

**What the California Public Thinks About Offshore Oil Development:
Past Trends and Future Possibilities**

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What the California Public Thinks About Offshore Oil Development: Past Trends and Future Possibilities

What people think about offshore oil and gas drilling is important because public opinion is a major force in politics. Politicians do not always do what the public wants, but on high profile issues, they try to respond to their constituents because that is how they keep their jobs (Arnold 1990). One can easily see the influence of public opinion in the rapid decline of the nuclear power industry since the 1970s and in the moratorium on offshore oil drilling along most coastal areas around the nation that began in 1990 (Freudenburg and Gramling 1994; Freudenburg and Rosa 1985; Gramling 1996; Morone and Woodhouse 1989; Wilder 1998). The public turned against both energy sources, and despite the power and lobbying influence of the nuclear power and oil industries, the public got what it wanted. Public opinion was not the only cause of the problems faced by these industries, especially in the case of nuclear power, but it was a powerful contributing cause to the end of the expansion of both nuclear power and coastal oil development.

The influence of public opinion gives us a way to see into the future. If we can explain and predict trends in public opinion about offshore oil drilling, perhaps we can offer an informed speculation about what the public is likely to demand in terms of future policy.

In this paper, we examine change in support for offshore oil drilling among Californians from 1977 to 2008. We show why support for drilling rises and falls over time. We also take a closer look at the sudden increase in support for drilling between 1998 and 2001. Based on that analysis, we predict what will happen to support for offshore oil development in the future.

Trends in Support for Offshore Oil and Gas Drilling

Since the 1969 Santa Barbara oil spill, it has been common to see politicians declare their opposition to offshore oil drilling and claim that Californians or Santa Barbarans share their unequivocal opposition. U.S. Representative Lois Capps (D-22-CA), for example, asserted, "Californians have spoken loud and clear about their opposition to offshore oil drilling. ... Protecting our coastline shouldn't be a partisan issue. It's just common sense" (Miller 2001). Striking a similar note, Santa Barbara City Council member Das Williams proclaimed, "It's an important matter to the people of this city. It's an important matter for us to clarify to the world ... that Santa Barbara is opposed to new federal oil drilling." (Lindberg 2010). Joining the chorus, a writer in *Sierra*, the Sierra Club's monthly magazine, wrote, "Half of the nation's undiscovered oil is thought to be off California, where drilling is wildly unpopular" (Slater 2009).

But what do Californians think about offshore oil drilling? Proclaiming widespread support for one's political stands is easy, but demonstrating that the claims are true requires evidence from public opinion polls.

Starting in 1977, the Field Poll has been repeatedly asking Californians about their views on offshore oil drilling. They asked respondents to agree or disagree with the statement,

“Oil companies should be allowed to drill more oil and gas wells in state tidelands along the California seacoast.”

The results of the surveys, shown in figure 1, present a more complicated picture than some politicians or policy advocates might suggest. Opinion about offshore oil drilling has varied a good deal over time—from 1980 and 1981 when a majority of Californians supported more drilling to 1989 and 1998 when support for drilling dipped to only 20 percent. There is clearly more to the story than just memories of the 1969 oil spill.

[see figure 1 at end of paper]

A brief recounting of history can explain some of the swings in public opinion. The key to the account is the price of gasoline, and indirectly the price of oil. When events caused prices to rise, so did public support for offshore oil drilling. When prices fell, public support fell too. As figure 1 shows, support for offshore oil drilling (the solid line) follows the inflation adjusted price of unleaded regular gas (the dotted line) fairly well.

