Moreover, there is a great deal of variability in these estimates of oil market fundamentals, although the grasp of reserves is much farther off the mark, as shown in Figure 8. Thus, respondents are equally likely to underestimate imports as they are to overestimate them and about two-thirds are within one standard deviation of the mean estimate. In other words, the

Figure 8: Estimates of U.S. Imports as a Percent of Consumption and Reserves as a Percent of Global Total



Source: Consumer Federation of America, National Survey, March 25-28

estimation of imports forms a normal distribution centered on a mean estimate that is close to the actual mean. In contrast, almost all of the respondents overestimate the level of U.S. reserves and the estimates are much more dispersed. Two-thirds of respondents think that we hold more than one-quarter of world oil reserves, when we hold one-thirtieth.

Support for Public Policies

Over the five years, the fuel economy question has been changed to reflect the ongoing policy debate.

Congress is considering legislation that would require auto manufacturers to increase their new car gas mileage by about one mile per gallon a year for ten years. In this period, new car gas mileage would increase by ten miles per gallon. Do you favor such legislation?

In implementing a law passed by congress in 2007, federal agencies have proposed increasing average fuel economy for new vehicles from 27 miles per gallon today to 35 miles per gallon in 2016. How do you feel about this proposed change?

The federal government has recently required automobile manufacturers to increase the fuel economy of their motor vehicle fleets from an average of 25 miles per gallon to 35 miles per gallon by 2016. Do you think the government should increase this standard to an average of 50 miles per gallon by 2025?

In spite of their misunderstanding of U.S. oil reserves, Americans today are not just concerned about prices and Mid-East oil dependence – they want action, as shown in Figure 9. An overwhelming majority thinks it is important for the country to reduce its dependence on oil, and a large majority even considers this to be very important.

- 87% of the respondents say it is important for the U.S. to reduce its consumption of oil, with 54% saying it is very important.
- More specifically, almost two-thirds (65%) think the federal government should increase its fuel economy standard to 50 miles per gallon by 2025. Given the earlier expression of concern about price, it is important to note that respondents with household incomes below \$50,000 are much more likely to support higher fuels economy standards than respondents with incomes above \$50,000 (74% v. 61%).

