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# Public Attitudes Toward Oil and Gas Drilling Among Californians: Support, Risk Perceptions, Trust, and Nimbyism

## Final Technical Summary

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**U.S. Department of the Interior**
**Minerals Management Service**
**Pacific OCS Region**

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# FINAL TECHNICAL SUMMARY

**STUDY TITLE:** Public Perceptions of Risk Associated with Offshore Oil Development

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**KEY WORDS:** Offshore oil development; Public opinion - California; Public opinion - energy; Trust in government; Risk perception; NIMBY; Cultural Values

**OBJECTIVES:** This report seeks to explain the public's support for domestic oil and gas development, the public's perceptions of the risks associated with oil and gas development, and their trust in the oil industry, its environmental critics, and its government regulators. Risk perception and trust are important because they drive public opinion and set the stage for the political battles over oil development.

The report begins by describing the trends in support for offshore drilling since 1977. It then focuses on explaining the surge of support for offshore oil drilling that accompanied the rapid increase in gasoline prices in 2000 and 2002. The following section examines support for oil

and gas development in the national forests system. We then digress briefly in the next section to examine a methodological question about how best to use a measure of cultural values to explain environmental attitudes. In the following section, we examine trust in the oil industry, its environmental critics, and its government regulators. In the final section, we examine the role that NIMBY ("not in my backyard") responses play in influencing public opinion about oil development, the public's trust in the oil industry, environmentalists, and government regulators, and the public's perceptions of risks associated with oil development.

The data for this report come from a series of public opinion polls of Californians, which were conducted between 1977 and 2002. The surveys were conducted by the Field Institute - a nonpartisan, not-for-profit public opinion research organization established by the Field Research Corporation - and by the Social Science Survey Center at the University of California, Santa Barbara. The samples were representative cross-sections of California adults with sample sizes ranging from 485 to 1,285. Respondents were selected by random-digit dialing, and interviewed in English or Spanish as appropriate. All analyses reported in this paper are weighted to match demographic patterns in the state.

**SIGNIFICANT CONCLUSIONS:** Contrary to the claims of some observers, the public's attitudes toward oil and gas development have varied over a wide range in the last twenty-five years. As recently as 1981, a majority of Californians favored more offshore oil drilling. Support for more drilling reached a low point of only twenty percent in 1998, but then it bounced back again, rising to forty-five percent in 2001, and then dropping to 33 percent in 2002. Support for drilling in California's forests and parklands followed a similar path, although with more shallow swings.

Self-interest clearly played a role in causing the changes in support for oil development. Support for drilling rose and fell with gasoline prices. In addition, support for more drilling rose most sharply between 1998 and 2001 among those who were most hurt by rising prices - people who were young, who had low incomes, and who commuted long distances to work.

Political leadership and the political orientations of the public also played a major role in causing the changes over time. The people who shifted most sharply in favor of more oil development as prices rose from 1998 to 2001 were Republicans and conservatives, whose political leaders were calling for more development starting in the 2000 presidential election.

When we turned our attention to attitudes toward the oil industry, environmental groups, and the government officials who regulate the oil industry, we found that environmental groups were liked and trusted far more than government regulators or the oil industry. In the case of the oil industry and environmental groups, we again found that political orientations play a major role causing attitudes. Republicans, conservatives, and individualists trusted the oil industry but not environmentalists. In contrast, Democrats, liberals and egalitarians responded in the reverse direction, trusting environmentalists but not the oil industry. Although government regulators were not as well liked or trusted as environmental groups, the public does not react to government regulators in political terms. That is, people's political party affiliations and ideologies only slightly influence their views of government

administrators. Although government officials are not as trusted as they might like, they are regarded as neutral.

Our examination of the claim that oil companies were falsely claiming shortages in order to increase gasoline prices showed that an overwhelming percentage of the public believes the accusation. In addition, belief in the price-fixing conspiracy does not seem to be caused by people's political orientations. Our data indicate that belief in oil industry conspiracies are shared by people of all political views. This widespread distrust may be a serious barier to political solutions to oil development problems.

The last part of this report examined the effect of living in the proximity of an oil well on attitudes toward the oil industry and the risks associated with oil drilling. Although we searched for Nimby ("Not in My Backyard") effects in several different ways, using two data sets from 1998 and 2002, we found nothing. Controlling for other causes of attitudes, we found that people who live near oil-drilling sites were not more likely than people living elsewhere to oppose drilling, to believe that drilling is risky, or to distrust the oil industry. To the contrary, despite its anti-oil reputation Santa Barbara residents in 1998 were actually more likely to support oil drilling and trust the oil industry than people living elsewhere in the state.

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Smith, Eric R. A. N. "Public Reaction to Energy, Overview." Cleveland Cutler, ed., *Encyclopedia of Energy, Volume 5*, 169-79 (Elsevier, 2004).

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# FINAL STUDY REPORT

## Introduction

The question of whether to permit more offshore oil drilling along the California coast has long been a controversial one. Resistance to offshore oil drilling began in response to the first offshore oil operation just south of Santa Barbara, California in 1896. Ever since - long before the modern environmental movement - the oil industry has met resistance to its efforts to drill along the California coast. Following the 1969 oil spill in the Santa Barbara Channel, the opposition to offshore oil development became stronger and more permanently organized. New groups such as "Get Oil Out" (GOO) formed and existing groups such as the Sierra Club focused more of their efforts on attempts to block oil industry activities along the coast. Massive protests were organized to demand that politicians and federal regulators end offshore oil drilling. Newspapers were deluged with letters attacking the oil industry. In every possible respect, Santa Barbara and the other coastal, oil-producing communities seemed to be responding with classic Nimby resistance to oil drilling (Molotch and Freudenburg 1996; Sollen 1998).

When the George W. Bush administration began to work to expand oil and gas development in the national forests beginning in 2001, signs of resistance to onshore development appeared in California as well. Environmental groups demanded that the no new drilling be allowed in the forests, letters began to appear in newspapers in national forest areas attacking the oil industry for attempting to open up the national forests, and legislation was introduced in Congress to block further development.

Public opposition to oil and gas development has had significant policy consequences. In 1982, Congress passed a one-year moratorium on further offshore oil leasing in federal waters off the California coast. Every year for the next decade, it extended the moratorium for an additional year. Responding to political pressure in 1990, President George H.W. Bush cancelled three offshore lease sales, and ordered that no more leases by sold until 2001. President Clinton upheld the order, and as of June 2004, President George W. Bush has upheld it as well. The state of California joined Congress in 1994, when it passed a law banning future offshore leases in state waters. In addition, the potential public reaction to new drilling probably played a role in the decisions of several oil companies not to develop thirty-six offshore leases which they purchased in the 1980s. Although it is too soon to tell, the growing opposition to drilling for oil and gas in the national forests may have some effect on oil and gas production from that source as well (Sollen 1998, 243-47).

Some politicians and environmental activists have claimed that Californians' opposition to oil development is overwhelming and unswerving. Public opinion polls, however, show a good deal of variation in the public's view of oil development over the years. From 1979 through 1981, during the nation's second energy crisis, a majority of Californians actually favored more oil and gas drilling off their coast. Since then, support for oil development has fallen, but it still changes a good deal over time.

What explains the rise and fall in support for oil and gas development? More broadly, what explains the public's attitudes toward oil and gas development in general - especially their perceptions of the risks associated with oil and gas development, and their trust in the oil industry, its environmental critics, and its government regulators? Those questions about risk perception and trust are important because they drive public opinion and set the stage for the political battles over oil development. We address all those issues in this report.

This report describes Californians' opinions about offshore oil and gas development. The report begins by describing the trends in support for offshore drilling since 1977. It then focuses on explaining the surge of support for offshore oil drilling that accompanied the rapid increase in gasoline prices in 2000 and 2002. The following section examines support for oil and gas development in the national forests system. We digress briefly to examine a methodological question about how best to explain environmental attitudes. In the following section, we examine trust in the oil industry, its environmental critics, and its government regulators. In the final section, we examine the role that NIMBY responses play in influencing public opinion about oil development, the public's trust in the oil industry, environmentalists, and government regulators, and the public's perceptions of risks associated with oil development.

The data for this report come from a series of public opinion polls of Californians, which were conducted between 1977 and 2002. The surveys were conducted by the Field Institute - a nonpartisan, not-for-profit public opinion research organization established by the Field Research Corporation - and by the Social Science Survey Center at the University of California, Santa Barbara. The samples were representative cross-sections of California adults with sample sizes ranging from 485 to 1,285 (see the data appendix for details). Respondents were selected by random-digit dialing, and interviewed in English or Spanish as appropriate. All analyses reported in this paper are weighted to match demographic patterns in the state.

We should also note that this study updates some of the information published in a previous MMS report, *Trends in Public Opinion on Offshore Oil Development in California* (Smith 1995), and in the recently published book, *Energy, the Environment, and Public Opinion* (Smith 2002).

## 1. Trends in Support for Offshore Oil Drilling

We begin our search for an explanation of attitudes toward offshore oil and gas development by examining trends in support over time. In addition to describing the ebb and flow of Californians' support for more drilling, we will use the trend data to get a first look at the causes of pro-development sentiment.

In this section, we first describe trends in support for offshore oil development. We then examine how public support for oil development corresponds--and is presumably influenced by--changes in the price of gasoline. After that, we turn to a comparison of

attitudes in 1998 and 2001. During these three years, oil prices shot up from a historic low to a substantially higher level in response to OPEC cuts in oil production. An examination of whose opinions changed gives us a useful look at the political sources of support and opposition to oil development.

## Opinion Trends over Time

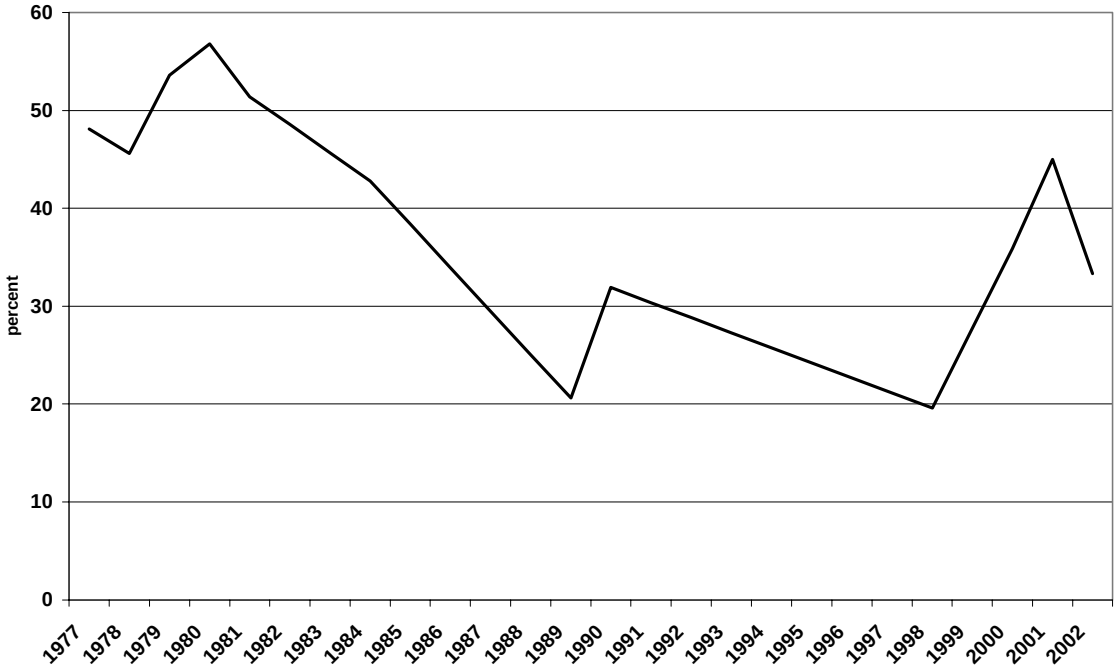
The earliest public opinion survey question about offshore oil drilling was asked in 1977. Respondents were asked to agree or disagree with the statement,

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

That question was asked eleven more times through 2002. Three possible answers were recorded—agree, disagree, and undecided. The percentage of undecided respondents varied from four to eight percent over the eleven surveys. The percentages of respondents favoring more oil and gas drilling are shown in Figure 1.

At the end of the 1970s, support for offshore oil drilling grew in California, peaking at 57 percent in 1980. This support was driven by the OPEC oil embargoes and the energy crisis of 1979/1980. After 1980, however, public support for offshore oil development along the California coast declined substantially. The decline in support for oil development from 1980 to 1998 was not smooth. Figure 1 shows a sharp drop in support for oil development between 1984 and 1989, and a bounce upward between 1989 and 1990. The overall trend of declining support in the 1980s seems to be the result of gradually declining oil prices, but the sharp drop in support in 1989 is no doubt the result of the *Exxon Valdez* oil spill in Alaska in March, 1989 - shortly before the 1989 survey was conducted. The Field Poll asked its 1989 question in July, when newspapers were still covering the oil spill clean-up efforts and various legal actions against Exxon. Consequently, the level of support for further coastal oil development that we see in 1989 differs from what it would have been had people not been thinking about the recent oil-related disaster. By 1990, the *Exxon Valdez* presumably no longer jumped to mind when people were asked about offshore oil drilling, so the polls registered an increase in support for drilling over 1989. However, we should note that the 1990 level of support is lower than the 1984 level. From a long-term perspective, the post-1980 decline in support for oil drilling can be seen to continue in both the 1990 and 1998 observations. The May 2001 survey shows a sharp increase in support for offshore oil and gas development. Support rose from the historic low of 20 percent in 1998 to 45 percent in 2001. The likely cause of the increase, of course, is the rapid increase in gasoline prices that began in 2000. As prices fell in 2002, so did support. The last survey we have shows that only 33 percent of the California public supported more offshore oil and gas drilling in 2002.

**Figure 1.** Support for Offshore Oil Drilling among Californians.




To explore the effects of the price of gasoline on support for offshore drilling, Figure 2 adds the real price of gasoline to the public opinion data.[1] Here we see a fairly reasonable fit between the two trends. When the price of gasoline rose in the late 1970s, so did support for offshore oil drilling. When the price of gasoline fell in the 1980s, support for offshore oil fell as well. The 1989 survey shows a sharp drop in pro-development feelings that is not matched by gasoline prices, but it does correspond to the *Exxon Valdez* oil spill. The post-1998 rise in support and drop in 2002 again parallels the rise in gasoline prices.

[1] The gasoline price data are for the average price of gasoline in real, chained (i.e., inflation adjusted) 1998 dollars. The data are from the U.S. Energy Information Administration, *Annual Energy Review 2002.* Washington, D.C.: Government Printing Office, 2003, table 5.22. These data are available on the web at: http://www.eia.doe.gov/aer/.

**Figure 2.** Support for Oil Drilling and the Price of Gasoline.


The public opinion data are not evenly spaced across time, so regression analysis and other more sophisticated multivariate statistical methods are not appropriate here. However, an analysis of national survey data on offshore oil drilling (reported in Smith 2002, Chapter 3) shows that changes in the price of gasoline and in the consumer price index (which are highly correlated) both do an excellent job predicting public support for oil development in time-series regression models.

We can sum up the trend data by saying that we do not see a public that is strongly pro-environmental or anti-oil drilling. Instead, we 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. The public was rationally responding to real world events.

## Who Changed Their Minds?

To learn more about what causes changes in support for oil and gas drilling, we will compare the results of the 1998 and 2001 surveys to examine the 25 percent increase in support for offshore oil drilling during those years. Although we cannot track individual change in opinion over that time period, we can examine how the patterns of support and opposition to oil development changed. The changes in those patterns will reveal what sorts of people changed most, and tell us something about what caused the changes.

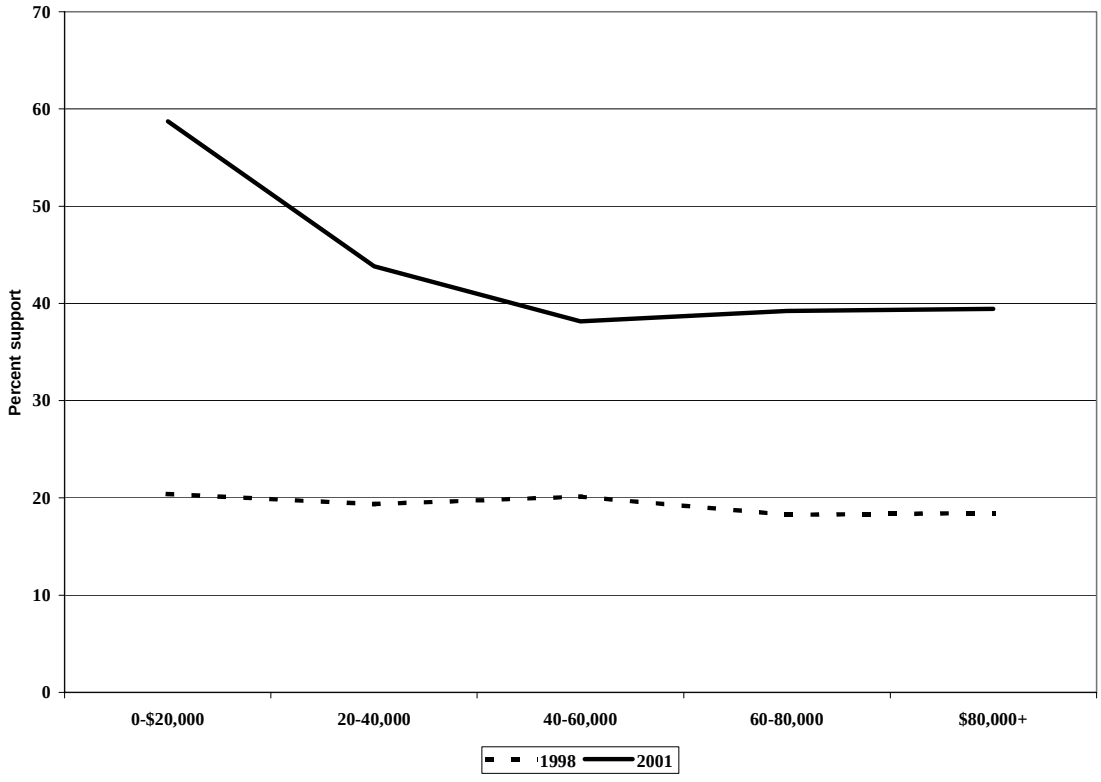
Broadly speaking two sets of factors seem to explain the changing pattern of attitudes toward offshore oil drilling: self-interest and political orientations. We will begin with an examination of the role of self-interest.