The first U.S. energy crisis began in 1973 with the Arab-Israeli War—three and a half years before the first poll in figure 1. When the U.S. intervened to help Israel, the Arab members of OPEC launched an oil embargo that caused a wave of price hikes and gasoline shortages across the nation. The price of oil shot up from \$3 to \$11.65 a barrel in three months (Congressional Quarterly 1985, 19). By 1977, when our data series begins, the embargo had ended and oil prices had fallen back toward the pre-crisis level. The second energy crisis began in 1979 with the Iranian revolution. The Ayatollah Khomeini led a series of demonstrations that shut down the Iranian oil industry and eventually forced the Shah of Iran to flee the country and leave it in the hands of Khomeini and his allies. The oil situation worsened when Iraq invaded Iran in an attempt to control the Shatt al Arab waterway through which oil was transported from both Iran and Iraq to world markets. The results for Americans were higher gas prices. This was the time at which Californians’ support for more offshore oil drilling hit its high point.

Oil prices fell through most of the 1980s, in rough unison with declining support for offshore oil drilling. The low point in public support for offshore oil during the 1980s occurred in 1989, when the oil tanker *Exxon Valdez* ran aground in Port William Sound in Alaska. Eleven million gallons of crude oil spilled out and spread along 470 miles of Alaska’s coast over the next two months.

Oil prices and support for offshore oil rebounded in 1990 when Iraqi president Saddam Hussein ordered the invasion of Kuwait. Oil shipments from Kuwait stopped, but the impact was far smaller than the impacts of the earlier energy crises because other OPEC nations immediately increased their oil exports. As a result, the Persian Gulf War had a far smaller impact on U.S. oil prices than the earlier energy crises had.

Throughout the 1990s, oil prices drifted downward as OPEC nations failed to hold the line on prices. In 1998, prices hit their all-time, inflation-adjusted low, dipping briefly under \$10 a barrel. The low prices caused enough pain among OPEC nations so that they finally began to reduce oil production and force prices up. By 2000, prices had more than

doubled and had become a leading issue in the presidential election with both campaigns focusing on whether to allow oil drilling in the Arctic National Wildlife Refuge (Bruni 2000; Mitchell 2000; Pew Research Center for the People & Press 2000). Prices dropped briefly after the election, but starting in 2002, they began moving up again. The rise continued until the summer of 2008.

We can add one more observation about changing attitudes toward offshore oil drilling from 1977 to 2008. Figure 1 shows support for oil drilling rising and falling with the price of gasoline, but there is more to it than that. In the 1970s and early 1980s when gas prices were high, over fifty percent of the public favored more oil drilling. When gas prices hit the same levels in the 2000s, just over forty percent wanted more drilling. That is, in addition to the ups and downs in drilling support caused by prices, there seems to be a long term decline in support for offshore oil drilling.

To add some precision to the story about public opinion about offshore oil drilling, we estimated a regression model explaining support for drilling. The essential elements of our explanation are (1) the public responds to changes in gasoline prices, which are caused by wars and OPEC price manipulations, (2) the public responds to environmental disasters (i.e., the sinking of the *Exxon Valdez*), and (3) there is a long-term decline in support for offshore oil drilling. The regression model, shown in table 1, has three independent variables: the inflation-adjusted price of unleaded gasoline, a dummy variable for 1989 to reflect the impact of the *Exxon Valdez*, and a time-trend variable measuring year starting with 1977=1.

[see table 1]

The model shows that for every one dollar increase in the cost of gasoline (measured in 2000 dollars), support for offshore oil drilling increases 13 percent. The *Exxon Valdez* oil spill reduced support for drilling by 16% in 1989. Finally, since 1977, there has been a long term decline in support for oil drilling of one-half percent per year, which amounts to a 15 percent decline over the thirty years of our study. All of the variables are statistically significant, and the model performs well, explaining 71% of the variance in the dependent variable.

We can sum up the trend data by saying that we do not see a public that is overwhelmingly opposed to offshore oil drilling. The public certainly leans against oil drilling, and that tendency has increased over the years. Yet we also see a public that responds to changes in the price of gasoline. When gasoline prices were low or falling, public support for oil development fell; when gasoline prices were rising, public support for more drilling rose. Moreover, the public shifted against oil when polled shortly after the *Exxon Valdez* disaster. As Page and Shapiro (1992) would describe it, the public was rationally responding to real world events.