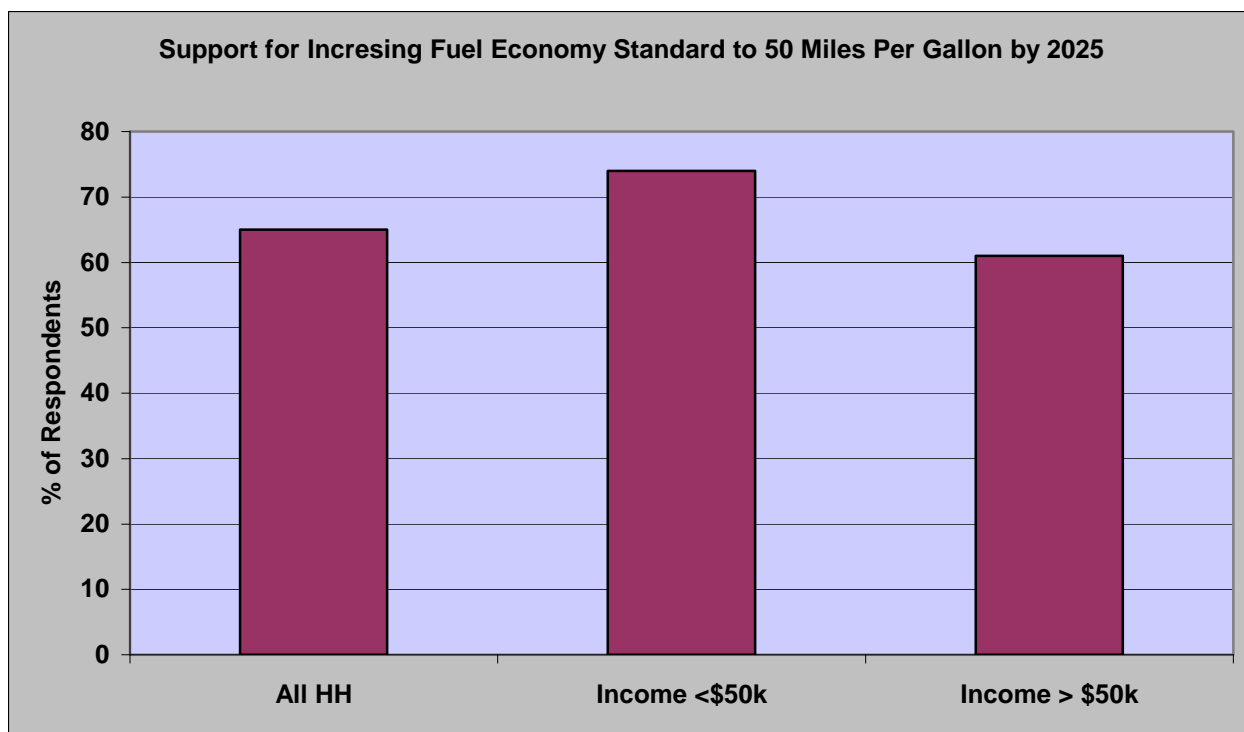
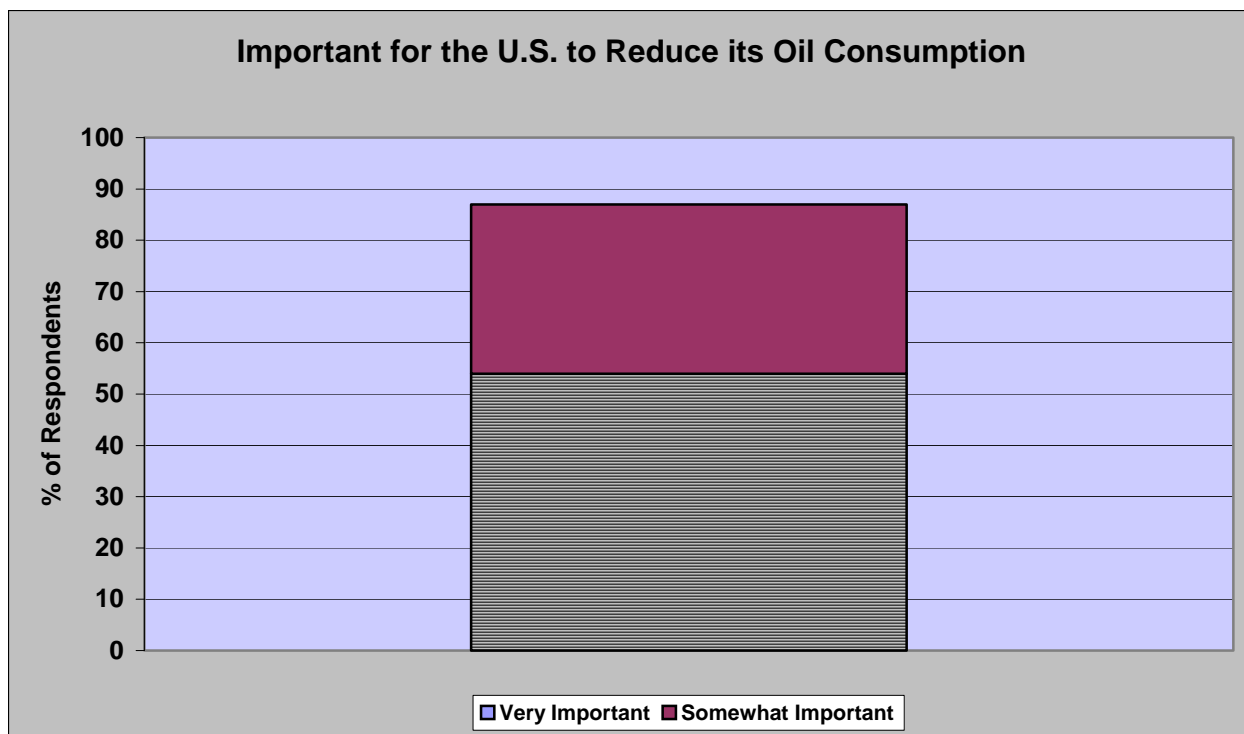
This support for remedial action has been long standing, as shown in Figure 10. About 90 percent of the respondents say it is very or somewhat important for the U.S. to reduce its consumption of oil. There was also strong support for increasing fuel economy dramatically in the years ahead. Support for higher fuel economy has generally run in the range of 75 to 80 percent, although previous questions have used lower targets, reflecting the status of the ongoing debate over standards.