## The Self-Interest Explanation

The key indicator of self-interest is family income. People with the lowest incomes are most likely to be affected by the increase in gasoline prices because the increase represents a larger share of their household's disposable income. Upper-income people may not like paying more to drive their cars, but the increase certainly does not pose any kind of personal inconvenience.

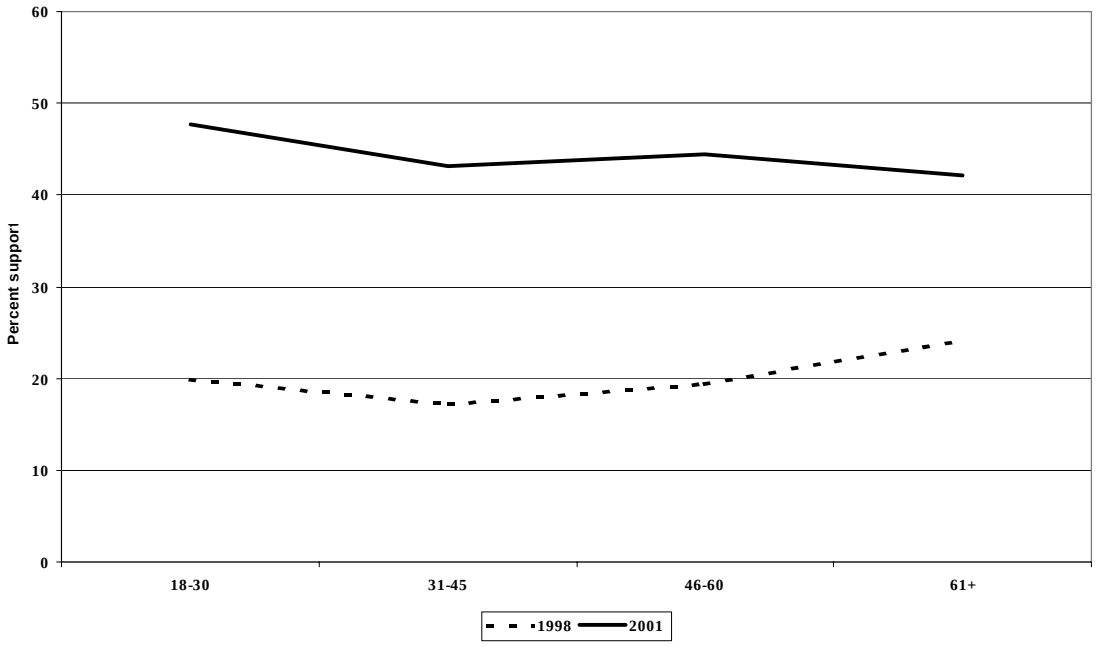
Figure 3 presents the patterns of support for increased offshore oil development by income in 1998 and 2001. The upper, solid line represents the percentage of support for oil drilling in 2001; the lower, dashed line represents the percentage of support in 1998. In 1998, there is clearly no relationship. About 20 percent of the respondents at every income level favored more drilling. In 2001, however, two things changed. First, the overall level of support for drilling increased among all income groups. Second, the level of support for drilling increased most sharply among those earning less than $20,000 per year. In that lowest income group, support increased by 38 percent, while in the other income groups, support increased 18 to 24 percent. The group being hit hardest by the gasoline price hikes responded with a surge of support for increased offshore oil drilling.

**Figure 3.** Support for Oil Drilling by Income, 1998 and 2001.



The influence of income can perhaps also be seen in the patterns of support for oil drilling by age. Normally, age is the most reliable predictor of pro-environmental sentiments (Jones and Dunlap 1992). The young lean in a pro-environmental direction (in this case, against oil and gas development), while the old lean toward pro-development stands. In Figure 4, however, we see a reversal of the usual relationship. In 1998, the young were less supportive of oil drilling than the old. Whereas only 20 percent of those thirty and younger favored more drilling, 24 percent of those over sixty favored more drilling. The relationship is not very strong, but it does fit the typical pattern of the young being more pro-environmental. In 2001, however, the relationship reverses. The young are the most supportive of more oil drilling, with 48 percent in favor. The old are the least supportive at 42 percent. Again, the relationship is not very strong, but that hides the fact that support grew 18 percent among the old, but 28 percent among the young.

**Figure 4.** Support for Oil Drilling by Age, 1998 and 2001.



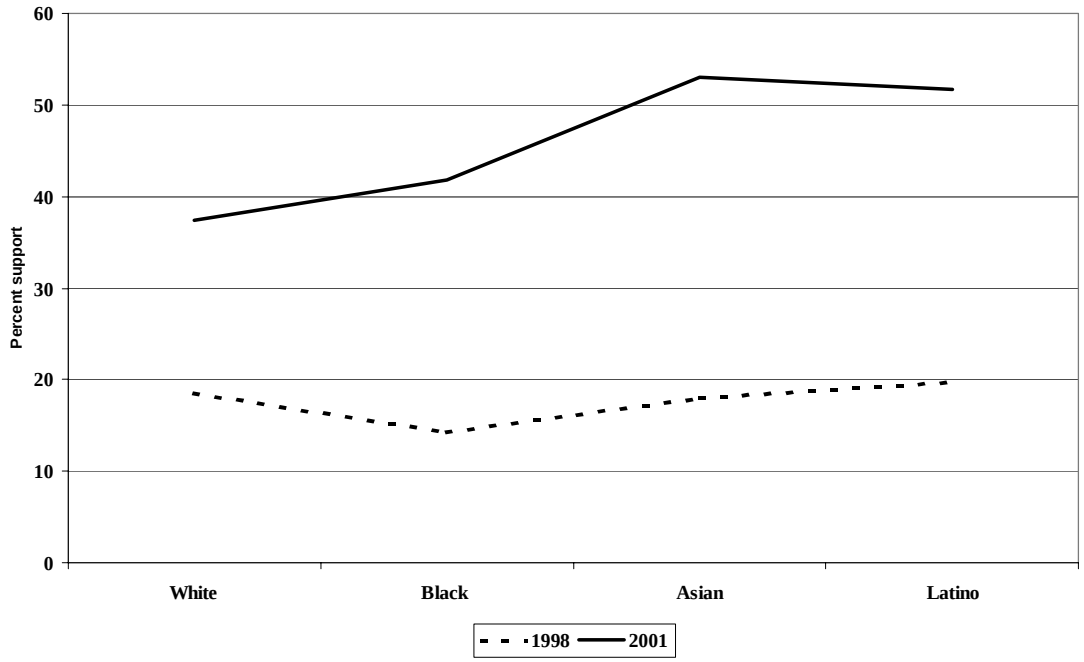

Why did the young move more strongly in a pro-drilling direction than older respondents? One part of the answer is probably that the young have lower incomes than older respondents. Among the youngest group in the 2001 survey, 27 percent fall in the lowest income category, and an additional 32 percent fall in the next higher category. Although those in the over-60 age group have incomes almost as low as the young, they drive far less. In the 1998 survey, 62 percent of the young drive to work, but only 12 percent of the oldest group do. In short, the rise in gasoline prices hit the youngest Californians the hardest, which seems likely to account for the jump in support for oil drilling among the young.

The influence of self-interest and income can also be seen in the changing patterns of support for oil drilling among different racial and ethnic groups. As Figure 5 shows,

whites - the group with the highest average incomes - changed the least between 1998 and 2001. In 1998, only 19 percent of Whites favored more drilling. Their support doubled to 38 percent three years later. In contrast, support for oil drilling grew by 27 percent among Blacks, 32 percent among Latinos, and 35 percent among Asians. Again, the lower income groups moved more strongly in favor of more oil drilling.

Because we have two surveys that asked questions of two different groups of respondents in two years, we cannot be absolutely certain about the causes of change. Nevertheless, the data on income, age, race, and ethnicity strongly suggest that two major causes of change in people's attitudes toward offshore oil drilling were self-interest and income. Low-income groups, who were hit hardest by the gasoline price hikes of 2000 and 2001, moved most strongly in favor of more offshore oil drilling. Middle- and upper-income groups also shifted toward a more favorable view of offshore oil drilling, but it would seem that because their incomes shelter them from the impact of higher prices, they shifted far less than lower-income groups.

**Figure 5.** Support for Oil Drilling by Race/Ethnicity, 1998 and 2001.




## The Political Orientations Explanation

The role of political orientations - such as party identification and ideology - is a bit more complicated than the role of self-interest. The argument about political orientations is that the extent to which 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 jump in on opposite sides, partisan and ideological differences in the public tend to be large.

The partisan and ideological differences in the public stem both from two causes. First, people respond to political leadership. When Democratic leaders take one side in a dispute and Republican leaders take the opposite side, they are teaching - or leading - their respective followers in opposite directions. Of course, when political leaders ignore issues, or when they agree about them, Democrats and Republicans in the general public tend toward similar views.

Second, people tend to bring their opinions on specific issues into line with their basic political values and predispositions *when they think about the issues*. Democrats and liberals tend to be egalitarian, and tend to lean toward pro-environmental stands when they begin thinking about issues. Republicans and conservatives, in contrast, share more individualist values, which lead them toward more pro-development positions. When issues do not receive much attention from the news media, people largely ignore the issues and, as a result, people's basic political values often do not match their opinions on specific issues. However, when issues do receive extensive media coverage, people think about the issues and, as a consequence, they tend to bring their opinions on specific issues into line with their overall political philosophies. (See Smith 2002, Chapter 5, for a more detailed presentation of this argument.)

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 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-labels. Figure 6 presents the data on party identification. The lower, dashed line shows the various levels of support for more oil drilling across the political spectrum in 1998. A partisan difference clearly existed, but it was not very large. Whereas 13 percent of the strong Democrats supported more oil and gas drilling, 30 percent of the strong Republicans supported it. In 2001, however, the differences were far sharper. Among strong Democrats, support for more oil drilling had grown to 21 percent, but among strong Republicans, it had grown to 72 percent - a 42 percent increase.

**Figure 6.** Support for Oil Drilling by Party Identification, 1998 and 2001.

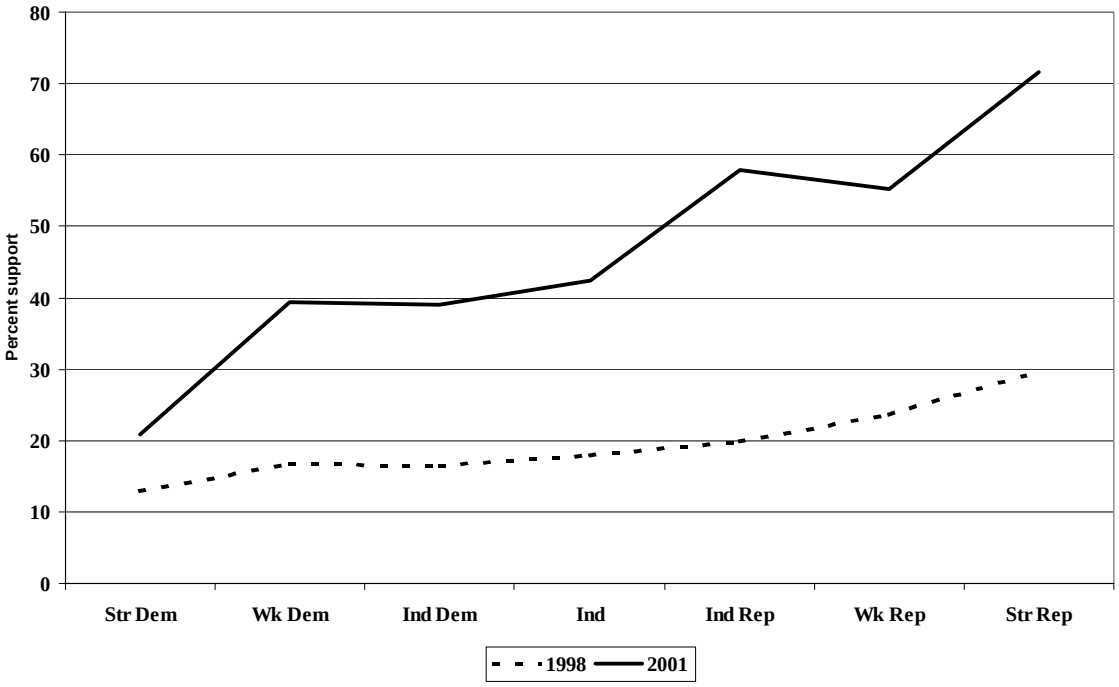
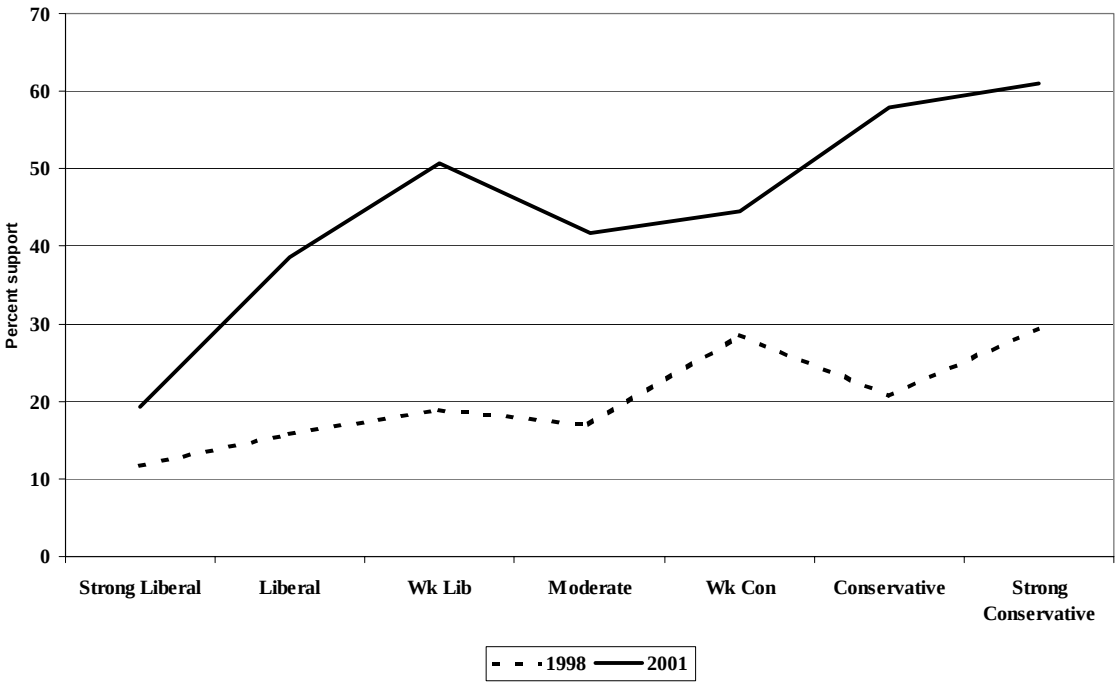



**Figure 7.** Support for Oil Drilling by Ideology, 1998 and 2001.

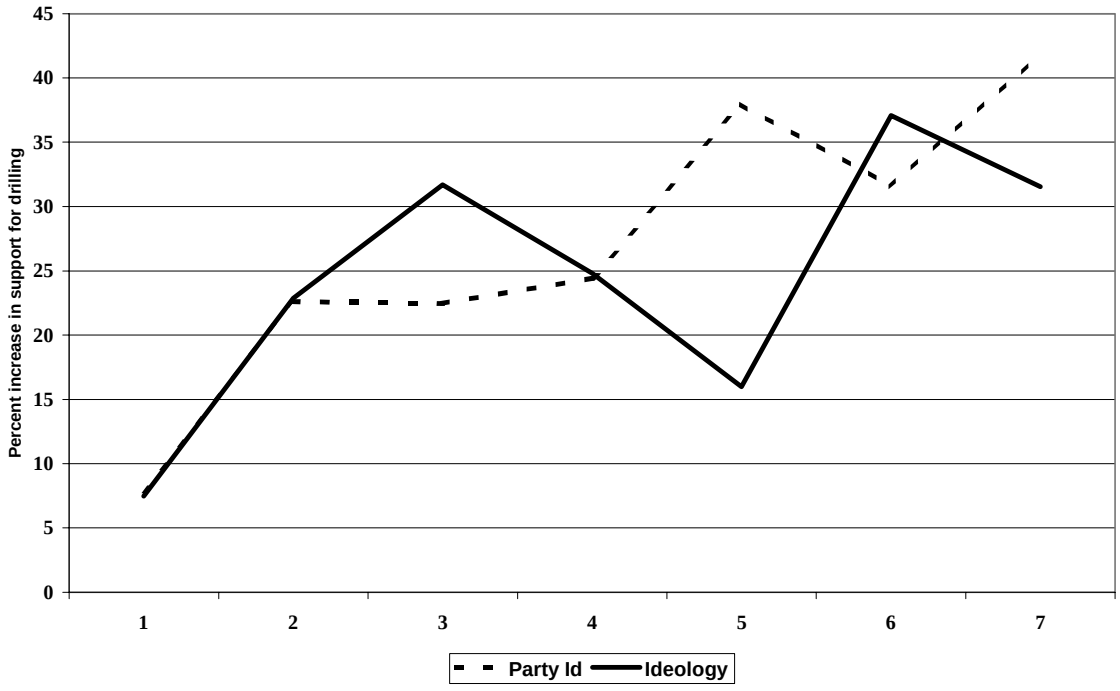



The picture is largely the same with ideology, shown in Figure 7. In 1998, 12 percent of the strong liberals favored more oil drilling, while 30 percent of the strong conservatives favored it. Three years later, support for drilling among strong liberals had grown to 19

percent, while support among strong conservatives had shot up to 61 percent. What had been a low-key issue with modest partisan and ideological differences in 1998 became a high-profile, highly partisan and ideological issue in 2001.