A Closer Look at Who Changed Their Minds

To learn more about why people's opinions on offshore oil development change over time, we will use individual level data. We will combine the data from two surveys

conducted in 1998, when oil prices had hit a historic low, and 2001, when they had surged upward so quickly and to such a height that gasoline prices became a critical issue in the 2000 presidential election. We should note that the 2001 survey was conducted in May, well before the September 11 terrorist attacks. The 1998-2001 comparison will allow us to see how the public reacts to a sudden shift in prices.

We cannot track individual change in opinion over that time period because the 1998 respondents were not interviewed again in 2001. We can, however, examine how the patterns of support and opposition to oil development changed. That is, we can trace how groups of people changed over time. The pattern of those changes will help us understand why public opinion about offshore oil changes.

To analyze the changes over time, we will estimate a cross-sectional, time-series logistic regression model. That is, we will combine the 1998 and 2001 surveys, both of which are random (cross-sectional) surveys of California adults. Using this merged data set, we will estimate a logistic regression model explaining support for offshore oil drilling.

Broadly speaking, we can suggest four hypotheses to explain why public opinion shifted over time. (1) People may have responded to the rising oil prices based on their economic self-interests. That is, the people who were hurt worst may have moved most strongly in favor of more oil drilling. (2) People may have responded based on their ideological views. That is, people who were ideologically inclined toward oil drilling may have changed more than others. (3) People who were inclined for or against environmental causes may have changed at different rates, with those who did not agree with environmental appeals moving most strongly toward more oil drilling. (4) All groups could have moved at the same pace regardless of their economic circumstances, ideologies, or environmental views. We will discuss each of these hypotheses in turn.

The Self-Interest Hypothesis. Our first possible explanation of the shift in opinion toward greater support for offshore oil development is that people who were affected by higher gas prices might reason that increased oil production in the U.S. would prevent gas prices from rising. That was the argument that Governor George W. Bush and his allies made during the 2000 presidential campaign, an argument echoed by Senator John McCain during the 2008 presidential campaign. Increasing the domestic oil supply would bring down gas prices. People who accepted this argument and changed their minds from opposition to support for more oil drilling would be acting out of self-interest.

Previous research has shown that self-interest is not as simple as it might seem. A series of studies have found that self-interest generally does not influence attitudes, contrary to what one might expect (Sivacek and Crano 1982; Sears and Funk 1990, 1991; Green and Cowden 1992; Miller and Ratner 1996; Sears 1997; Miller 1999; Ratner and Miller 2001). The studies found that people with vested interests are more likely to take action on their interest. As a result, it would seem to the casual observer that self-interest influences opinions because we see people acting on their interests. However, the studies found no direct effect of self-interest on attitudes.

To test the self-interest hypothesis, we need to identify groups that were especially hard hit by rising gasoline prices. The most obvious candidates are people who felt that their financial situations were weak. They might find any increase in prices threatening. The 1998 and 2001 surveys have similar (but unfortunately not identical) questions about respondent's financial situations. In 1998 respondents were asked, "During the last few years, has your financial situation been getting better, getting worse, or has it stayed the same?" In 2001, they were asked, "Would you say that you and your family are financially better off or worse off today than you were a year ago?" For our logistic regression model, we combined the two questions into a single financial situation measure (see the appendix). The hypothesis is that people whose financial situations were worsening would feel economically threatened and favor more oil drilling.

A second group of people hurt by the rising gasoline prices were the poor. People with low incomes have less discretionary income, and so are likely to be harmed more by rising gas prices than those who are financially better off. We tested this hypothesis with family income as an independent variable.

The Political Orientations Hypothesis. A second possible explanation of the growing support for offshore oil development is that people are responding to political leadership. The argument about political orientations is that when they come into play depends on whether political issues receive media attention, and on whether the issues are controversial. When the news media ignore issues, and when politicians from opposite parties agree, partisan and ideological differences in the public tend to be small. In contrast, when the news media focus on issues and politicians from opposing parties jump in on opposite sides, partisan and ideological differences in the public tend to be large (Smith 2002; Zaller 1992).