Information

As previously mentioned, half of the sample was provided with correct information about the extent of U.S. imports and the U.S. share of global oil reserves after they were asked about their concerns and provided an unaided response to the questions about the U.S. oil situation. The information provided was worded as follows:

The correct answers to these two questions are: Three-fifths of the oil we use comes from outside the U.S, and less than 3% of all proven oil reserves in the world are located in or offshore the U.S.

Figure 9: Support for Reduction in Consumption



Source: Consumer Federation of America, National Survey, March 25-28, 2010

It is also significant that these majorities increase when respondents understand what a small portion of the world's oil reserves are held by the U.S. Given this correct information, the percentage who think it very important we reduce our dependence on oil increased from 54% to 68%, and the percentage who agree the federal government should increase the fuel standard increased from 66% to 72% (Figure 10).

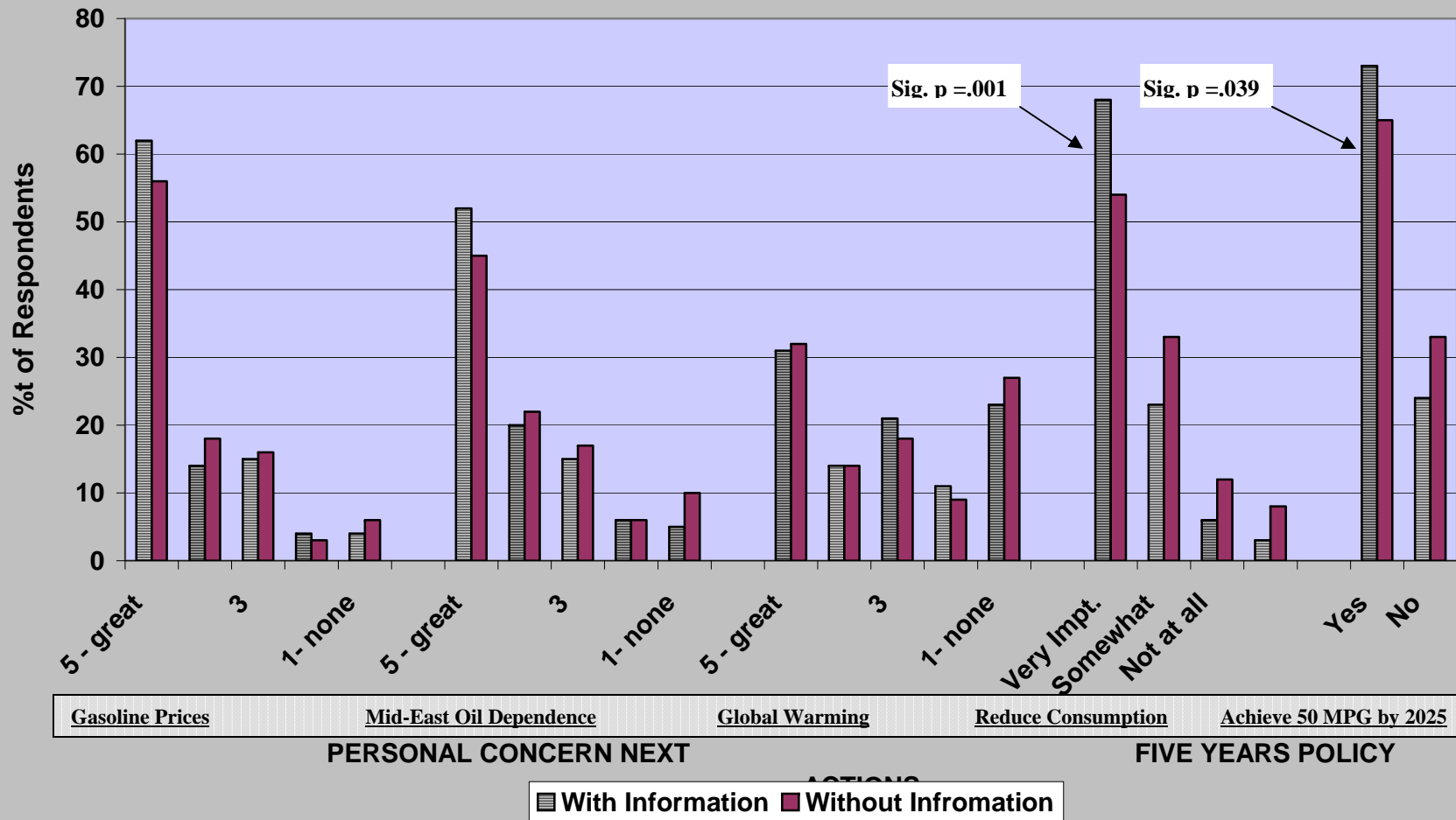
After being asked about imports and U.S. oil reserves, but before they were asked about actions to deal with the oil situation, half the respondents were informed of the correct answers to the questions. There was a major difference between those who were given the correct information and those who were not. The informed were much more likely to say it is very important for the U.S. to reduce its oil consumption (68 percent compared to 54 percent). Just under two thirds (65%) of the respondents who were not informed of the actual reserve number supported raising fuel economy to 50 miles per gallon by 2025. Just under three quarters (73%) of those who were informed supported reaching the 50-mpg target.