Figure 8 presents the party identification and ideology data in a slightly different format. Instead of showing the levels of support for offshore oil drilling, Figure 8 shows the difference in levels of support between 1998 and 2001. Because both party identification and ideology are measured on 7-point scales, we can graph both relationships on a single chart. Point 1 represents strong Democrats and strong liberals; point 7 represents strong Republicans and strong conservatives. Here we see that the least amount of change - a mere 7 percent - occurred among strong liberals and Democrats at the left end of Figure 8. The largest change occurred at the opposite end of the political spectrum, among Republicans and conservatives. Political leadership and media attention produced a surge of support for more oil and gas development by Republicans and conservatives.

**Figure 8.** Growth in Support for Oil and Gas from 1998 to 2001.




## Conclusions

The data presented in this section allow us to draw several useful conclusions. First, the public responds rationally to events in the world. The public's views on offshore oil development are not fixed. They change when relevant conditions - such as the price of gasoline - change. In the 2001 survey, 45 percent of the California public supported more drilling along the coast of California, 46 percent opposed it, and 8 percent were undecided. That level of support represents a sharp increase over the level of support three years earlier, and it was doubtless due in large part to the corresponding increase in the price of gasoline.

Second, self-interest seems to be an important cause of the public's attitudes toward oil and gas development. The lowest income group in our survey, people earning less than $20,000 per year, moved most sharply in favor of more oil development. These, of course, are the people who would be hurt the most by higher gasoline prices. Similar shifts in favor of more oil and gas development can be seen in other low-income groups.

Third, political orientations seem to be another important cause of the public's attitudes toward oil and gas development. Republicans and conservatives increased their support for oil and gas far more than did Democrats and liberals. Previous research suggests that this happened because of two reasons. Republican and conservative leaders called for more oil development, while Democratic and liberal leaders opposed it. And Republican and conservative values are more predisposed to pro-development, free-market arguments than Democratic or liberal values.

Based on these considerations, we can conclude that future support for oil and gas development - both in California and elsewhere - will depend on the price of gasoline and on political leadership.

## 2. Public Support for Oil and Gas Drilling in California's Forests and Parks

Offshore oil drilling has been a perennial, hot-button issue in California politics ever since the disastrous, 1969 Santa Barbara Channel oil spill. Drilling for oil and gas in California's national forests has never received the same kind of attention from politicians, the news media, or even environmental leaders. Political observers might reasonably suspect that the public does not care about the issue, and is content to go along with the Bush administration's effort to open up national forests for more oil drilling. Surprisingly, the public does care - as a twenty-year long series of public opinion surveys shows.

Political opposition to drilling for oil and gas in the national forests is beginning to develop. Legislation has been introduced in Congress to ban oil and gas drilling in the Los Padres National Forest in California. Other anti-oil campaigns are gathering steam in New Mexico and elsewhere in the west. As a result of these efforts, it is possible that the dispute over drilling for oil and gas in the national forests will escalate into the same sort of controversy that surrounds offshore drilling. The basis for that potential controversy is public opinion.

In this section, we describe Californians' opinions about oil and gas development in public parks and forests. In order to put them in context, we systematically compare opinion on oil drilling in parks and forests with opinion on offshore oil drilling. We begin by describing current opinion and trends in support for more oil and gas drilling since 1980. We then examine the patterns of group support for drilling or oil in California forests. At every step, we find that public support for drilling in forests and for drilling along the coast are quite similar.

## Opinion Measures

In order to understand attitudes toward drilling for oil in parks and forests, it helps to compare them to attitudes toward offshore oil drilling. To do this, we use a pair of questions which appeared in all the surveys. In the early surveys, respondents were asked to agree or disagree with two statements about forest and offshore oil drilling. In the 1998 and 2002 surveys, respondents were offered four options - whether they agreed strongly, agreed slightly, disagreed slightly, or disagreed strongly. Of course, some respondents declined to answer the questions, and are recorded as "Don't Know." The statements were:

> "Current government restrictions prohibiting the drilling of oil and gas wells on government parklands and forest reserves should be relaxed."
>
> "Oil companies should be allowed to drill more oil and gas wells in state tidelands along the California seacoast."

Both statements are worded so that agreement supports more oil drilling. One result of asking questions in this format is that some people tend to agree irrespective of the content of the question (Couch and Keniston 1960). That is, people with weak opinions tend to agree with statements, no matter what the statements are. It follows that these questions probably tend to bias the results slightly in favor of drilling more oil. Had they been reworded in the opposite direction so that people were asked to agree with a ban or limit on future oil drilling, support for oil drilling would likely have been lower than the level shown by these questions.

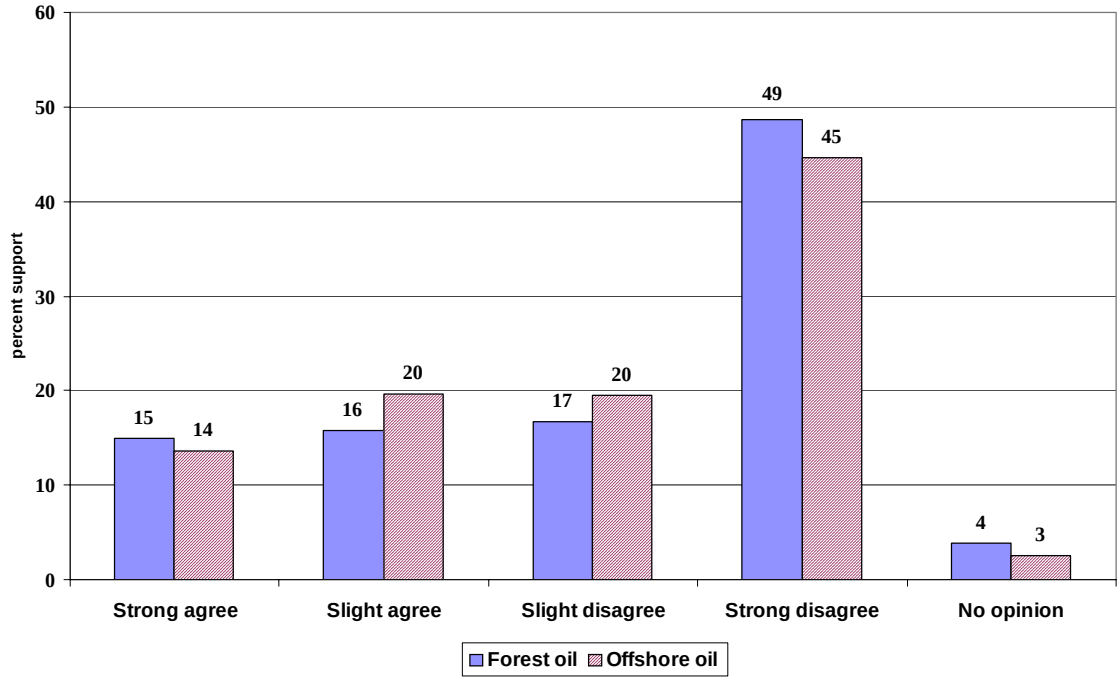
We should also point out that the expression, "drilling of oil and gas wells on government parklands and forest reserves" does not quite match the current political debate. Most of the "parklands and forest reserves" in California with any potential for oil development are, in fact, national forests. We cannot know what images that expression called to the minds of respondents, and so we have to note that the question might be biased in the sense that if the question were specifically about drilling in national forests, the answers might be different. However, the data show only minor differences between answers to the offshore oil and forest oil questions, so we presume that if there is a bias it is quite small. To simplify following discussion, we will refer to the "drilling of oil and gas wells on government parklands and forest reserves" question as the "forest drilling" question. Aside from the two oil-drilling items, all the other questions are worded in conventional ways. They and the details of their coding are reported in the survey questions appendix.

## Current Support for Oil Drilling and Trends over Time

Drilling for oil in parks and forest reserves, or off the California coast were both unpopular in 2002. As Figure 9 shows, about two-thirds of all respondents opposed both types of drilling, and about half opposed them strongly. Another fact revealed by Figure 9 is that opinions about forest and offshore drilling are quite similar. Indeed, the

distributions of opinion are so close that they are statistically indistinguishable from one another. They reflect the fact that answers to the two questions were highly correlated in individual each survey in which both questions were asked. For example, the Pearson's correlation between offshore and forest drilling in the 2002 survey is r = 0.59. Given that both questions have at least some measurement error, this is a very high correlation.

**Figure 9.** Support for Oil Drilling in 2002.




Not only were attitudes toward the two types of oil drilling similar in 2002, they have been similar since 1980, as the data in Figure 10 show. Here we see that although attitudes toward forest and offshore oil drilling (the two, dashed lines) are not identical, they do rise and fall together (with the exception of 1980-81). From 1981 to 1989, support for both types of drilling fell. In 1990, the year Iraq invaded Kuwait and started the Persian Gulf War, support for both types of oil drilling rose. In the war's aftermath, support for oil drilling fell through 1998. Finally, from 1998 to 2002, the popularity of oil drilling rose again.

**Figure 10.** Trends in Support for Oil Drilling and the Price of Gasoline.

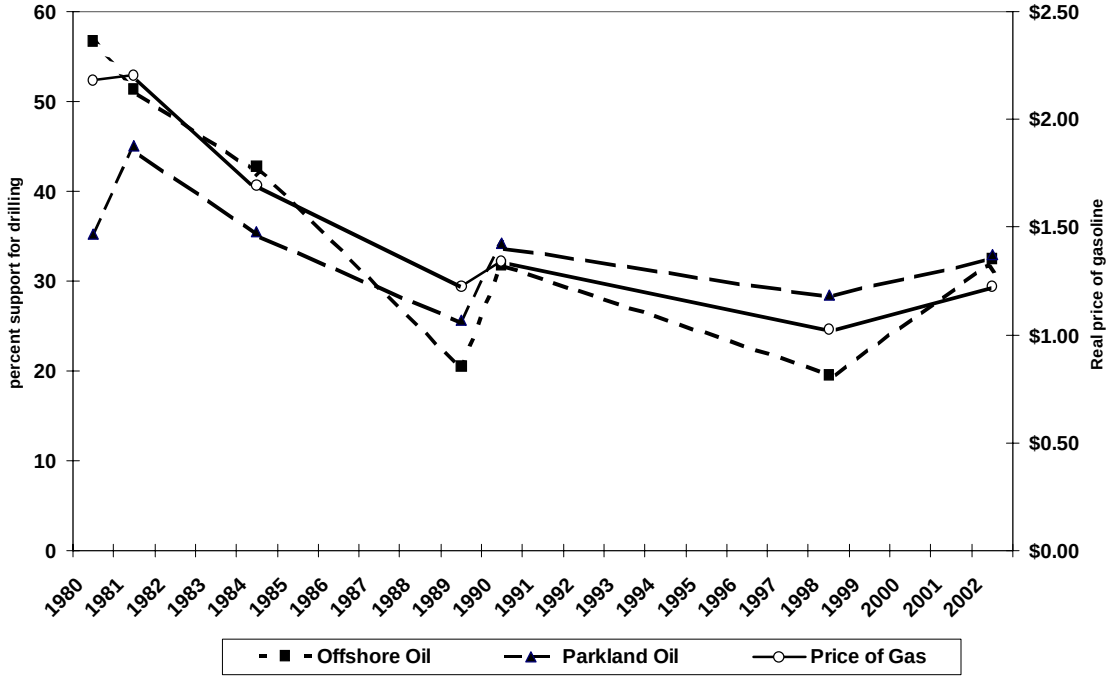



Figure 10 also reveals that opinions about offshore oil drilling changed more over time than did opinions about drilling for oil in parks and public forests. From 1980 to 1989, support for more offshore oil drilling fell 36 percent, but support for forest drilling fell only 10 percent. From 1989 to 1990, support for offshore drilling increased eleven percent, but support for park and forest drilling increased only nine percent. The 1990-1998 period saw support for offshore drilling decline by twelve percent, while support for park and forest drilling declined by only six percent. Finally, from 1998 to 2002, support for offshore drilling increased by thirteen percent, while support for park and forest drilling increase only four percent. In sum, support for more offshore oil drilling varied over a 37-percent range from 1980 to 2002, while support for more forest and parkland drilling only varied over an 11-percent range. Although we do not have solid evidence to explain these fluctuations, we can speculate that attitudes toward offshore oil drilling have swung more widely because offshore oil received far more news coverage and public attention. Drilling for oil in parks, and state and national forests received relatively little attention, so opinions on that subject remained relatively stable.

The gasoline prices shown in Figure 10 offer a likely explanation for the changes in attitudes toward oil drilling over time. Support for more oil drilling rises and falls with the price of gasoline. Some scholars have suggested that support for environmental protection is largely unaffected by the state of the economy. At least in this area, people's environmental opinions respond to economic fluctuations.

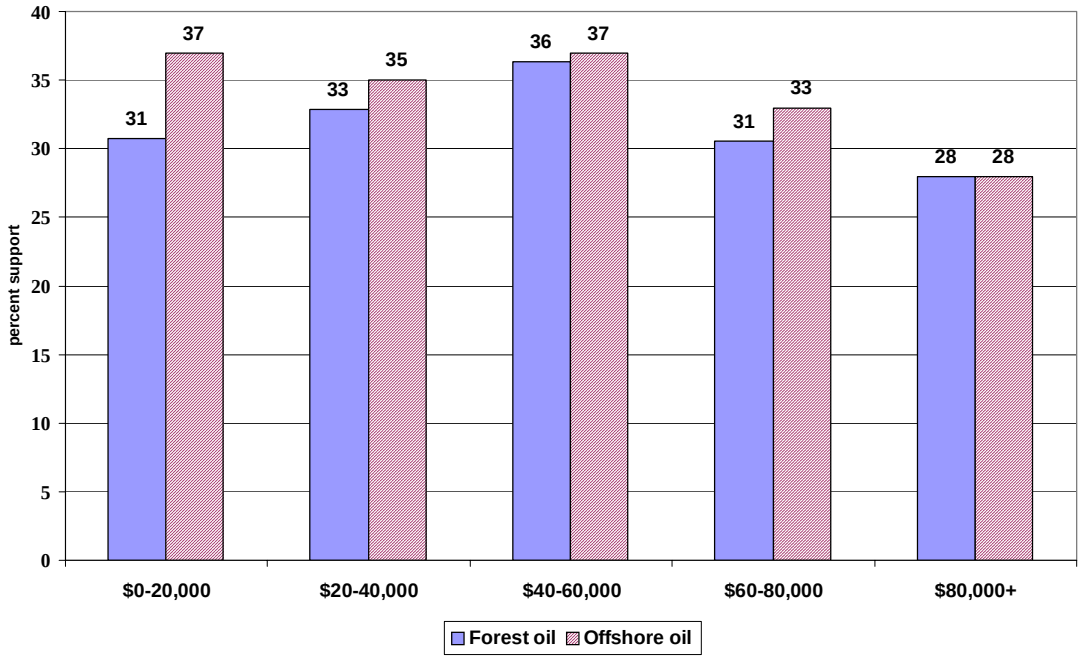
**Who Supports Drilling in Parks and Public Forests?**

When we look at the distribution of opinions toward oil development in parks and government forests at any one time, we find the typical pattern of attitudes toward most environmental issues (Guber 2003; Smith 2002; Van Liere and Dunlap 1980), and we find that attitudes toward forest drilling are fairly similar to attitudes toward offshore oil drilling. Although the level of support for oil development has changed over time, the pattern of supporters and opponents has held fairly steady across time--appearing from the 1980 to 2002.

A starting point for many studies of public opinion is self-interest. With environmental issues, the findings on self-interest have been mixed. In some cases, self-interest seems to drive opinion; in other cases, it seems to be unrelated to opinion. In the case of support for oil drilling, we have already seen that there is a pattern of rising and falling support that matches the price of gasoline. Two other indicators of self-interest, however, show no relationship to support for forest drilling in 2002.

The most commonly-used indicator of self-interest is family income. People with low incomes should be more affected by gasoline prices than people with high incomes because gasoline represents a larger share of their household's disposable income. Oil-industry advocates argue that increased oil drilling should cut the price of gasoline, so one might expect that family income and support for oil drilling would be related. Indeed, that is what we saw in Figure 3. Although income had no effect on support for drilling in 1998, when gasoline prices rose in 2001, people with the lowest incomes moved sharply toward favoring more drilling.

**Figure 11.** Support for Offshore and Forest Oil Drilling by Income.

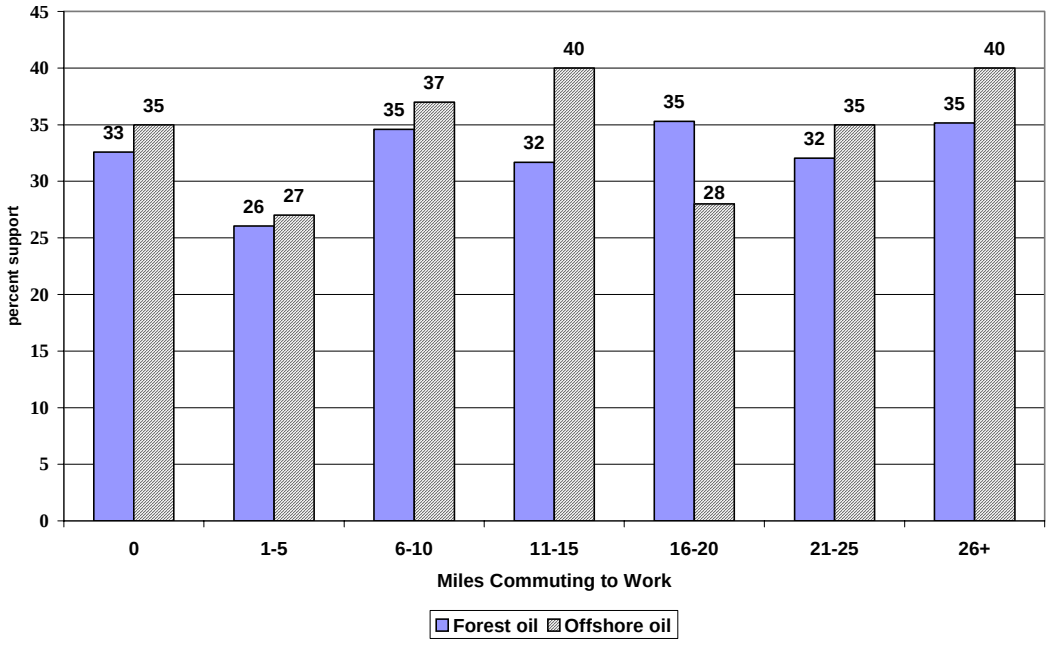



As Figure 11 reveals, however, that pattern faded away by 2002 as oil prices fell. Low income respondents seem to be slightly more inclined to support offshore oil drilling in 2002, but the difference is not statistically significant. In the case of forest drilling, middle income respondents may seem to be slightly more supportive of forest drilling than either low or high income respondents, but that difference also fails to reach statistical significance.[2]

Commuting distance of people who work is another indicator of self-interest. The greater the distances that people drive to work, the more gasoline they must buy. If self-interest drives public support for oil drilling, then we might expect to find a relationship between commuting and attitudes toward drilling. As Figure 12 shows, however, there is no relationship. There are some slight fluctuations in support for both forest and offshore drilling across the range of commuting distances, but statistical tests show that they are just random variation.