In our case, offshore oil development did not receive much media attention, and was not controversial in 1998. Gasoline prices (adjusted for inflation) hit a historic low point in 1998, with an average price of only \$1.03 per gallon (in 2000 dollars) in the United States. Energy crises seemed to be events of the distant past. Neither Washington political leaders nor major oil companies were pushing to increase oil drilling off the coast of California. Democratic and Republican leaders in California joined one another in opposing offshore oil drilling. Under these circumstances, political orientations should not make much difference. In 2001, however, the situation had changed dramatically. Gasoline prices had shot up. Public opinion polls showed that the high price of gasoline was the most important issue to most Americans throughout the campaign year 2000 (Pew Research Center for the People & Press, 2000), and politicians began to disagree sharply along partisan lines about oil development. Most prominently, during the 2000 presidential campaign, Governor George Bush called for opening up the Arctic National Wildlife Refuge in Alaska to oil drilling, while Vice President Al Gore denounced that proposal (Bruni 2000; Mitchell 2000). As a result of these events, we should expect to see much sharper partisan and ideological differences in 2001 than in 1998. Two measures of political orientations are available in our 1998 and 2001 surveys—party identification and ideological self-identification. We include both as independent variables.

The Environmentalism Hypothesis. A third possible explanation of the changing support for offshore oil is that environmentalists reacted differently from non-environmentalists to the rising gasoline prices. Environmentalists may have continued to heed the call of environmental leaders who insisted that offshore oil drilling posed a serious environmental threat, while non-environmentalists may have accepted the idea of increasing the oil supply as a way to moderate gasoline prices.

We do not have direct measures of environmentalism in our surveys, but we can measure environmentalism indirectly by using demographic variables. Previous studies have shown that age, education, and gender consistently predict environmental attitudes. In general, more educated people, younger people, and women take more pro-environment stands than the less educated, the old, and men (Guber 2003; Jones and Dunlap 1992; Smith 2002). We therefore include these demographics as independent variables in our model to see if they changed over time, which would imply (but not conclusively show) that environmentalists and non-environmentalists reacted differently to rising gasoline prices.

The Period Effect Hypothesis. We take the term “period effects” from studies of change in public opinion over time (Mayer 1992; Smith 2002). Those studies divide the causes of opinion change into life cycle effects (opinion change caused by people growing older), generational effects (opinion change in the population caused by younger generations of people replacing older generations as they die off), and period effects, which are causes of public opinion change that affect all groups at the same time and produce a general shift of public opinion in some direction. Of course, over the brief three years between our surveys there could not have been sufficient time for life cycle or generation effects to have caused significant change. For our purposes, the period effect hypothesis is, in effect, a null hypothesis. If all groups moved in the same direction at the same time, then the self-interest, political orientations, and environmentalism hypotheses are all wrong.

Data Analysis. Our first three hypotheses say that support for offshore oil development increased more strongly from 1998 to 2001 among some groups of people than among others. For example, our self-interest hypothesis is that support for offshore oil grew more among people who felt financially insecure or who had low incomes than among people who felt that their financial situations were good or who had high incomes. To test these hypotheses, we need a set of interaction terms that show how relationships between the independent variables and support for oil development changed over time.

To construct the interaction terms, we multiplied respondents’ scores on the key independent variables (e.g., financial status or income) by a dummy variable for year. The year dummy is scored ‘0’ for 1998 respondents and ‘1’ for 2001 respondents. Consider, for example, the way income is coded. The essential elements are:

$$\text{Support for oil drilling} = b_1 (\text{Income}) + b_2 (\text{Year}) + b_3 (\text{Income} \times \text{Year})$$

The first term represents the influence of income on support for offshore oil. The second term reflects the overall change in support from 1998 to 2001. The third term indicates

how the influence of income on support has changed from 1998 to 2001. We can see how the equation works by focusing on the sample year. For 1998 respondents $Year = 0$, so the second and third terms do not come into play. We see the influence of income on oil drilling support. For 2001 respondents $Year = 1$, so all three terms play a role. The first coefficient, b_1 , represents the influence of income. The second coefficient, b_2 , is in effect a change in the intercept that affects all 2001 respondents. The third coefficient, b_3 , shows the change in the influence of income from 1998 to 2001. The marginal effect of income on support for oil drilling is $b_1 + b_3$. That is, we can only see the full effect of income if we take both variables into account (Brambor et al. 2006).