We have tested the difference between the respondents who were given correct information and those who were not. There are no statistically significant differences in their expression of concerns. Nor was there any significant difference in the knowledge of the U.S. oil situation. The only statistically significant difference were in the responses to the policy questions, with the respondents informed of the correct answers being more supportive of public policies to reduce consumption. However, there were statistically significant differences in their agreement with the need to reduce oil consumption and their support for 50 miles per gallon as a target for fuel economy. The respondents who were given the correct information were more likely to say it is important to reduce oil consumption (Chi square $p = .001$) and to say we should increase fuel economy to 50 MPG by 2025 ($p = .039$).

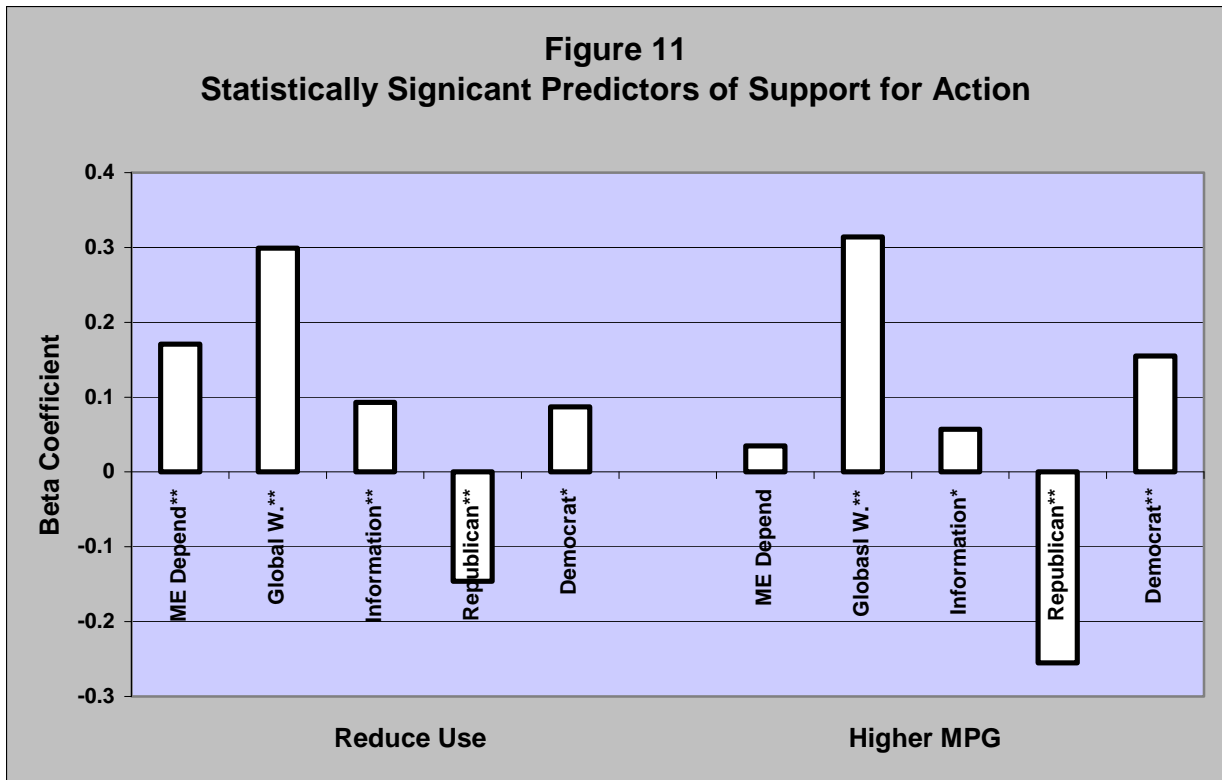
We have tested the relationship between information and the support for remedial action controlling for income, age and education, and the results remain statistically significant in both linear and ordered logistic regressions. Since none of the demographic characteristics or the responses to the knowledge questions have a statistically significant relationship to the action questions, we have specified the models with only those variables that show a significant relationship to at least one of the action items, as shown in Figure 11.

Price was not significant in either of the models, so it is not included in this analysis. Concern about global warming was the strongest and most consistent predictor, with greater concern associated with more support for action. Information was positively associated with support for action. Concern about Mid-East dependence was positively associated with support for reduced consumption. The party identification of the respondents was also a significant predictor of attitudes toward action. Those who identified themselves as members of the Republican Party were less likely to support reduction of consumption or higher mileage standards than independents. Democrats were significantly more likely to support action.

Figure 10
Oil Concerns and Policy Responses, With and Without Information



Source: Consumer Federation of America, National Survey, March 25-28, 2010



Significance: * = $p < .05$; ** $p < .001$

The multiple regression results are quite robust. The model explains between one-seventh and one-fifth of the variance in the action responses. For this type of attitudinal data, this is a large part of the variance to explain. The analysis was conducted with several different statistical models (linear, ordinal logistic) and error estimation methods (standard errors, robust standard errors) and the results are essentially the same.

CONCLUSION

Notwithstanding the tendency to overestimate the U.S. share of world oil reserves, the consistent concerns expressed by the public about oil consumption and their support for reduction in consumption and increases in fuel economy indicate a fundamental recognition of the problem of “oil addiction.” The fact that providing respondents with accurate information about the U.S. oil situation increases support for policies to reduce consumption could interact with the focus on the U.S. problem situation resulting from the oil spill in the Gulf of Mexico to reinforce support for further reduction in consumption.

APPENDIX
CFA ANALYSES
AVAILABLE AT WWW.CONSUMERFED.ORG

SURVEY REPORTS

Large Majority of Americans Remain Concerned About Gas Prices and Oil Imports, 11/24/09

Despite \$1.90 Pump Price, a Large Majority of Americans Remain Concerned about Gas Prices and Oil Import Dependence, 02/03/09.