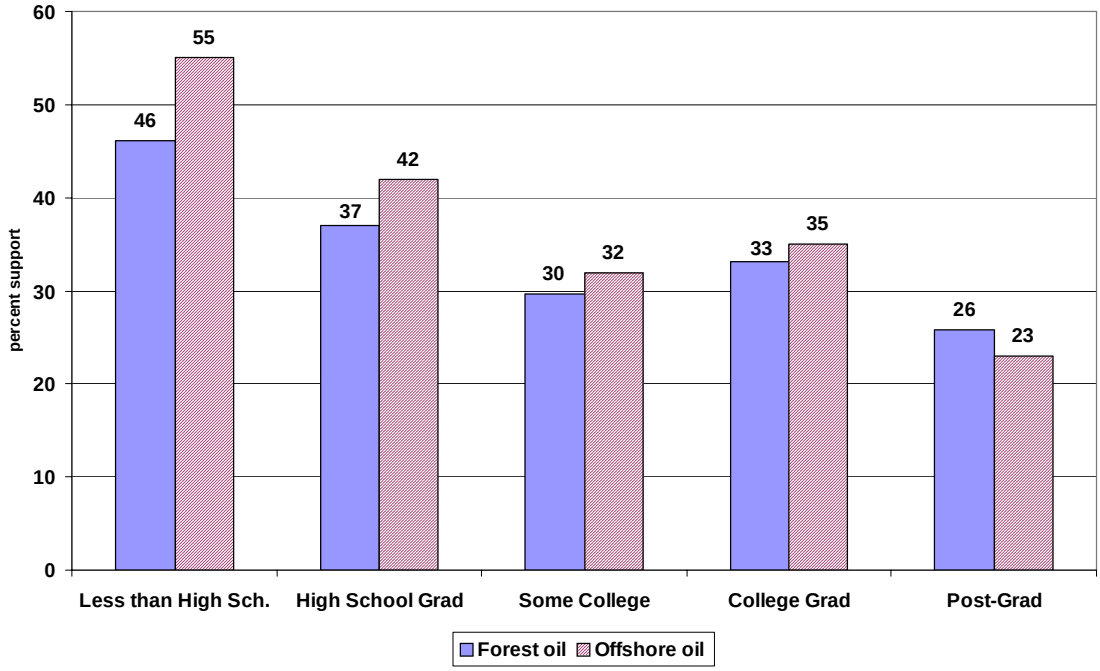
[2] We cannot examine attitudes toward forest drilling in 2001 because the question was not included in the survey.

**Figure 12.** Support for Oil Drilling by Commuting Distance.




Another, usually more successful, approach to explaining support for environmental issues is to look at education and age (Jones and Dunlap 1992; Van Liere and Dunlap 1980). Many studies have shown that education and age are the two demographic variables that are most consistently associated with attitudes toward environmental issues. This is because the well-educated and the young tend to be liberal on issues that turn on moral questions such as tolerance for free speech, for gays and lesbians, and for blacks and Latinos. Although environmental questions may seem to be inherently economic because they involve government regulations on the marketplace, most people seem to respond to environmental questions as if they were about religion and morals. On these sorts of issues, the well-educated and young tend to be liberal, while the poorly educated and old tend to be conservative (Smith 2002, Chapter 5).

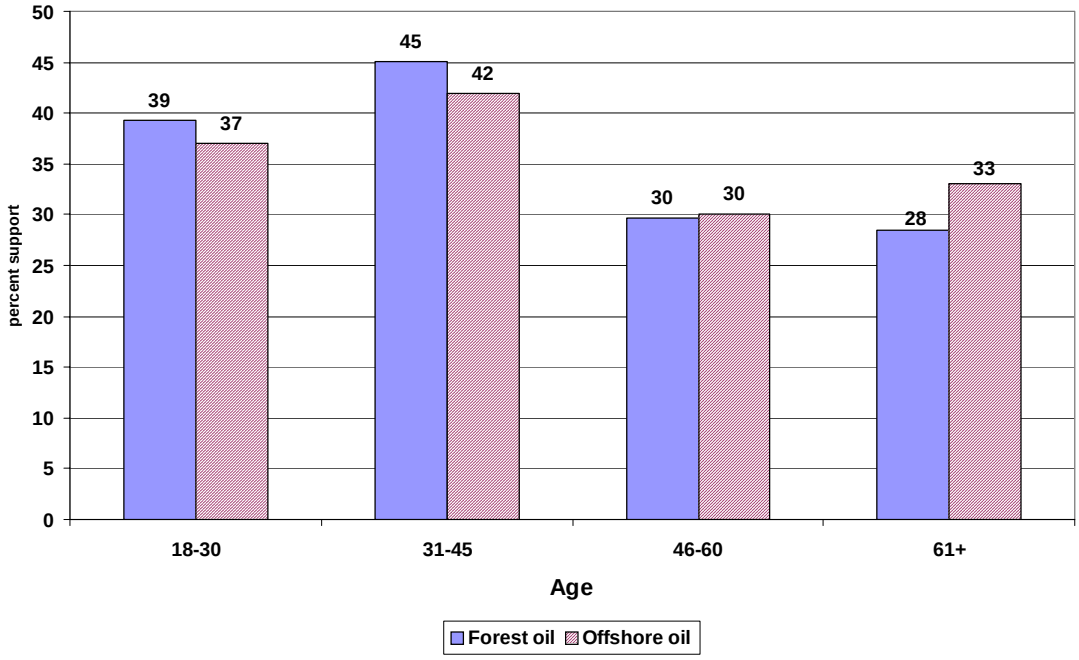
**Figure 13.** Support for Oil Drilling by Education.




As expected, Figure 13 shows a strong relationship between education and support for both forest and offshore drilling. While 46 percent of high-school dropouts favor more oil drilling in forests, only 26 percent of those with post-graduate degrees favor it. The gap is slightly larger for offshore oil development - 55 percent of the high-school dropouts favor it, while only 23 percent of those with post-graduate degrees favor it. Both relationships are strong and statistically significant. We should also point out that these relationships are politically important because better educated people tend to vote at a higher rate than do the poorly educated.

Contrary to expectations, the relationship between age and support for drilling does not appear. The youngest group, 18-30 year-olds, is less supportive than respondents who were 31-45 years old (which is what we would expect), but both older groups show somewhat lower support levels (Figure 14). Overall, the age data are not typical of most attitudes toward environmental issues. However, again we see that attitudes toward drilling in forests and offshore are quite similar.

**Figure 14.** Support for Offshore and Forest Oil Drilling by Age.




The final, and most important, characteristics we examine are political orientations. Party identification and ideology are generally the best predictors of environmental attitudes. Political disputes over how to protect the environment almost always see Democrats and liberals taking the pro-environment side, while Republicans and conservatives take pro-development stands. That pattern holds with both forest and offshore oil drilling. As Figure 15 shows, there is a sharp, partisan difference in opinions about oil development. While 58 percent of strong Republicans support more forest drilling, only 13 percent of strong Democrats support it. The levels of support for offshore oil are slightly higher, but the pattern is the same. In a similar vein, Figure 16 shows that about 60 percent of strong conservatives want more oil drilling both in forests and offshore, while only five or six percent of strong liberals agree. Partisan and ideological opinions on oil drilling are highly polarized.

**Figure 15.** Support for Offshore and Forest Oil Drilling by Party Identification.

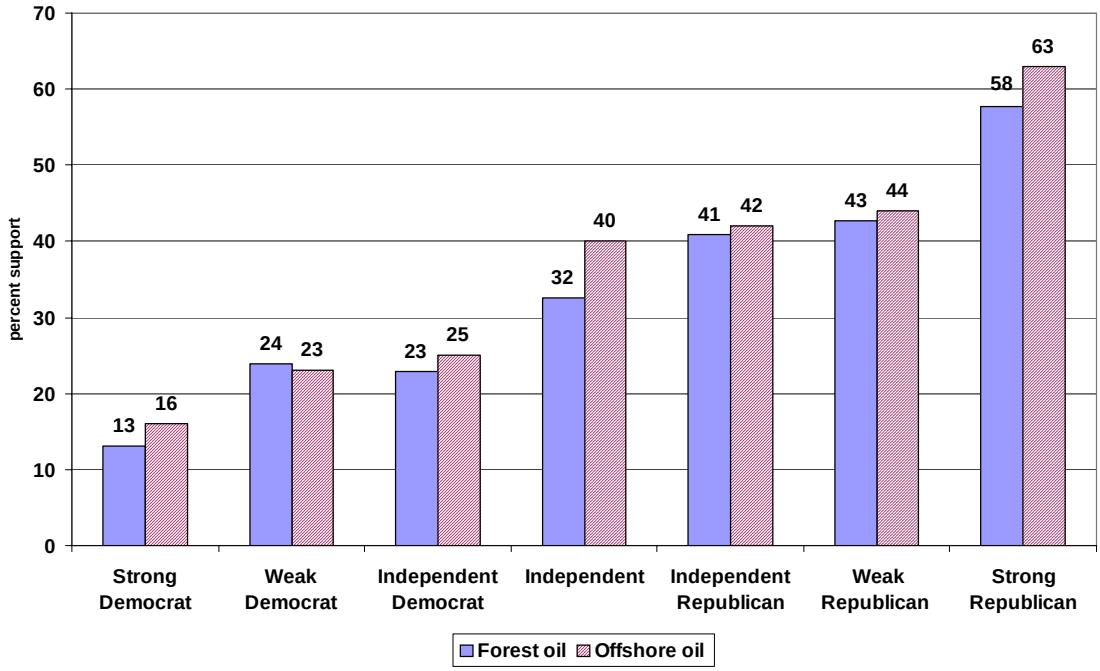
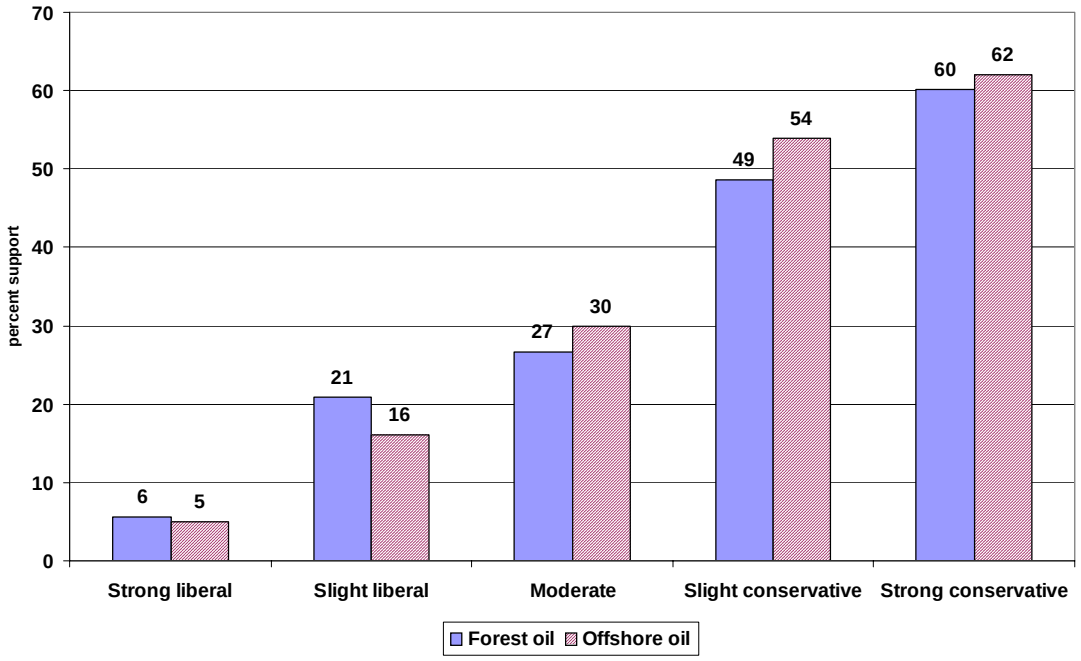



**Figure 16.** Support for Oil Drilling by Ideology.



## Concluding Comment

The data presented here show that Californians' opinions about offshore and forest oil drilling are very similar. Although offshore oil drilling has long been a contentious political issue in California, while drilling for oil in California's national forests has only recently become controversial, the public has responded to both issues in the same way for many years.

Because offshore oil drilling has received far more media attention for many years, we presume that people's opinions on that issue are more strongly held (our surveys did did not include measures of intensity of preference). Yet given the similar patterns of opinion on forest and offshore drilling, it seems that forest drilling has the potential to develop into a major conflict similar to the conflict over offshore oil drilling.

# 3. A Digression on Measuring Cultural Values

We now need to step away from our discussion of attitudes toward oil drilling in order to consider how we can best measure a pair of variables arising from cultural theory. These variables have been used by a number of researchers to explain environmental attitudes, but we believe that the conventional approach to using them is not the best. Because we will use these variables in the following sections of this report, we address their proper use here.

Since cultural theory was introduced by Mary Douglas (1966, 1970) it has become an influential explanation of why people choose which potential hazards to fear and which to ignore. In particular, it is often used to explain the rise of environmentalism (Douglas 1992; Douglas and Wildavsky 1982; Wildavsky 1991; Wildavsky and Dake 1990). Surprisingly, although one of its main proponents, Aaron Wildavsky, was a political scientist, little attention has been given to the relationship between cultural values and the concepts of ideologies and belief systems commonly used by political scientists. In this section, we explore that relationship.

We being by briefly sketching out cultural theory. We then examine the questions used to measure egalitarianism and individualism, and show that it may be better for researchers to combine them in a single index than to treat them as separate, unrelated variables. In the next section, when we discuss trust in the oil industry, its environmentalist critics, and its government regulators, we follow the path of treating cultural values as a single index.

## Cultural Theory

Cultural theory holds that patterns of social relationships are determined by two variables. The first, "group," is the extent to which people are incorporated into communities or other social groupings. The greater the incorporation, the greater the

group influence on individual decisions and the lesser the individual's choice. In strong groups, people interact frequently in a wide range of activities. In weak groups, people interact infrequently, and only in a few areas. The lack of interaction in weak groups limits the influence those groups have over people. The second variable, "grid," describes the social rules and norms regarding equality in social interactions. In high-grid communities, family status, sex, age or other characteristics limit the behavior and type of activities in which people may engage. In low-grid communities, few constraints exist. Everyone is free to engage in all social activities, and all are treated equally. The combinations of these two variables yield four patterns of social relationships, and corresponding worldviews and values that characterize all societies.

*Egalitarianism* stems from the combination of high-group and low grid. That is, communities in which members interact with one another frequently, and treat one another with equality have egalitarian worldviews. *Individualism* emerges in low-group, low-grid societies. That is, individualist societies are characterized by infrequent, but relatively equal interactions. Individualists believe that people should be on their own and not rely on others for material assistance. *Hierarchicalism* emerges in high-group, high-grid societies—that is, communities in which members interact with one another frequently, but take on rigid roles depending on their status or other characteristics. Hierarchicalists believe in strong social and moral guidance from their community leaders. *Fatalism* develops in low-group, high-grid societies - that is, communities in which people do not interact much, but in which society imposes constraints on how people behave. Fatalists see the world as threatening and uncontrollable, but feel they cannot turn to their community for help.

According to cultural theorists, the four worldviews are distinct types, and not opposite ends of a single spectrum. Each of these four cultural worldviews yields a characteristic response to hazards and threats in the world (Dake and Wildavsky, 1990; Douglas and Wildavsky 1982; Marris et al. 1998; Rayner 1992; Schwarz and Thompson 1990). Individualists tend to see lower risks than others see, and individualists are far more likely than others to accept risks in exchange for economic returns. Egalitarians are especially concerned with risks caused by what they see as inegalitarian institutions - big government and large corporations. They are also more likely to favor policies that reduce risks at the expense of economic growth. Consequently, these are the people most likely to fear nuclear power, offshore oil development, genetic engineering, and similar threats. Hierarchicalists fear threats associated with social or moral breakdowns - for example, war, terrorism, mugging, pornography, or AIDS. Fatalists basically fear everything because to them the world is a threatening place.

Two approaches to studying cultural theory have developed over the years. Some researchers rely on nonquantitative, anthropological methods when using cultural theory. Others prefer quantitative, survey-research methods, when using cultural theory. Our work, of course, addresses the survey-research side of the literature.

The survey-based method for measuring cultural worldviews is simply to develop sets of questions that reflect the various worldviews--individualism, egalitarianism, etc. In their

early work on cultural theory, for example, Wildavsky and Dake used a survey which asked respondents to agree or disagree with the following statements (Dake 1992, 31):

Individualism:

> "In a fair system, people with more ability should earn more."
>
> "A free society can only exist by giving companies the opportunity to prosper."
>
> "People who are willing to work hard should be allowed to get on."
>
> "In this country, the brightest should make it to the top."
>
> "If a person has the get-up-and-go to acquire wealth, that person should have the right to enjoy it."

Egalitarianism:

> "If people in this country were treated more equally, we would have fewer problems."
>
> "The government should make sure everyone has a good standard of living."
>
> "Those who get ahead should be taxed more to support the less fortunate."
>
> "I would support a tax change that made people with large incomes pay more."
>
> "I support government efforts to get rid of poverty."

These questions obviously reflect what many observers would call liberal-conservative ideology. The step from grid-and-group theory to Wildavsky and Dake's individualism and egalitarianism questions is a step from anthropological theory toward real-world politics. Of course, that is the purpose of their work--to explain patterns of behavior such as environmentalism. However, because their cultural values scales tap into recognizable aspects of liberal-conservative ideology, it becomes reasonable to ask what political scientists who study ideologies and belief systems can tell us about the cultural values scales.