Table 2 presents the results of our analysis. In model 1, all of the variables except ideology that normally predict environmental opinions have effects in the expected direction. People with high incomes and good educations are less likely than people with low incomes and poor educations to support offshore oil drilling. Women are less likely than men to support drilling. Older people are more likely to support drilling. Republicans are more likely to support drilling. In contrast, the interaction terms are all small and statistically insignificant. That means that the relationships between our basic independent variables and offshore drilling opinions did not change over time as gasoline prices shot up. All groups moved in the same direction at the same pace. The change in opinion from 1998 to 2001 seems to be explained by the coefficient measuring year, which just misses statistical significance ($p < .11$).

The main effect variables that did not have a statistically significant effect on support for drilling are ideology and financial status. We suspect that ideology did not have any influence because the partisan signals on offshore oil drilling were so strong during the 2000 election. Ideology, which is highly correlated with party identification, was probably washed out by this effect. We did not expect financial status to have an effect because, so far as we know, there is no study showing that it is related to environmental opinions. Whether people are doing well or poorly influences many other variables, but not environmental views. We included it as part of the test of the self-interest hypothesis.

In model 2, we removed the interaction terms and find that year, which just missed statistical significance in model 1, becomes statistically significant. This allows us to make the case that the change we see from 1998 to 2001 was a broad shift in public opinion. All groups moved in favor of more offshore oil drilling.

We briefly return to our hypotheses. The fact that none of the interaction variables was statistically significant is critical. The data did not support any of our first three hypotheses. The self-interest, political orientations, and environmentalism hypotheses have to be rejected.

Sensitivity Analysis. In order to be confident about our findings, we tested an alternative way to code income and a variety of alternative model specifications. None of these efforts raised any questions about the findings we have just reported.

To test the self-interest hypothesis with respect to income, we estimated a model with a dummy variable in which respondents with family incomes of less than \$20,000 were

scored '1' and those with higher incomes were scored '0.' An interaction term was also included for this low income variable. The idea was to isolate the people with the lowest incomes who would be hurt most by an increase in gasoline prices. Neither the low income variable nor its interaction term were statistically significant.

We also estimated a series of logit regression models in which the main effect variables, the year dummy, and one of the interaction terms was included. That is, we tested each interaction term separately to see if any of them might have an effect. None did.

Finally, we dropped ideology and the ideology interaction term from the model to see if that caused any change. It did. Without ideology, year became statistically significant in model 1 as well as in model 2. This hints at the possibility that conservatives may have moved more strongly than liberals toward support for more drilling. However, as we noted in the previous paragraph, when the ideology variable and its interaction were included without any other interaction terms, they failed to achieve statistical significance.

Discussion

Our central finding is that public support for offshore oil drilling rises and falls with the price of oil. Although this is contrary to the rhetoric of some politicians and political activists, it should not be surprising. Gasoline is the one product that most Americans buy, and the prices are posted on street corners all across the country. When prices are high, people complain. The oil industry and its supporters respond to these complaints by urging Congress and state legislatures to allow more drilling. As we have shown, people seem to agree with that argument.

We can use this finding to see into the future. The U.S. Energy Information Administration's *Annual Energy Review 2010* (Early Release) projects that oil prices will rise 17 percent in the next decade and an additional 14 percent on top of that by 2030. This is what they label the "AEO2010 reference case." In effect, it is the business-as-usual prediction. If this prediction is correct, then support for oil production should increase to 55 percent by the next decade and 61 percent by 2030.