Dramatic Shift to Fuel Efficient Vehicles Began in 2005: New Auto Sales Analysis Reveals Market Reality Missed by Automakers & NHTSA, 08/04/08

Consumers Want Fuel Economy They Can't Find, 04/21/08

New CFA Report: Consumer Energy Costs Skyrocket; Strong Support for Congressional Action, Poll Shows, 10/30/07

U.S. Automakers Show No Response to Consumer Demand for Improved Fuel Economy, 07/17/07

Americans Alarmed About Dependence on Oil Imports and Resulting High Gas Prices and Funding Terrorism, 05/21/07

Consumers Still Greatly Concerned About Better Gas Mileage and Oil Imports Despite Falling Gas Prices, 11/13/06

New Report Shows Nearly Three-Quarters of Americans Concerned About Future Gas Prices, 09/01/05.

OIL MARKET AND FUEL ECONOMY STUDIES

Shifting Fuel Economy into High Gear, 11/24/09.

CFA Comments on NHTSA's Proposed Rule Establishing Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 11/30/09

Testimony of Dr. Mark Cooper to the EPA on Establishing Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 10/21/09

Consumer Groups' Comments on Tire Efficiency Consumer Information Rulemaking, 8/21/09

Consumer Groups' Comments to FTC Regarding Fuel Economy Advertising Guidelines, 06/26/09

A Boom for Big Oil – A Bust for Consumers: An Analysis of Policies to Meet American Energy Needs, 09/16/08.

Comments on NHTSA's Draft Environmental Impact Statement; Re: Average Fuel Economy Standards, 08/18/08

Fuel Economy and Auto Sales: Automakers and the National Highway Traffic Safety Administration Ignore Market Signals, 08/04/08.

CFA Comments on National Highway Traffic Safety Administration Notice of Proposed Rulemaking Re: Average Fuel Economy Standards, Passenger Cars and Light Trucks, Model Years 2011-2015, 07/01/08

Ending America's Oil Addiction: A Quarterly Report on Consumption, Prices and Imports First Quarter, 2008, 04/21/08

A Consumer Analysis of the Adoption of the California Clean Cars Program in Other States: Arizona, 03/12/08

A Consumer Analysis of the Adoption of the California Clean Cars Program in Other States: New Mexico, 11/21/07

No Time to Waste: America's Energy Situation is Dangerous, But Congress Can Adopt New Policies to Secure Our Future, 10/30/07

Technology, Cost and Timing: An Analysis of Competing Congressional Proposals to Raise Fuel Economy Standards, 07/26/07

Florida's Stake in the Fuel Economy Battle: An Analysis of the Economic, National Security and Environmental Impacts of Florida's Fuel Consumption and Increasing Federal Fuel Economy Standards, 07/25/07

Big Oil v. Ethanol: The Consumer Stake in Expanding the Production of Liquid Fuels, 07/23/07

Still Stuck in Neutral: America's Continued Failure to Improve Motor Vehicle Fuel Economy, 07/17/07

Too Little, Too Late: Why the Auto Industry Proposal to Go Low and Slow on Fuel Economy Improvements is Not in the Consumer or National Interest, 07/12/07.

Rural Households Benefit More from Increases in Fuel Economy, 06/13/07. [\(PDF\)](#)

National Cost-Benefit Analysis of Increasing Fuel Economy by 10mpg Over 10 Years, 06/04/07

Stuck In Neutral: America's Failure to Improve Motor Vehicle Fuel Efficiency 1996-2005, 11/13/06.

Time to Change the Record on Oil Policy, 08/08/06

A Blueprint for Energy Security: Addressing Consumer Concerns about Gasoline Prices and Supplies by Reducing Consumption and Imports, 05/25/06.

50 by 2030: Why \$3.00 Gasoline Makes the 50 Mile per Gallon Car Feasible, Affordable and Economic, 05/08/06

The Impact of Rising Prices on Household Gasoline Expenditures, 09/01/05