**Ideology, Attitudes, and Political Knowledge**

An observation and a set of studies by political scientists may help us understand cultural theory better. First, the observation is that concepts of egalitarianism and individualism have long been used by political scientists, and they are considered to be central elements of liberal and conservative ideologies. Second, political scientists have shown that people with differing levels of political knowledge and sophistication organize their values and opinions differently. Together, these studies have implications for cultural theory.

Disputes over economic interests have always distinguished liberalism and conservatism. Liberals believe that the government should play a broad role in society, seeking to protect the poorer and more vulnerable citizens. In economic matters, this means that liberals are willing to curtail economic freedom and limit free markets in order to increase economic and political equality. Conservatives believe that the government should play a minimal role in society, except in areas where it is necessary to uphold traditional moral standards. In economic matters, they oppose government restrictions on businesses or individual behavior, preferring to let free markets determine economic outcomes. Some writers refer to these conflicting economic views as egalitarianism and individualism, and use questions similar to those quoted above to measure them (Dolbeare and Medcalf 1988; McClosky and Zaller 1988).

There is more to liberalism and conservatism than just positions on economic issues, of course. The two ideologies also differ on how government should address moral and religious issues. However, those matters are beyond the scope of this analysis.

When explaining differences between liberals and conservatives on economic issues, most political scientists point to economic self-interest as the main cause. Poor people lean toward liberalism (or egalitarianism), and wealthy people lean toward conservatism (or individualism) because those ideologies generally work to their economic advantage. For example, consider one of the egalitarianism items quoted above, "Those who get ahead should be taxed more to support the less fortunate." The economic interests in the question are obvious. Rich people would benefit from lower taxes; poor people would benefit from more government services.

We now turn to the findings that people with different levels of political knowledge and understanding organize their values and opinions differently. To explain these results, we begin with some background from Converse's (1964) seminal article on belief systems. Converse found that all but a small portion of Americans were essentially devoid of any political ideology. Specifically, he found that most Americans fail to use ideology to evaluate political parties and presidential candidates, to offer reasonable definitions of what liberalism and conservatism, or to demonstrate constraint or consistency among opinions on specific issues. Still, despite Converse's discouraging conclusion regarding the ideological innocence of most Americans, he did find that Americans who were well educated, politically knowledgeable, and politically active were more likely than other Americans to utilize such ideological concepts. Converse's results have stood the test of time. Although over the years we have developed a far better understanding of how much Americans know about politics, Converse's basic conclusions about Americans' lack of political knowledge have been supported (Gerber and Green 1998; Husted, Kenny, and Morton 1995; Lupia and McCubbins 1998; Smith 1989; Sniderman, Brody, and Tetlock 1991).

Building on Converse's work, Stimson (1975) found that individuals who possess higher levels of cognitive ability (his name for an index combining education and political information) demonstrate higher correlations between ideology, party identification and vote choice. For example, a liberal with a higher level of knowledge is more likely to

vote for the Democratic candidate than a liberal with a lower level of knowledge. The higher correlations indicate that ideology, party identification, and voting choices are more likely to fit together consistently among the better educated and more knowledgeable respondents.

Stimson also conducted a factor analysis and found that individuals with greater knowledge use fewer dimensions, with more predictive power, to structure their attitudes and candidate evaluations, whereas individuals with lower knowledge rely on more dimensions, with less predictive power. In practical terms, this means that people with low levels of knowledge often hold mixes of liberal and conservative beliefs, but people with high knowledge levels generally hold ideologically consistent opinions--all liberal, all moderate, or all conservative. Moreover, people with little political knowledge hold clusters of unrelated opinions--for example, one set of opinions on race issues, another on how to deal with criminals, another on tax issues, and so on. The opinions are often completely unrelated to one another, in part, because people with little knowledge often fail to recognize that liberal and conservative opinions conflict with one another. Stimson's work has also been supported by later studies. Other researchers have found that the better educated and informed people are, the more likely they are to organize their opinions into a single, liberal-conservative dimension and to ideology in political reasoning (Sniderman et al. 1991; Zaller 1992).

The question about cultural values that naturally arises from the belief systems literature is whether the cultural values are distinct and unrelated (as the cultural-values literature claims), or are related in ways that only the well educated recognize (as the belief-systems literature suggests). To address this question, we turn to our data.

## A Closer Look at Cultural Values

In order to learn more about cultural values, we used data from our 2002 survey of Californians (see the data appendix for details). Specifically, we examined responses to eight questions used to measure individualism and egalitarianism. Six of the were originally used by Ellis and Thompson (1997) in their study of cultural theory and environmental attitudes in the Pacific Northwest. We added two additional questions (the fourth and eighth items listed below) in an effort to improve their indexes. Although these questions are not the ones used by Wildavsky and Dake, they are substantively the same. More broadly, everyone who uses surveys to measure individualism and egalitarianism uses similar questions.

Survey respondents were asked, "Do you agree strongly, agree somewhat, disagree somewhat, or disagree strongly with the following statements?" The questions in the survey skipped back and forth between egalitarianism and individualism items, and their order was rotated. Here the items have been reordered so that the egalitarianism questions are the first four, and the individualism questions follow. The statements were:

"The world would be a more peaceful place if its wealth were divided more equally among nations."

"We need to dramatically reduce inequalities between the rich and the poor, whites and people of color, and men and women."

"What our country needs is a fairness revolution to make the distribution of goods more equal."

"Government regulation of business is necessary to keep industry from becoming too powerful."

"Competitive markets are almost always the best way to supply people with the things they need."

"Society would be better off if there were much less government regulation of business."

"People who are successful in business have a right to enjoy their wealth as they see fit."

"Competition, whether in school, work, or business leads to better performance and desire for excellence."

As a first step in the analysis, Table 1 examines the strength of the correlations among questions broken down by level of political knowledge. The knowledge scale is built by adding the correct number of answers each respondent gives to five questions recommended by Delli Carpini and Keeter (1996). Because of the small number of people who answered zero questions correctly, the zero and one-right categories have been combined. This is probably the most thoroughly tested and widely used knowledge index in current use. We can be confident that there is certainly a huge gap between the respondents at the two ends of the index.

Comparing the correlations among respondents with different levels of knowledge reveals the impact of political knowledge on how well people connect the ideas in the cultural values questions. For example, if a respondent were to agree strongly with the egalitarian statement, "The world would be a more peaceful place if its wealth were divided more equally among nations," then he or she should also strongly agree with the egalitarian statement, "We need to dramatically reduce inequalities between the rich and the poor, whites and people of color, and men and women." More broadly, if the cultural values are actually just another name for ideological beliefs, people who agree with egalitarian statements should reject individualist statements, and vice versa.

In terms of our theories, the cultural values literature suggests that egalitarianism and individualism are unrelated values, not opposites. That implies that the correlations within each worldview - egalitarianism or individualism - should be high, but the

correlations across worldviews should be low. The political behavior literature, in contrast, suggests that the correlations among the least knowledgeable should be low and mixed, while the correlations among the most knowledgeable should be high and positive.

**Table 1**. Correlations among Egalitarian and Individualist Questions by Level of Knowledge.

**Low Knowledge**

| | *Wealth* | *Reduce* | *Fairness* | *Regulation* | Competitive | Less reg. | Enjoy | Competition |
|---|---|---|---|---|---|---|---|---|
| **Wealth equal** | 1.00 | | | | | | | |
| *Reduce inequality* | 0.25 | 1.00 | | | | | | |
| *Fairness revolution* | 0.31 | 0.21 | 1.00 | | | | | |
| *Regulation necessary* | 0.11 | -0.05 | 0.21 | 1.00 | | | | |
| Competitive markets | -0.02 | -0.06 | 0.06 | -0.07 | 1.00 | | | |
| Less regulation | -0.19 | -0.08 | -0.11 | 0.11 | 0.01 | 1.00 | | |
| Enjoy wealth | 0.03 | -0.12 | -0.01 | 0.09 | 0.16 | 0.01 | 1.00 | |
| Competition best | 0.02 | 0.20 | 0.03 | -0.14 | 0.15 | -0.08 | 0.05 | 1.00 |
| ***Mean Correlation*** | ***0.04*** | | | | | | | |
| ***Mean absolute value*** | ***0.11*** | | | | | | | |

*Minimum n = 181*

**Medium Knowledge**

| | *Wealth* | *Reduce* | *Fairness* | *Regulation* | Competitive | Less reg. | Enjoy | Competition |
|---|---|---|---|---|---|---|---|---|
| **Wealth equal** | 1.00 | | | | | | | |
| *Reduce inequality* | 0.31 | 1.00 | | | | | | |
| *Fairness revolution* | 0.46 | 0.39 | 1.00 | | | | | |
| *Regulation necessary* | 0.13 | 0.20 | 0.21 | 1.00 | | | | |
| Competitive markets | 0.14 | 0.17 | 0.19 | 0.03 | 1.00 | | | |
| Less regulation | 0.03 | 0.12 | 0.00 | 0.29 | 0.06 | 1.00 | | |
| Enjoy wealth | 0.28 | 0.26 | 0.20 | 0.10 | 0.22 | 0.22 | 1.00 | |
| Competition best | 0.23 | 0.21 | 0.17 | 0.06 | 0.35 | 0.06 | 0.25 | 1.00 |
| ***Mean Correlation*** | ***0.19*** | | | | | | | |

*Minimum n = 254*

**Table 1 (continued).** Correlations among Egalitarian and Individualist Questions by Level of Knowledge.

**High Knowledge**

| | *Wealth* | *Reduce* | *Fairness* | *Regulation* | Competitive | Less reg. | Enjoy | Competition |
|---|---|---|---|---|---|---|---|---|
| **Wealth equal** | 1.00 | | | | | | | |
| *Reduce inequality* | 0.64 | 1.00 | | | | | | |
| *Fairness revolution* | 0.65 | 0.58 | 1.00 | | | | | |
| *Regulation necessary* | 0.47 | 0.46 | 0.47 | 1.00 | | | | |
| Competitive markets | 0.35 | 0.40 | 0.47 | 0.32 | 1.00 | | | |
| Less regulation | 0.33 | 0.34 | 0.27 | 0.50 | 0.39 | 1.00 | | |
| Enjoy wealth | 0.42 | 0.34 | 0.39 | 0.31 | 0.49 | 0.43 | 1.00 | |
| Competition best | 0.33 | 0.40 | 0.34 | 0.23 | 0.42 | 0.33 | 0.41 | 1.00 |
| ***Mean Correlation*** | ***0.41*** | | | | | | | |

*Minimum n = 218*

Note: Variables have been coded so that egalitarian responses are high.

In order to make Table 1 easier to read, all the results have been coded so that egalitarian and non-individualist answers are coded as high values, while non-egalitarian and individualist answers are coded as low values. This means that when most respondents answer consistently with pro-egalitarian or pro-individualist views, we will get positive correlations, but when they respond with mixes of egalitarian and individualist views, we will get negative correlations. In addition, the egalitarian items are in italics, while the individualist items are in regular font. Finally, in order not to overwhelm readers with five sets of correlation tables (one for each level of knowledge in the five-point index), we show only low, medium, and high levels of knowledge (i.e., for respondents scoring 1, 3, and 5 on the index).

The results in Table 1 support the political behavior view. The top panel shows the results for people scoring at the bottom of the political knowledge scale. Almost all the correlations are fairly low. The only exceptions are the correlations among the first three egalitarianism variables, which range from 0.21 to 0.31. Ten of the correlations are actually negative, which results from patterns such as people agreeing with one individualist statement but rejecting another. Most of the negative correlations are between pairs of egalitarian and individualist items, which means that many respondents either accepted or rejected both statements. This is what we would expect to see if the values of egalitarianism and individualism were not opposites, as the cultural values literature suggests. However, we see it only among the least knowledgeable people in our sample.

The bottom panel in Table 1 shows the results for the most knowledgeable respondents. Here we see a quite different picture. All the correlations are substantially higher than the corresponding correlations among the least informed respondents, and all are positive. This pattern reflects ideological consistency. That is, if respondents agree with the egalitarian values, they reject the individualist values, and vice versa.

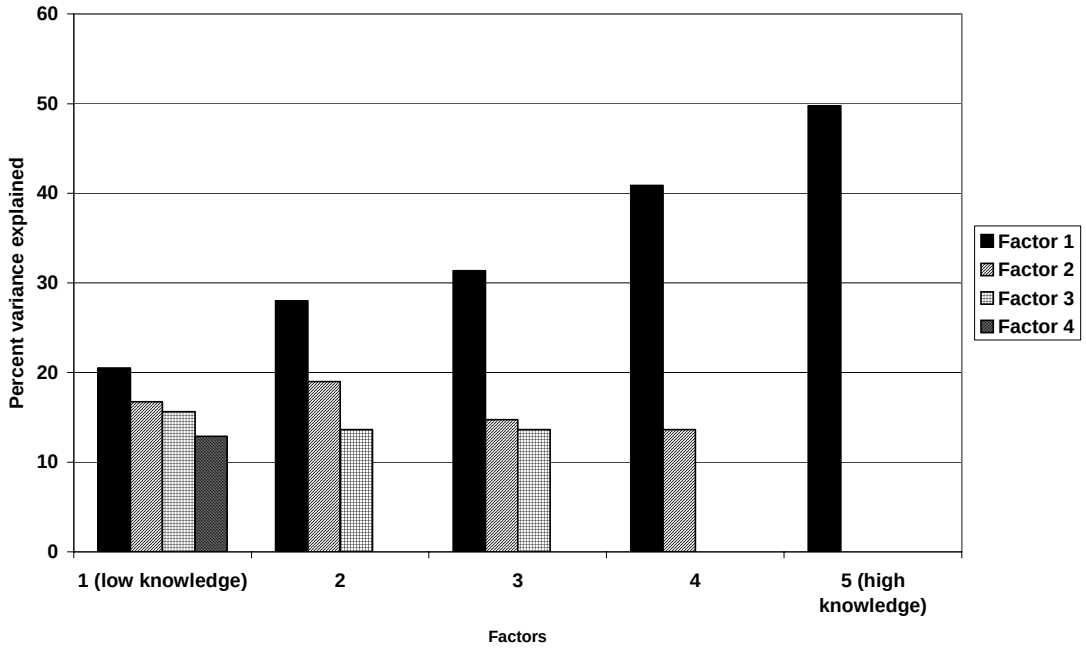
The mean correlations shown for each group summarize the results. The mean for the least knowledgeable respondents is 0.04 (or 0.11 if one disregards the direction of the correlations and considers only their absolute values). The mean correlation among the medium-knowledge respondents is 0.19, and the mean among the high-knowledge respondents is 0.41. The more knowledgeable people are, the better they connect the values.

As a second step in analyzing these data, we conducted an exploratory factor analysis of the cultural values items at each level of political knowledge. Factor analysis is a method used to search for and measure unobserved variables (the factors) that cause a set of observed variables such as answers to a series of cultural values questions. For example if a series of math questions were asked of students, and if ability at math is a single trait, then a factor analysis should show that one underlying factor. If a series of math and English questions were asked, and if math and English ability are different, then a factor analysis should reveal two factors. In addition, factor analysis can tell us how well each factor explains each observed variable.

If the cultural values approach is correct, we should discover that two underlying factors—egalitarianism and individualism—cause responses to the questions at all levels of knowledge. In contrast, if the political behavior approach is correct, we should see several factors operating at low levels of knowledge, but only and only one factor at high levels of knowledge. This pattern should appear because the opinions of people with little political knowledge should be scattered and chaotic. Because their political ideas are not well connected to one another, the factor analysis should reveal several underlying causes of opinions. The best informed people, however, should recognize that the cultural values questions are merely different aspects of liberal-conservative ideology, and they should consistently respond in a way that reveals their positions on that one underlying variable. In addition, the factor analyses should show that the answers of the respondents with little information are poorly explained, while the answers of the highly knowledgeable respondents are well explained.

As we see in Figure 17, the political behavior prediction is correct again. Each bar in Figure 17 represents a factor. The height of the bar indicates what percentage of the total variance in the eight questions is explained by the factor. The responses of people at the lowest level of knowledge are explained by four factors. The largest of these factors (represented by the bar on the far left of Figure 17) explains twenty percent of the variance in the answers to the cultural values questions. At the next two levels of knowledge, we see three factors and a growing percentage of explained variance. At the fourth highest level of knowledge, we see only two factors. At the highest level of knowledge, we see a single factor that explains fifty percent of the variances in the questions.

**Figure 17**. Factor Analyses of Cultural Value Questions by Knowledge Level.




The pattern of factors shown in Figure 17 is consistent with political behavior studies of political attitudes. Among respondents with the least political knowledge, we see a large

number of factors that do not explain responses very well. Among respondents with the highest level of knowledge, we see a single, liberal-conservative factor explaining responses.

In sum, we find that egalitarianism and individualism are actually opposite ends of the same underlying dimension, which is especially evident in those with higher levels of political sophistication. This finding is useful in explaining attitudes on environmental issues and trust in groups involved in environmental disputes, as we discuss in the next section.

## 4. Trust during an Energy Crisis

> "Gas Dealers Say They Aren't Guzzling Profits
> Service Station Owners Deny making more money because of price surges, but many motorists aren't buying it."[3]
>
> "Davis Orders State Agencies to Probe Soaring Cost of Gas"[4]

Headlines such as these regularly appear when energy crises strike and gasoline prices rise. The public reacts with annoyance and suspicion when gasoline prices rise, they call on politicians to do something, and politicians respond. Despite the fact that this pattern has repeated itself many times, there have been no systematic studies of trust during energy crises. In this section, we begin to explore public trust during an energy crisis.

We should begin by pointing out that public trust in the energy industry, its government regulators, and environmental group critics seems to provide a case in which the public's trust--or, rather, distrust--affects public policy. As we shall explain, the historic record shows the public responding to energy crises with growing distrust, and then demanding investigations and policy changes, which politicians deliver. In this sequence, the public's trust is an important endogenous variable. This differs from most research on trust, which treats trust either as a dependent variable (e.g., the studies in Hibbing and Theiss-Morse 2001), or as an independent variable (e.g., Bostrom 1999).