An alternative prediction, which is not discussed in the *Annual Energy Review*, comes from researchers who expect world oil production to peak in the coming decades. When world production peaks and begins to fall, oil prices will climb more rapidly than the business-as-usual model assumes. That means that support for offshore oil drilling will also rise to a higher level. According to the model in table 1, if we have sustained gasoline prices of \$4.00/gallon, support for offshore drilling among Californians will rise to 63 percent. If gasoline rises to \$5.00/gallon, support for drilling will rise to 77 percent. Under those circumstances, we should expect that Congress will act to open up most areas to oil development. In short, if one believes that peak oil is coming, then one should expect that moratoriums on oil development will be swept away.

References

- Arnold, R. Douglas. 1990. *The Logic of Congressional Action*. New Haven, CT: Yale University Press.
- Bruni, Frank. 2000. "Bush, in Energy Plan, Endorses New U.S. Drilling to Remedy Oil Prices," *New York Times*, 30 September.
- Congressional Quarterly. 1985. *Energy & Environment: the Unfinished Business* Washington, DC: Congressional Quarterly Press.
- Freudenburg, William R., and Eugene A. Rosa, eds. 1984. *Public Reactions to Nuclear Power: Are There Critical Masses?* Boulder, CO: Westview Press.
- Freudenburg, William R., and Robert Gramling. 1994. *Oil in Troubled Waters: Perceptions, Politics, and the Battle over Offshore Oil Drilling*. Albany, NY: State University of New York Press.
- Gramling, Robert. 1996. *Oil on the Edge*. Albany, NY: State University of New York Press.
- Green, D.P., and J.A. Cowden. 1992. "Who protests: Self-interest and White Opposition to Busing." *Journal of Politics* 54: 471-496.
- Guber, Deborah Lynn. 2003. *The Grassroots of a Green Revolution: polling America on the environment* (Cambridge, Mass: MIT Press).
- Jones, Robert Emmet, and Riley E. Dunlap. 1992. "The Social Bases of Environmental Concern: Have They Changed Over Time," *Rural Sociology* 57: 28-47.
- Lindberg, Eric. 2009. "Oil Drilling Discussion Turns Testy." *The Daily Sound* 16 September, 1. [<http://www.thedailysound.com/091609oildrillingletter>], accessed 14 February 2010.
- Mayer, William G. 1992. *The Changing American Mind: How and Why American Public Opinion Changed between 1960 and 1988*. Ann Arbor, MI: University of Michigan Press.
- Miller, D.T. 1999. "The Norm of Self-interest." *American Psychologist*, 54: 1053-1060.
- Miller, D.T., and R.K. Ratner. 1996. "The Power of the Myth of Self-interest." In L. Montada & M. J. Lerner (Eds.), *Current Societal Issues in Justice*. New York: Plenum Press, 25-48.
- Miller, George. 2001. "U.S. Representatives Lois Capps and George Miller Denounce Bush Administration Efforts to Open Protected Coastlines to Oil Drilling." Press release from Office of George Miller, 27 April 2001. [<http://georgemiller.house.gov/rel42701.html>] retrieved 14 February, 2010.

- Mitchell, Alison. 2000. "Gore Says Bush Plan Will Cause Lasting Damage to the Environment," *New York Times* 30 September.
- Morone, Joseph G., and Edward J. Woodhouse. 1989. *The Demise of Nuclear Energy? Lessons for Democratic Control of Technology*. New Haven, CT: Yale University Press.
- Page, Benjamin I., and Robert Y. Shapiro. 1992. *The Rational Public: Fifty Years of Trends in Americans' Policy Preferences*. University of Chicago Press.
- Pew Research Center for the People & the Press. 2000. "Rising Price of Gas Draws Most Public Interest in 2000," 25 December. <http://www.people-press.org>
- Ratner, R.K., and D.T. Miller. 2001. "The Norm of Self-interest and Its Effects on Social Action." *Journal of Personality and Social Psychology* 81: 5-16.
- Sears, D.O. 1997. "The Impact of Self-interest on Attitudes—A Symbolic Politics Perspective on Differences between Survey and Experimental Findings: Comment on Crano (1997)." *Journal of Personality and Social Psychology* 72: 492-496.
- Sears, D.O., & C.L. Funk 1991. The role of Self-interest in Social and Political Attitudes. In M. P. Zanna (Ed.), *Advances in experimental social psychology* 24: 2-91. New York: Academic Press.
- Sears, D.O., and C.L. Funk. 1990. Self-interest in Americans' Political Opinions. In J. J. Mansbridge (Ed.), *Beyond Self-interest*. Chicago: University of Chicago Press, 147-70.
- Sivacek, J., & Crano, W. D. 1982. Vested Interest as a Moderator of Attitude-behavior Consistency. *Journal of Personality and Social Psychology* 43: 210-221.
- Slater, Dashka. 2009. "Sex, Drugs, and Royalties." *Sierra*, 94 (January/February): 18.
- Smith, Eric R. A. N. 1995. *Trends in Public Opinion on Offshore Oil Development in California*. Final Study Report to the Minerals Management Service, U.S. Department of the Interior, March, 1995.
- Smith, Eric R. A. N. 2002. *Energy, the Environment, and Public Opinion*. Boulder, Colorado: Rowman & Littlefield.
- U.S. Energy Information Administration. 2009. *Annual Energy Review 2010* (Early Release). <http://www.eia.doe.gov/oiaf/aeo/overview.html>
- Wellock, Thomas Raymond. 1998. *Critical Masses: Opposition to Nuclear Power in California, 1958-1978*. Madison, WI: University of Wisconsin Press.

Wilder, Robert Jay. 1998. *Listening to the Sea: The Politics of Improving Environmental Protection*. Pittsburgh, PA: University of Pittsburgh Press.

Appendix: Survey Questions used in this Analysis

Income: “Now, we don't want to know your exact income, but just roughly, could you tell me if your annual household income before taxes is under \$20,000, \$20,000 to \$40,000, \$40,000 to \$60,000, \$60,000 to \$80,000, or more than \$80,000?”
Coded: (1) Less than \$20,000; (2) \$20-40,000; (3) \$40-60,000; (4) \$60-80,000; (5) \$80,000 or more.

Financial situation: (1998) “During the last few years, has your financial situation been getting better, getting worse, or has it stayed the same?” ; (2001): “Would you say that you and your family are financially better off or worse off today than you were a year ago?” [3=Better off; 2=No change; 1=Worse off]

Education: (1) Less than high school; (2) High school or trade school; (3) Some college; (4) College graduate; (5) Graduate school.

Age: “What is your age?” [Age is coded in years]

Female: (0) Male; (1) Female.

Party identification: “Generally speaking, do you usually think of yourself as a Republican, a Democrat, an Independent or what?” If Republican or Democrat: “Would you call yourself a strong or not very strong (Republican) (Democrat)?” If independent: “Do you consider yourself as closer to the Republican or the Democratic Party?”

Coded: (0) Strong Democrat; (1) Weak Democrat; (2) Leaning Democrat; (3) Independent; (4) Leaning Republican; (5) Weak Republican; (6) Strong Republican.

Ideology: “Generally speaking, in politics do you consider yourself as conservative, liberal, middle-of-the-road?” If conservative: “Do you consider yourself a strong or not very strong conservative?” If liberal: “Do you consider yourself a strong or not very strong liberal?” If middle-of-the-road: “If you had to choose, would you consider yourself as being conservative, liberal, or middle-of-the-road?”

Coded: (0) Strong liberal; (1) Liberal; (2) Slightly liberal; (3) Middle-of-the-road; (4) Slightly conservative; (5) Conservative; (6) Strong conservative.