We begin by setting the stage with a brief historical background; we then report the results of an analysis of our 2002 survey of Californians. We seek to explain trust in the oil industry, its government regulators, and environmental groups. We also attempt to explain why some people believed that high gasoline prices during the energy crisis were caused by real oil shortages, while others believed that the high prices were caused by oil industry manipulation. To explain these attitudes and beliefs, we use demographic variables, measures of basic values (party identification, ideology, individualism, and egalitarianism), and measures of general trust in government in a series of regression

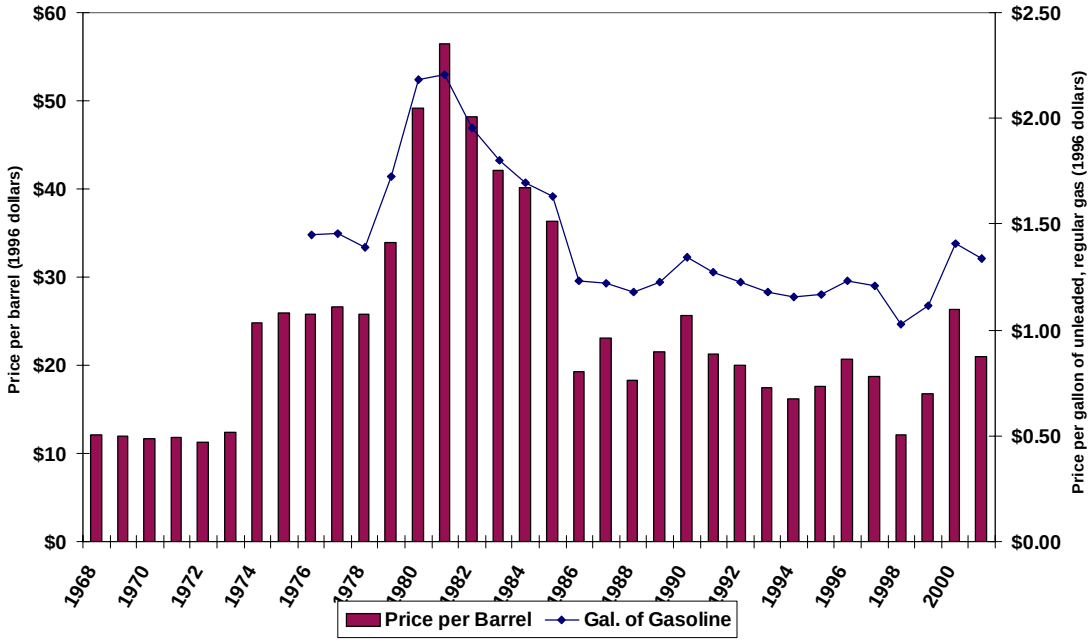
[3] Elizabeth Douglass, "Gas Dealers Say They Aren't Guzzling Profits." *Los Angeles Times* 11 March 2003, c1.
[4] Elizabeth Douglass, "Davis Orders State Agencies to Probe Soaring Cost of Gas." *Los Angeles Times* 14 March 2003, c2

mode and logistic regression models. We find that a combination of basic values and trust in government help explain people's trust during the energy crisis.

## The History of U.S. Energy Crises[5]

Since 1973, the U.S. has faced a series of energy crises related to the price of oil (see Figure 18). The first crisis struck in 1973 when Egypt and Syria launched a surprise attack on Israel on October 6, Yom Kippur. For the first few days, the attack seemed to be succeeding. To prevent Israel from collapsing, the United States responded with an airlift of supplies. The Arab members of OPEC, the Organization of Petroleum Exporting Countries, reacted to the U.S. intervention by voting to increase the price of oil by seventy percent, and a few weeks later by voting to begin a boycott of oil going to the U.S. and other Israeli allies. The price of gasoline jumped from three dollars a barrel to $11.65 in three months (Smith 2002, 24).

**Figure 18.** Prices of a Barrel of Oil and a Gallon of Unleaded Gasoline.




Data from the U.S. Department of Energy, *Annual Energy Review 2001*, tables 5.19 and 5.22

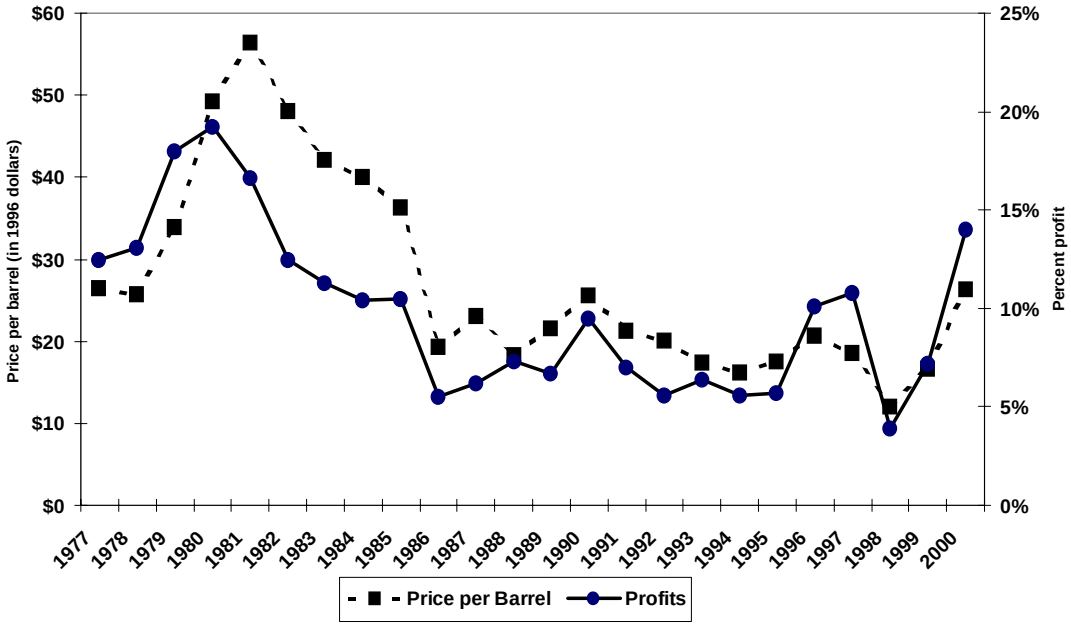
On the American home front, gasoline was both expensive and in short supply. The sight of lines at gasoline stations became commonplace. In some cities, police had to be stationed at gasoline stations to prevent violence. In the midst of this crisis, oil company profits shot up 52 percent. Politicians and consumer advocates suggested that the oil companies were manipulating prices to make money. Congress held hearings to investigate the charges. For its part, the public largely believed the charges. A 1974 Roper Poll asked, "Some people say there is a real shortage of gasoline and fuel oil because demand has outrun supply. Others say there really isn't a shortage of gasoline

[5] This section largely follows Smith (2002, chap 2).

and fuel oil and the big companies are holding it back for their own advantage. What do you think--that there is or is not a real shortage of gasoline and oil?" 73 percent said there was no real shortage (Richman 1979, 577). Other surveys told the same story: the public believed that the oil industry was conspiring to fix prices.

In 1979, the second energy crisis began. Throughout 1978, the Ayatollah Khomeini had been calling for increasingly violent demonstrations against the Shah of Iran. In December, those demonstrations peaked in violence that shut down the Iranian oil industry. The following month, the Shah fled Iran, leaving the country to Khomeini and his followers. Under the new regime, oil exports resumed, but they were inconsistent and at a far lower volume than before. In the fall of 1980, Iraqi leader Saddam Hussein invaded Iran, and the situation deteriorated sharply. Iran stopped exporting oil, and Iraq's exports were cut by seventy percent. Again, oil shortages developed, lines at gasoline stations appeared, oil industry profits soared (see Figure 19),[6] and politicians attacked the oil industry. In March 1979, a CBS/New York Times Poll asked, "Do you think the shortage of oil we hear about is real or are we just being told there are shortages so oil companies can charge higher prices?" Sixty-nine percent responded that they were just being told that shortages existed and another 11 percent said they were not sure. Only 20 percent believed the shortages were real (Richman 1979, 577-79).

**Figure 19.** Oil Company Profits and the Price of Oil.




Data from the U.S. Department of Energy, *Annual Energy Review 2001* , tables 3.10 and 5.19

The third energy crisis began with the Iraqi invasion of Kuwait in August 1990. The immediate effect of the invasion was to cut off the flow of Kuwait's oil to world markets, and to send oil prices surging upward. Because other OPEC nations increased production, oil prices moderated quickly and oil shortages largely disappeared by

[6] Figure 19 begins with 1977 data because the Department of Energy does not report oil company profits prior to 1977.

December. In January 1991, the United States military crushed the Iraqi army in the Persian Gulf War, but although Kuwait was liberated, the fleeing Iraqis set fire to over 730 oil wells--the last of which was not put out for nine months. During these months, gasoline prices rose, oil company profits sharply increased, the industry came under political attack, and pollsters found once again that a large portion of the public believed that the oil companies were conspiring to fix prices.

The most recent energy crisis began in the early months of 2000, with an OPEC decision to cut production and drive up prices. The OPEC move was timed to take advantage of the booming U.S. economy, and the fact that Americans were moving away from energy conservation toward more high-consumption lifestyles. The OPEC production-squeeze worked, driving prices from twenty-four dollars a barrel in January to thirty-four dollars a barrel by March. Along with soaring gas prices came greater profits for oil companies and charges that the oil industry was manipulating prices. Newspaper headlines such as "Chevron Earnings Soar on Higher Oil, Gas Prices" and "U.S. Questions Refiners on Gas Prices" drove home the point to the public (Moritsugu, 2000; Santa Barbara News-Press 2000).

In every energy crisis the U.S. has faced, we have seen a common sequence of events - the "energy-crisis cycle" (Smith 2002). The steps in the cycle are: (1) When foreign oil production is sharply cut, energy prices rise quickly - starting the cycle. (2) Along with increases in energy prices come large increases in the profits of energy producers. (3) Politicians and interest-group advocates criticize the energy industry for their greed in profiting at other people's misfortune, and charge them with manipulating prices to increase profits. (4) Most of the public believes the industry critics. They do not accept claims that the energy crisis is real, and so they feel justified in demanding that the government fix the problem without any cost to the public. (5) In response to public demands, some politicians seek to protect the public from high prices with price controls or subsidies - steps that worsen the crisis because they encourage energy consumption in a time of shortages. (6) Spokespeople for business interests join the debate with demands to relax environmental regulations in order to produce more energy. For them, the energy crisis is an opportunity to weaken environmental protections that reduce their profits.

This cycle is important not just because it is an interesting pattern in public opinion, but because policy changes have resulted from it. From energy price subsidies to oil industry regulations, public opinion about the energy industry has consequences.

## Explaining Trust

The central question we investigate here is, what explains Americans' trust in the oil industry, its regulators, and its environmental critics during the recent energy crisis. To explain trust, we need to present the theoretical justification for the variables we will use in our models.

We begin by considering some demographic variables. Past studies have found that age and education are commonly associated with environmental attitudes (Dunlap and Scarce 1992; Jones and Dunlap 1992; Van Liere and Dunlap 1980). As we discussed in earlier sections, the young and the well-educated are more likely to take pro-environmental stands than the old and poorly educated. We expect that environmental attitudes will translate into trust. That is, people who tend toward environmentalist views will trust environmental groups, and people who tend toward pro-development views till trust oil companies. (Their views on government regulators are not easily predicted from past research.) We also consider income to be a possible cause of trust because the rising price of gasoline during the energy crisis should have made it more difficult for lower-income individuals to afford gas. As a result, we expect lower-incomes to be associated with support for oil drilling and trust in oil companies. Likewise, we also consider miles commuted to work as important to consider for this study. Our logic is that those who travel a greater distance commuting to and from work will have experienced noticeably higher gas bills during the energy crisis. Consequently, those who travel a greater distance to work are more likely to support oil drilling and also more likely to view the oil industry negatively.

We also expect that party identification and self-identified ideology cause trust. Numerous studies show that Democrats and liberals in the general public are more likely than Republicans and conservatives to support environmental causes (Smith 2002). Moreover, many Democratic and Republican leaders have taken clear stands on opposite sides of oil development questions in recent years. Studies of roll call voting in Congress have shown that Democratic politicians lean toward environmental positions, while Republicans lean against them (Kamieniecki 1995). In addition, during the 2000 presidential election, Governor Bush argued in favor of oil development (most prominently in Alaska), while Vice President Gore opposed it (Bruni 2000; Mitchell 2000). Again, we expect these patterns to explain trust in environmental groups and oil companies as well.

An additional set of independent variables is suggested by scholars who have argued that egalitarianism and individualism are core American values, which help explain people's opinions on a wide range of issues (Feldman 1988; Feldman and Zaller 1992). In related work, Douglas and Wildavsky have claimed that the rise of egalitarianism and, to a lesser extent, the decline of individualism, explain the spread of environmental opinions in recent decades (Douglas and Wildavsky 1982; Douglas 1992; Wildavsky and Dake 1990). Their argument is that egalitarians are especially concerned with potential threats from what they see as inegalitarian institutions - big government and large corporations. According to Douglas and Wildavsky, egalitarians use environmental laws and regulations as vehicles to allow them to fight these enemies. Individualists, in contrast, defend large corporations and the profit motive as an essential aspect of free markets.

Although egalitarianism and individualism have been treated by previous studies as independent variables, the evidence we presented in the previous section shows that they are actually opposite ends of the same underlying dimension (although the people who do not know much about politics may not recognize the dimension). We therefore treat

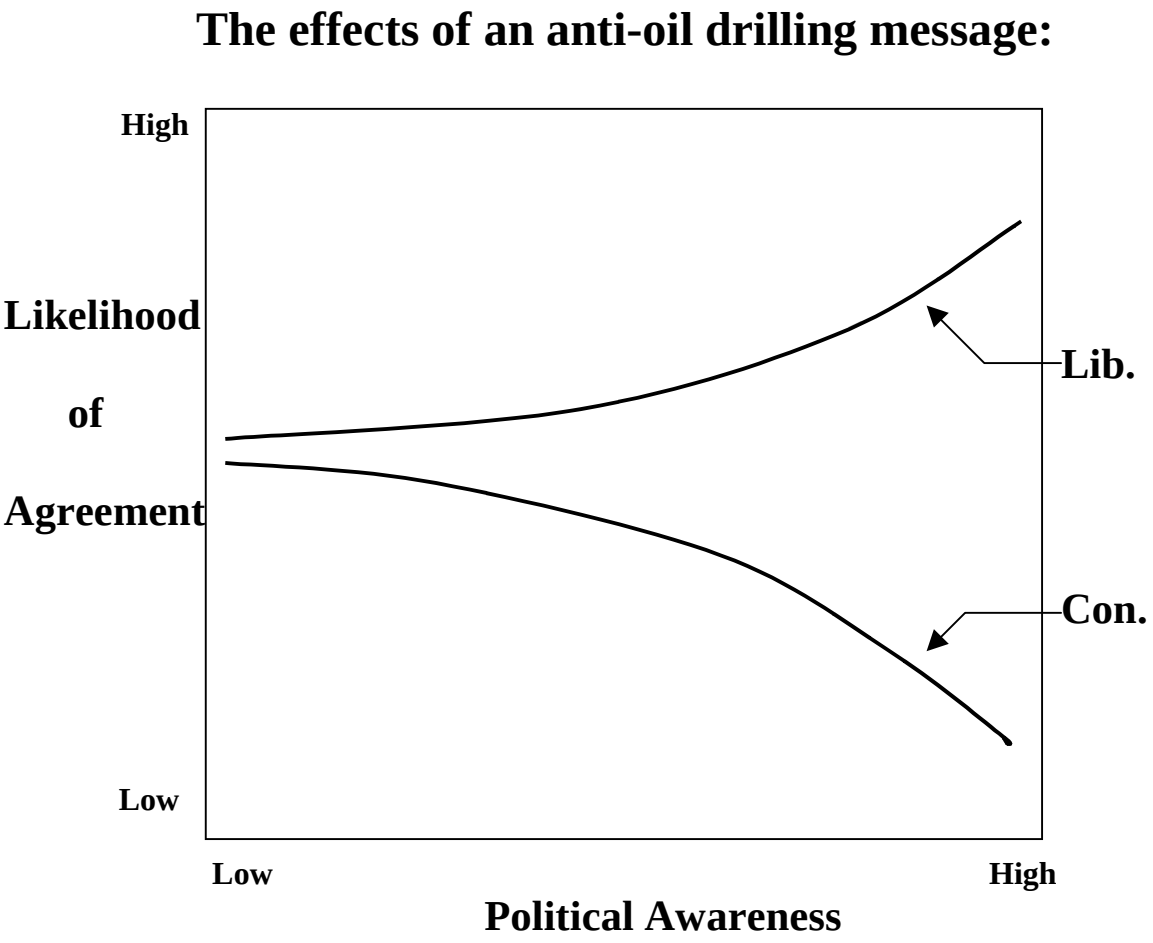
egalitarianism and individualism as a single variable which can be used to explain both attitudes on environmental issues and trust in groups involved in environmental disputes. Specifically, we use all the egalitarianism and individualism items to construct a single, additive scale.

We also believe that Zaller's "receive-accept-sample" (RAS) model is useful because it explains how people's basic values, or predispositions, along with their political awareness interact and contribute to subsequent political attitudes. This has been labeled by some scholars the "expertise-interaction effect." According to the RAS model, an individual who knows more about politics will be more likely than a poorly informed person to recognize whether or not the content of a particular message is consistent with his or her basic values. People are likely to accept messages that are consistent with their values, and reject messages that are inconsistent - if they recognize the consistency. Poorly informed people generally do not listen to political messages or understand whether the messages are inconsistent with their views, so their opinions tend to be similar—regardless of their basic values. In contrast, well informed people listen to political messages, accept messages that are consistent with their values, and reject messages that are inconsistent. As a result, people with different values (e.g., liberals and conservatives) differ sharply.