Figure 1. Support for Offshore Oil Drilling and the Price of Gasoline

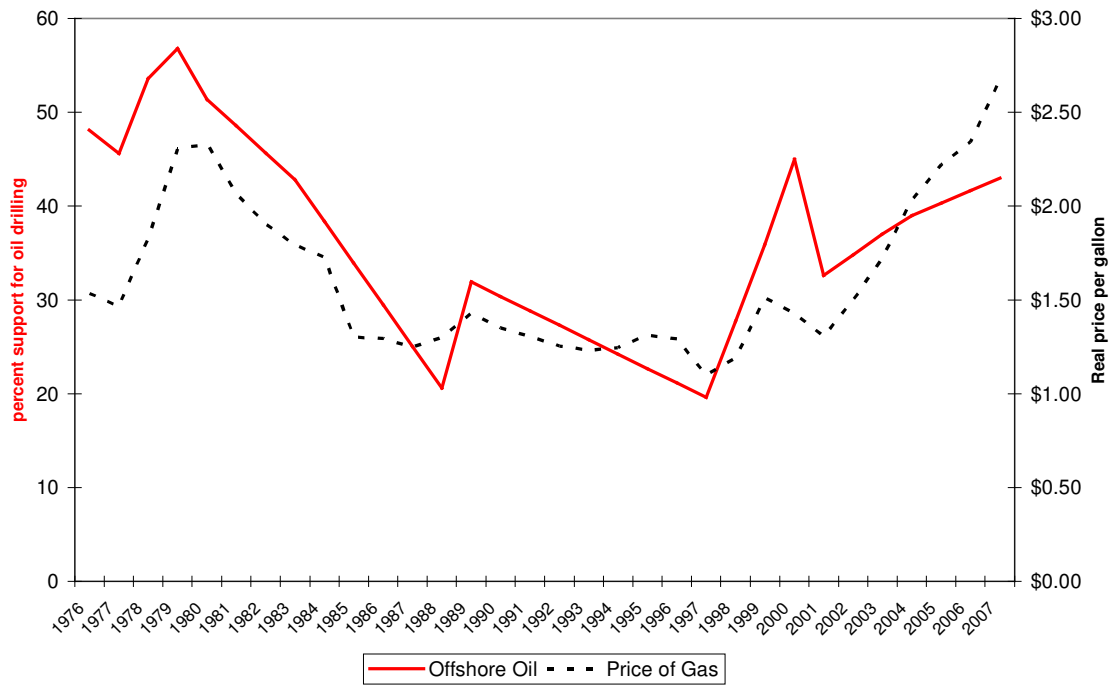


Table 1. Regression of Support for Offshore Oil Drilling

Variable	b	s.e.
Intercept	26.2**	7.6
Oil Price	13.3**	4.0
Exxon Valdez	-16.3*	6.8
Time	-0.5**	0.2

Adjusted R² 0.71

N 14

* p < .05

** p < .01

Table 2. Logistic Regression Model of Support for Offshore Oil Development, 1998 and 2001 data

	Model 1			Model 2		
	b	s.e.	sig	b	s.e.	sig
Intercept 1	-3.31	0.43	***	-3.48	0.38	***
Intercept 2	-0.98	0.41	**	-1.56	0.36	**
Income	-0.12	0.07	*	-0.13	0.06	*
Financial status	0.02	0.10	ns	0.05	0.08	ns
Education	-0.17	0.08	*	-0.19	0.06	*
Age	0.011	0.005	*	0.010	0.005	*
Female	-0.68	0.18	***	-0.52	0.14	***
Party Id	0.14	0.05	***	0.14	0.04	***
Ideology	0.02	0.06	ns	0.07	0.04	ns
Year	1.11	0.69	ns	1.64	0.26	***
Income - 2001	-0.02	0.11	ns			
Financial status- 2001	0.09	0.17	ns			
Education - 2001	-0.06	0.13	ns			
Age - 2001	0.03	0.12	ns			
Female - 2001	0.36	0.29	ns			
Party Id -2001	-0.01	0.06	ns			
Ideology - 2001	0.11	0.09				
Sample n	1,051			1,051		
McFadden's Pseudo R ²	0.10			0.10		
Somer's D	0.42			0.42		