Figure 20 illustrates this relationship using a hypothetical example of liberals and conservatives reacting to an anti-oil drilling message. The horizontal axis on the graph is political knowledge and awareness; the vertical axis indicates whether the respondent is predisposed to believe the message. The upper curve in the graph represents liberals, and the lower curve represents conservatives. On the left side of the figure, we see that poorly informed liberals and conservatives hold fairly similar views. As knowledge increases, however, liberals and conservatives diverge more sharply. The greatest differences in opinion are between the best-informed liberals and conservatives. This is the expertise-interaction. Applying the RAS model to our problem suggests that interactions between basic values and knowledge should help explain trust in environmental groups and the oil industry, as well as attitudes toward environmental issues.

Finally, we use general trust in government to explain specific attitudes of trust in government regulators and in oil companies. Using one trust variable to explain another, of course, raises questions about causal order. That is, one might ask, how can we be sure that general trust in government causes trust in government regulators, rather than the opposite? We believe we are on safe ground on this issue because previous studies of general trust in government have shown that it is caused by which party controls government, by wars, by scandals, and by other large scale events (Abramson 1983; Citrin 1974; Citrin and Luks 2001). Few people in our sample will know anything about the government regulators of offshore oil development, so we feel confident in assuming that people develop general views on the trustworthiness of government, and apply it to specific areas when asked.

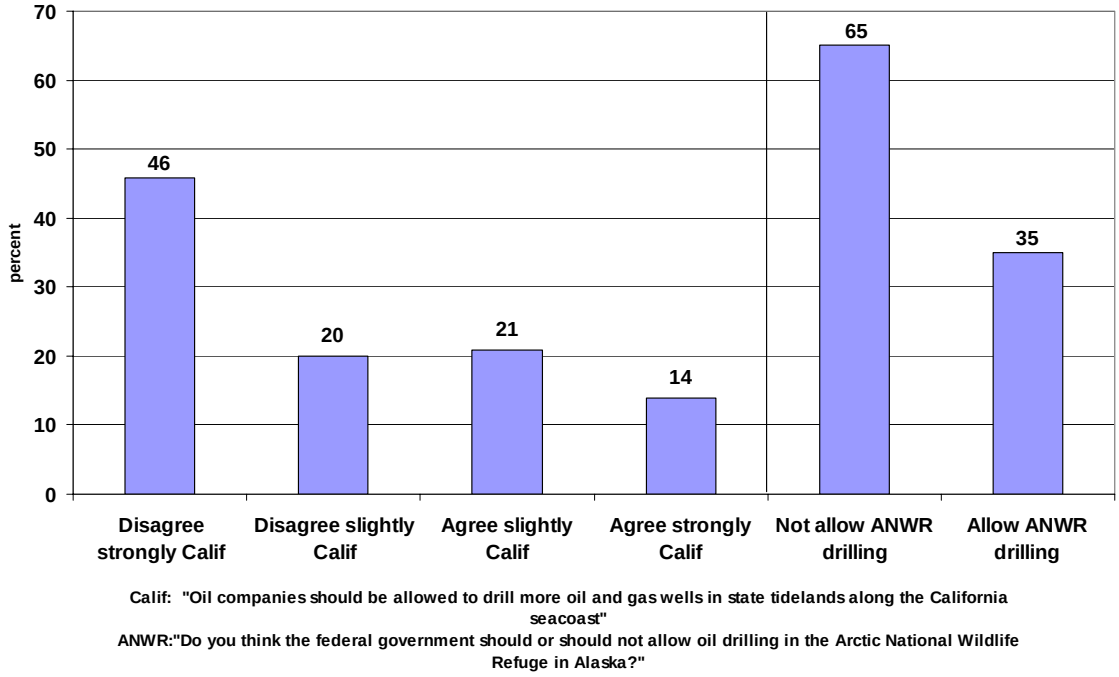
**Figure 20.** As political knowledge increases, the pattern of acceptance or rejection depends on predispositions.




**Measures**

Now that we have sketched in the explanation for our model, we need to discuss the specific measures we will use. For our dependent variables, we begin with support for offshore oil drilling along the California coast and oil drilling in the Arctic National Wildlife Refuge (ANWR). These data offer a baseline to help us interpret data on trust in oil companies. As Figure 21 shows, the California public opposes more oil drilling both off the California shore and in ANWR.

**Figure 21.** Support for Oil Drilling along the California Coast and in ANWR.




On the left half of the figure, we see that 66 percent of the respondents oppose more offshore drilling in California; on the right half of the figure, we see that a virtually identical 65 percent oppose drilling in ANWR.[7]

Feeling thermometers to measure respondents' views of the oil industry, environmental groups, and government officials who regulate the oil industry make up our second set of dependent variables. Figure 22 presents a collapsed version of the scales (0-9 are scored '1', 10-19 are scored '2', etc.). The midpoint, 5, represents only those who responded 50. The higher categories again represent ranges (51-59 are scored '6', 60-69 are scored '7', etc.). Figure 22 shows that the oil industry and its government regulators are regarded quite similarly, and not very well liked. The oil company mean rating is 42 degrees, and the government regulators' mean rating is 44 degrees. 48 percent of the oil company evaluations and 45 percent of the government regulators' evaluations are below 50. In contrast, environmental groups are rated more highly, with a mean rating of 62, only 22 percent of their ratings under 50 percent, and 62 percent of their ratings above 50.

The next variables directly measure trust by asking about confidence in Department of Interior officials in Washington, and about local Department of Interior officials in California to ensure that oil drilling along the California coast is safe. Those data are presented in Figure 23, which shows that local Interior Department staff are trusted far more than Washington staff. Fifty-three percent of the respondents said they had a "great deal" or "moderate amount" of confidence in local staff, but only 34 percent said they had a similar amount of confidence in the Interior Department's Washington staff.

[7] The ANWR question was written to match the wording of a question asked in a national survey, which is why it has only two response categories.

**Figure 22.** Feelings Thermometers for the Oil Industry, Environmental Groups, and Government Regulators.

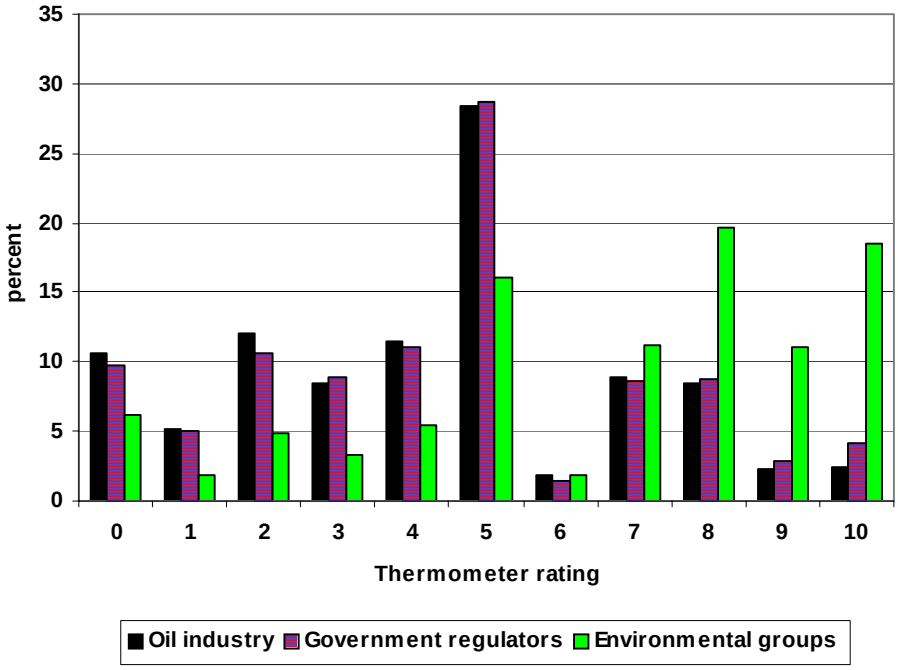
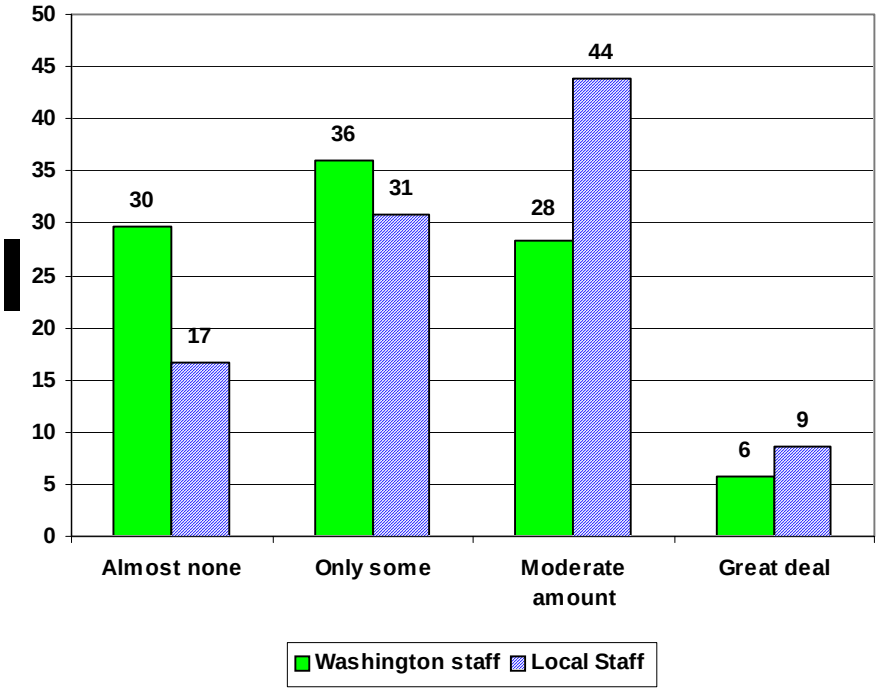



**Figure 23.** Confidence in Interior Dept. Staff to Regulate Offshore Oil Drilling.




Finally we come to our conspiracy question. Respondents were asked, "Do you think the high price of gasoline last year was caused by shortages of oil, or were we just being told

there were shortages of oil so oil companies could charge higher prices?" By an overwhelming 85-15 percent margin, respondents said that they believed the oil companies were manipulating gasoline prices.

For our independent variables, we used three core values as predispositions—party identification, self-identified ideology, and a cultural values index measuring individualism and egalitarianism. Six of the questions making up our cultural values index were used by Ellis and Thompson (1997) in their study of cultural theory and environmental attitudes in the Pacific Northwest (items 1-3 and 6-8 in the appendix). To this set of questions we added three others (items 4, 5, and 9) in hopes of improving the Ellis and Thompson indexes. Respondents were asked whether they strongly agreed, somewhat agreed, somewhat disagreed, or strongly disagreed with a series of statements. These questions were used to construct a simple additive index ranging from 0 to 27 with strong individualists scored high. The reliability (Cronbach's alpha) of the index is 0.74.

For our knowledge scale, we used a five-item additive index recommended by Delli Carpini and Keeter (1996). All our other variables are widely used, such as the trust in government questions from the American National Election Studies. We describe them in the appendix.

**Findings**

The results of the analysis of the first of the dependent variables, support for offshore oil drilling along the California coast and oil drilling in the ANWR, are displayed in Tables 2 and 3. While the categorical nature of the question about oil drilling in ANWR requires that we use a logit model for the second question about support, the independent variables are the same for each question. We present the results in three equations for each dependent variable. The first equation includes demographic variables and commuting distance. The second equation adds party identification, ideology, and the cultural values index. The final equation adds political knowledge and the cultural values-knowledge interaction term specified by Zaller's RAS model. We present the results in this way so that readers can see the relative impacts of the three groups of independent variables.

The first equation for offshore oil drilling along the California coast, shown in Table 2, yields typical findings for a model explaining attitudes toward environmental issues. The poorly educated and those who commute long distances are more likely to support additional drilling. In addition, older respondents are more likely than younger respondents to support it (as indicated by the positive coefficients). Income fails to achieve significance. Overall, the model performs poorly, explaining only 2 percent of the variance. The same equation for oil drilling in the ANWR, shown in Table 2, yields similar findings. When it comes to support for drilling in Alaska, income becomes a positive and significant factor. In addition, age increases in significance. Commuting distance, however, maintains a positive and significant relationship with attitudes towards

oil drilling. Similar to the model of support for offshore oil drilling along the California coast, this model of drilling in the ANWR explains very little variance.

**Table 2**: Regression Models of Support for Offshore Drilling in CA, 2002

| | (1) | (2) | (3) |
|---|---|---|---|
| **Variable** | b | b | b |
| Intercept | 1.24*** (0.14) | -0.09 (0.17) | 0.86*** (0.34) |
| Income | -0.03 (0.02) | -0.09*** (0.03) | -0.08*** (0.03) |
| Education | -0.12*** (0.03) | 0.01 (0.03) | 0.04 (0.04) |
| Age (decades) | 0.04* (0.02) | -0.001 (0.02) | 0.01 (0.02) |
| Commute Distance | 0.04*** (0.02) | 0.03 (0.02) | 0.02 (0.02) |
| Party ID (Republican High) | | 0.09*** (0.02) | 0.08*** (0.02) |
| Ideology (Conservative High) | | 0.09*** (0.02) | 0.08** (0.02) |
| Cultural Values Scale | | 0.06*** (0.01) | -0.004 (0.02) |
| Knowledge | | | -0.32*** (0.09) |
| Cultural Values x Knowledge | | | 0.02** (0.01) |
| | | | |
| Adjusted $R^2$ | 0.02 | 0.25 | 0.26 |
| N | 1149.0 | 761.0 | 761.0 |

***0.01<p, **0.05<p, *0.05<p<0.10

In the second equation in Tables 2 and 3, we can see that adding party identification, ideology, and the cultural values index slightly reduces the influence of the demographic variables and commuting distance in both questions of support, with the exceptions of income in the question of offshore oil drilling along the California coast and age in the question of oil drilling in the ANWR. In Table 2, income achieves a significant influence on support, while the other demographic variables and commuting become insignificant. In Table 3, age maintains its high level of significance, but education, age, and commute distance fall to insignificance. However, in both questions, party identification, ideology, and the values index achieve positive and highly significant influences on support for drilling in both California and Alaska. In other words, Republican party identification, conservative ideology, and values of individualism are powerful indicators of support for oil drilling, as our theoretical framework suggests. The addition of these variables

significantly increases the explanatory power of model to 25 percent in the model of support for drilling along the California coast, and to 26 percent in the model of support for drilling in ANWR.

**Table 3:** Logit Models of Support for Drilling in the Arctic National Wildlife Refuge in Alaska, 2002

| | (1) | (2) | (3) |
|---|---|---|---|
| **Variable** | b | b | b |
| Intercept | -2.16*** (0.29) | -5.92*** (0.55) | -4.07*** (1.02) |
| Income | 0.15*** (0.05) | 0.02 (0.08) | 0.02 (0.08) |
| Education | -0.14** (0.06) | 0.12 (0.09) | 0.11 (0.09) |
| Age (Decades) | 0.3*** (0.04) | 0.28*** (0.06) | 0.27*** (0.06) |
| Commute Distance | 0.09*** (0.03) | 0.06 (0.05) | 0.06 (0.05) |
| Party ID (Republican High) | | 0.21*** (0.05) | 0.21*** (0.05) |
| Ideology (Conservative High) | | 0.23*** (0.07) | 0.21*** (0.07) |
| Cultural Values Scale | | 0.14*** (0.02) | 0.02 (0.06) |
| Knowledge | | | -0.49* (0.28) |
| Cultural Values x Knowledge | | | 0.04** (0.02) |
| | | | |
| $X^2$ | 67.7 | 217.4 | 220.6 |
| Pseudo $R^2$ | 0.05 | 0.26 | 0.26 |
| Somers' D | 0.31 | 0.66 | 0.66 |
| N | 1102.0 | 731.0 | 731.0 |

*** 0.01<p, **0.05<p, *0.05<p<0.10

In the final equation in Tables 2 and 3, adding knowledge and the cultural values-knowledge interaction term slightly increases the variance explained by the model. More important, however, are the effects of knowledge and its interaction with the cultural values scale. In both questions of support for oil drilling, the cultural values-knowledge interaction term achieves significance while the cultural values index is weakened to the point of insignificance. This confirms our expectations about the expertise-interaction effects, showing that values and knowledge do interact in explaining support for oil drilling. In addition, party identification and ideology maintain their independent and significant effects in both questions, which indicates that each variable is tapping into

something different, and that both are important causes of support for oil drilling. While an analysis of support for oil drilling along the California coast does not directly tell us about trust during an energy crisis, it provides us with a useful baseline for comparisons.

The results of the analysis of our second set of dependent variables - feelings towards the oil industry, environmental groups, and government officials who regulate the oil industry - are displayed in Table 4. Using the same set of equations as in the model discussed earlier, we generally find that the same variables that cause support for oil drilling off the coast of California and in ANWR also cause trust in the oil industry, its government regulators, and their environmental group critics. The first equation, which includes only demographic variables and commuting distance, explains very little variance in trust in the energy industry, regulators, and critics. When it comes to feelings toward the oil industry, those who are poorly educated and who commute longer distances are more likely to feel warm. Conversely, those who are younger, have lower incomes, more education, and commute shorter distances are more likely to feel warmly toward environmental groups, findings that are consistent with models of support for environmental issues. Finally, when it comes to the government regulators of the oil industry, only age proves to be significant, with younger people feeling warmer.

**Table 4:** Regression Models of Feelings towards the Oil Industry, Environmental Groups, and the Government, 2002

| | **Oil Industry** | | | **Environmental Groups** | | | **Government** | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (1) | (2) | (3) | (1) | (2) | (3) |
| **Variable** | b | b | b | b | b | b | b | b | b |
| Intercept | 48.0*** | 25.1*** | 45.3*** | 70.1*** | 107.3*** | 98.2*** | 53.3*** | 55.5*** | 55.6*** |
| Income | -0.36 | -1.65* | -1.41** | -2.2*** | -0.51 | -0.37 | -0.57 | -1.06 | -0.78 |
| Education | -2.78*** | -0.81 | -0.54 | 3.86*** | 1.41* | 2.02** | 0.54 | 1.61* | 2.42*** |
| Age (decades) | 0.61 | -0.09 | -0.06 | -2.9*** | -2.04*** | -1.65*** | -2.09*** | -2.21*** | -1.77*** |
| Commute Distance | 0.90** | 0.48 | 0.39 | -0.91** | -0.95** | -0.95** | -0.58 | -0.34 | -0.38 |
| Party ID (Republican High) | | 1.55*** | 1.52*** | | -3.14*** | -3.01*** | | -0.92* | -0.79 |
| Ideology (Conservative High) | | 0.93* | 0.62 | | -1.06* | -1.05* | | 0.49 | 0.34 |
| Cultural Values Scale | | 1.19*** | -0.12 | | -1.86*** | -1.16*** | | -0.21 | -0.09 |
| Knowledge | | | -0.60*** | | | 1.01 | | | -1.89 |
| Cultural Values X Knowledge | | | 0.38*** | | | -0.19 | | | -0.02 |
| | | | | | | | | | |
| Adjusted $R^2$ | 0.02 | 0.19 | 0.19 | 0.05 | 0.38 | 0.39 | 0.02 | 0.03 | 0.04 |
| N | 1099.0 | 732.0 | 732.0 | 1099.0 | 732.0 | 732.0 | 1099.0 | 732.0 | 732.0 |

***0.01<p, **0.05<p, *0.05<p<0.10

In the second equation in Table 4, party identification, ideology, and the cultural values index prove to be significant factors explaining feelings toward the oil industry and environmental groups. Age and commuting continue to help explain feelings toward environmentalists. Respondents who were older and who drive longer distances to work like environmentalists less than younger respondents and those who drive less. Education and income fail to have any effects. In the case of feelings toward government regulators, the only demographic variable with any effect is age. Older respondents feel less warmly toward the government. Finally, we should note that the addition of party identification, ideology, and our cultural values index increases the explanatory power of this model considerably in the cases of trust in the oil industry and in environmental groups, but very little in the case of trust in government regulators.

In the final equations in Table 4, adding knowledge and the cultural values-knowledge interaction term produces very little change in any of the models. These variables only prove to be significant when it comes to trust in the oil industry, in which case ideology and the cultural values index become insignificant. In the model of feelings toward environmental groups, the only change that the addition of these variables produces is a slight increase in the significance of education and a slight increase in the variance explained. Similarly, little change is produced in the model of trust in government regulators, with the exception of an increase in the significance of education, a decrease in the significance of party identification, and a one percent increase in the variance explained. Based on these findings, we can conclude that the values measures - party identification, ideology, and the cultural values index - are powerful predictors of trust in the oil industry and its environmental critics.

The results of the analysis of our third set of dependent variables, confidence in the Department of Interior staff, are displayed in Table 5. Again we present the results in two steps. The first of the two equations used in this model includes demographic variables, commuting distance, and basic values. The second equation adds general measures of trust in government. We present the data in this way so that we can show the influence of values.

The results of the first equation, shown in Table 5, indicate that age is a significant indicator of confidence in both local and Washington, DC staff. In both cases those who are younger are more likely to have confidence in the Department of Interior staff. In the case of local staff, no other variables in this equation prove to be significant. When it comes to the Washington, DC staff, however, basic values prove to have significant impacts. Republican party identification, conservative ideology, and values of individualism all increase confidence in the Department of Interior staff. So we see that local regulators are regarded as nonpartisan and politically neutral, but Washington regulators are regarded as being at least somewhat partisan and ideological.

In the second equations in Table 5, we can see that the addition of measures of general trust increases the explanatory power of each model, and that the influence of value measures in the model of confidence in the DC staff diminish. The trust variables prove to have a significant influence in each case, with the exception of the attitude that

government is run by big interests. In other words, those who trust government and who feel that the people that are running the government are smart are more likely to have confidence in both local and Washington regulators. In addition, those who feel that the government is not run by big interests are more likely to have confidence in the DC staff.

**Table 5:** Regression Models of Confidence in the Department of Interior Staff to Regulate Oil Drilling along the Coast, 2002

| | **DC Staff** | | **Local Staff** | |
|---|---|---|---|---|
| | (1) | (2) | (1) | (2) |
| **Variable** | b | b | b | b |
| Intercept | 1.07*** | 0.58*** | 1.94*** | 1.38*** |
| Income | -0.04 | -0.04* | 0.02 | 0.02 |
| Education | -0.03 | -0.04 | 0.01 | 0.002 |
| Age (decades) | -0.05*** | -0.04** | -0.09*** | -0.06*** |
| Commute Distance | -0.02 | -0.02 | -0.02 | -0.03 |
| Party ID (Republican High) | 0.06*** | 0.03* | -0.01 | -0.02 |
| Ideology (Conservative High) | 0.05** | 0.03 | 0.00 | -0.01 |
| Cultural Values Scale | 0.01** | 0.01 | -0.01 | -0.01 |
| Trust in Government | | 1.02*** | | 1.11*** |
| Govt run for benefit of all | | 0.25*** | | 0.12 |
| People running govt are smart | | 0.19*** | | 0.18*** |
| | | | | |
| Adjusted $R^2$ | 0.08 | 0.19 | 0.02 | 0.12 |
| N | 705.0 | 614.0 | 705.0 | 614.0 |

***0.01<p, **0.05<p, *0.05<p<0.10

A key finding here is that the political variables - party identification, ideology, and cultural values—drop to statistical insignificance (although party identification achieves what some consider "borderline" significance at $p < 0.10$). So values are associated with trust in Washington regulators, but they work through general feelings of trust in government.

The results of the analysis of our final dependent variable, the belief that energy crises are fabricated by the oil industry, are shown in Table 6. In this case, we believe a single equation best presents the story. The results show that being younger and better educated makes people more likely to believe that the high energy prices were the product of a conspiracy. In addition, those who express trust for the government by saying that government is run for the benefit of all are more likely to *distrust* the oil companies. Finally, the expertise interaction has an effect. Those who lean toward individualism and are knowledgeable are more likely than others to believe that the oil companies faked the oil shortages and energy crisis.

**Table 6:** Logit Models of Perception of Energy Crisis as a Conspiracy Constructed by Oil Industry

| Variable | B |
|---|---|
| Intercept | -0.31<br>(1.15) |
| Income | -0.16*<br>(0.09) |
| Education | 0.29**<br>(0.13) |
| Age (decades) | -0.34***<br>(0.09) |
| Commute | -0.07<br>(0.07) |
| Party ID | 0.04<br>(0.08) |
| Ideology | 0.01<br>(0.09) |
| Cultural Values Scale | -0.09<br>(0.07) |
| Trust in Government | 1.32*<br>(0.67) |
| Gov't run for benefit of all | 0.92***<br>(0.27) |
| People running govt are smart | 0.05<br>(0.25) |
| Knowledge | -0.64**<br>(0.03) |
| Cultural Values X Knowledge | 0.04**<br>(0.02) |
| | |
| $X^2$ | 63.1 |
| Pseudo $R^2$ | 0.12 |
| Somers' D | 0.52 |
| N | 540.0 |

***0.01<p, **0.05<p, *0.05<p<0.10

The results for the political orientation variables in Table 6 are clearly bad news for the oil industry. Neither party identification nor ideology has any effect on conspiracy beliefs, and the effect of cultural values is the opposite of what we might have expected. Individualists, who lean in favor of business interests, are more likely to believe in oil company conspiracies than egalitarians. Given these findings, and the fact that 85 percent of the respondents in this survey said that they believed that high gasoline prices were the result of price manipulation, we can conclude that belief in oil industry

conspiracy is approaching a cultural consensus. This is a tough obstacle to overcome in any policy debate.

### Concluding Comments on Trust in an Energy Crisis

In all of our models of trust during an energy crisis, the bulk of the explanatory power is provided by the value measures--party identification, ideology, and our cultural values index--and by general measures of trust in government. The demographic variables - including a measure of direct self-interest, how far one drives to work - explained little. The expertise-interaction effects predicted by Zaller's RAS model added some explanatory power to our models, but not a great deal.

The same variables that cause trust in the energy industry and their environmental group critics also cause support for oil drilling off the coast of California and in Alaska's Arctic National Wildlife Refuge. This suggests that these factors are intertwined in some fashion, although we do not attempt to separate the effects here. That is, support for oil drilling and trust in various groups involved in oil drilling controversies may cause one another, or may be jointly determined by exogenous variables such as basic values, the price of gasoline, and other conditions or events.

As a final comment, we would like to return to a point we made in the introduction to this section. Most studies of trust have sought to explain changing levels of trust in government. We see trust as an endogenous variable that may play an important role in explaining politicians' decisions in a variety of policy areas. That is, we agree with Citrin and Luks (2001, 26) who write, "The political relevance of declining trust in government may lie in how a suspicious climate of opinion shapes the decisions of politicians rather than the actions of ordinary citizens."

## 5. Nimbyism vs. Environmentalism in Energy Development Attitudes

Nimbyism ("Not in My Backyard" responses) and environmentalism are distinct concepts, but they are easily confounded in practice. Do people object to proposed developments because the developments are too close to where they live, or because the people are environmentalists? The news media and political activists often assume that objections to potentially risky developments from people who live near the proposed sites are motivated by nimbyism and self-interested concerns. There have, however, been few studies seeking to discover whether nimbyism or environmentalism is the driving force behind anti-development sentiment and behavior.

Protests against offshore oil drilling in Santa Barbara and other oil-producing, coastal communities from the 1970’s through the 2000's offer us an opportunity to inquire whether anti-oil sentiments and behavior are better explained as nimbyism or environmentalism. The anti-oil protests were often described as Nimby responses, but the protesters may have been motivated by environmental sentiment, rather than selfish

desires to have the oil produced somewhere far away from their communities. We seek to discover the truth of the matter.

In this section of the report, we use survey data collected from our 1998 and 2002 samples of Californians in order to compare nimbyism and environmentalism as causes of attitudes toward oil drilling off the California coast and in Alaska's Arctic National Wildlife Refuge. The two surveys allow us to measure proximity to oil drilling--the key to nimbyism--at two scales. One survey is a random cross-section of Californians, which allows us to measure proximity to oil drilling by region in the state. That survey also allows us to compare attitudes of Californians toward oil drilling in California and Alaska, and thus gives us a large-scale approach to searching for Nimby effects. The other survey is a random cross-section of Californians with an additional sample of Santa Barbara County residents. This second survey allows us to look at the effects of proximity to oil drilling on a much smaller scale. Most residents of Santa Barbara County can see the oil drilling platforms every day. Together, the two surveys give us a solid basis for distinguishing between nimbyism and environmentalism.

We find that nimbyism has little to do with attitudes toward oil development. Environmentalism clearly influences people's attitudes toward oil drilling. In contrast, proximity to oil drilling either has no effect, or actually increases support for drilling.

## Theoretical Background

Nimby responses to development proposals are generally described as extreme opposition to local projects characterized by: (1) distrust of project sponsors; (2) high concern about project risks; (3) limited information about project siting, risks, and benefits; and (4) highly emotional responses to the conflict (5) parochial and localized attitudes toward the problem, which exclude broader implications (Kraft and Clary 1991, 302-03). The first four items in this list raise questions about the reasonableness or rationality of the objections. The last item--localized attitudes--raises the question of selfishness.

Kraft and Clary based their description of the Nimby syndrome on their review of previous studies of nimbyism. However, when they examined opposition to a set of proposed sites for nuclear waste repositories, they found that the conventional description of Nimby responses did not hold up. They found high concern about project risks and distrust of the sponsors, but they did not find low information, localized attitudes, or highly emotional responses (Kraft and Clary 1991, 318). Other researchers have also found evidence suggesting that the only patterns that regularly appear are concerns about health and safety risks and distrust of project sponsors (Hunter and Leyden 1995; Margolis 1996; Smith and Marquez 2000; Wright 1993).

In our investigation, we follow the lead of these studies by examining not just support or opposition to oil drilling, but also perceptions of the risks associated with oil drilling and trust in the scientific claims made by the oil industry and its environmental-group critics.

Environmentalism has been far more thoroughly studied than nimbyism. Environmentalism is characterized by attitudes and behaviors that focus on protecting the natural environment from destruction or pollution. Environmentalism, as opposed to nimbyism, is a more general attitude that supports and prioritizes the natural environment as important to human life. Moreover, environmentalism considers how humans interact and use natural resources in everyday life such as water, air, soil, plants, forests, etc. On the other hand, nimbyism is localized opposition to a specific development that is often opposed in the name of environmental protection. Our expectation is that will be able to differentiate between nimbyism and environmentalism because environmentalists will be opposed to offshore oil drilling regardless of location, whereas Nimbyists will more likely be opposed to offshore oil drilling that is close to them.

**The Conflicts: Oil Development in California and Alaska**

The question of whether to permit more offshore oil drilling along the California coast has long been a controversial one. Resistance to offshore oil drilling began in response to the first offshore oil operation just south of Santa Barbara, California in 1896. Ever since--long before the modern environmental movement--the oil industry has met resistance to its efforts to drill along the California coast. Following the 1969 oil spill in the Santa Barbara Channel, the opposition to offshore oil development became stronger and more permanently organized. New groups such as "Get Oil Out" (GOO) formed and existing groups such as the Sierra Club focused more of their efforts on attempts to block oil industry activities along the coast. Massive protests were organized to demand that politicians and federal regulators end offshore oil drilling. Newspapers were deluged with letters attacking the oil industry. In every possible respect, Santa Barbara and the other coastal, oil-producing communities seemed to be responding with classic Nimby resistance to oil drilling (Molotch and Freudenburg 1996; Sollen 1998).

Whether to drill for oil along the California coast, and especially near Santa Barbara, is more than a local dispute; it is a statewide controversy. The efforts by oil companies to expand their drilling and the attempts by environmentalists to stop them are routinely covered by the news media across the state. Candidates for statewide office declare their positions on offshore oil drilling, often using their opposition to it to demonstrate their environmental credentials. Even presidents have taken prominent stands on offshore oil drilling. President Reagan attempted to expand oil drilling off the California coast, and then backed down. President George H.W. Bush declared a moratorium on further leasing of tracts in federal waters to oil companies, and President Clinton extended the moratorium (Sollen 1998).

Because proximity is the key to Nimby responses, the locations of existing or proposed offshore oil and gas developments in California are important. In broad terms, offshore oil development ranges from about 120 miles north of Los Angeles to 80 miles south of it. Offshore platforms are located from Point Arguello, just north of the City of Santa Barbara, to Oceanside, south of Los Angeles in Orange County. One might also expect to find Nimby responses to the oil industry in San Luis Obispo County, immediately

north of Santa Barbara County. Offshore development has been proposed along the coast in that county, and the town of Guadalupe was the site of the largest onshore oil spill in U.S. history (Beamish 2002). In addition, one might expect to find resistance to offshore drilling in the Mendocino County area, 160 miles north of San Francisco. This is a remote, sparsely populated area that was the subject of a good deal of oil industry interest in the late 1980s (Freudenburg and Gramling 1994).

Oil was discovered on the north slope of Alaska in 1886, and the first oil development was established in 1914. Unlike the situation in California, Alaskan oil development did not immediately become controversial. No serious resistance to the oil industry appeared from 1914 through 1968, when the Prudhoe Bay field was discovered. It was only when the Trans-Alaska Pipeline was proposed to bring north slope oil 800 miles south to the port at Valdez that environmentalists began objecting to what the oil industry was doing in Alaska.

Recently, further attention has been brought to oil development in Alaska, as the issue of opening a portion of ANWR to the development of the potentially rich on-shore source of oil has gained momentum. In 1960, The Arctic National Wildlife Range was created based on the discovery of the relatively intact, arctic ecosystem and vast migrating herd of caribou. The Alaska National Interest Lands Conservation Act (ANILCA) of 1980 expanded ANWR to include approximately 19 million acres and renamed it as the Arctic National Wildlife Refuge (Cogwell 2002). While ANILCA designated much of the original Refuge as a wilderness area, it did not extend that protection to the coastal plain, which is currently being considered for development. The coastal plain consists of approximately 1.5 million acres and is the part of the Refuge that is richest in wildlife and migratory birds (Donn 2003). The debate over energy development in ANWR has been highly polarized for over 20 years, coming to a peak in the 2000 presidential election, when Governor George Bush called for opening ANWR to oil development and Vice President Al Gore insisted that it remain closed.

In the case of drilling for oil in ANWR, of course, nimbyism plays no role in forming the opinions of Californians because ANWR is not in California's backyard. The main influence on Californians' attitudes toward oil drilling in Alaska should be environmentalism. However, in the case of drilling for oil off the coast of California, and especially in Santa Barbara County, where the strength of resistance to nearby drilling has increased over the past several decades, Nimby reactions should be expected.

## Data and Measures

The data for this paper come from two public opinion surveys of California adults conducted by telephone. The first was conducted in March 1998 by the Field Institute. It consisted of two parts--a representative cross-section of California adults (n=810) and an additional cross-section of adults living in Santa Barbara County (n=204). Santa Barbara was selected because it was the site of the 1969 Santa Barbara Channel oil spill, which helped launch the modern environmental movement, and because it has remained a center

of anti-oil, political activity ever since the spill. If we are going to find evidence of a Nimby response to oil drilling in California, we should find it in Santa Barbara. The two samples are combined for the analysis in this paper, yielding a sample of n=1,014. The second survey was conducted in July and October, 2002 by the U.C. Santa Barbara Social Science Survey Center. The sample was a representative cross-section of 1,475 adult residents of the state.

In the remainder of this section, we discuss our dependent variables. The other questions and coding details used in this analysis are reported in the appendix.
Three sets of questions are critical to this study--questions dealing with support for oil drilling, with the risks associated with oil drilling, and with trust in oil industry and environmentalists. The first set of questions on support for oil drilling are:

> "I am going to read some statements about the energy situation. For each please tell me whether you agree strongly, agree somewhat, disagree somewhat, or disagree strongly. … Oil companies should be allowed to drill more oil and gas wells in state tidelands along the California seacoast." [1998]
>
> "Suppose a new offshore oil drilling platform were planned to be built off the coast of Santa Barbara County, near the City of Santa Barbara. Would you support or oppose its construction?" [2002]
>
> "Suppose a new offshore oil drilling platform were planned to be built in a remote area off the California coast? Would you support or oppose its construction?" [2002]
>
> "Do you think the federal government should or should not allow oil drilling in the Arctic National Wildlife Refuge in Alaska?" [2002]

The results of the first question, which was asked in 1998, show that oil development was very unpopular at the time. Twenty percent of the statewide respondents favored more oil drilling, while 75% opposed it, and the rest were undecided.[8] The results of the next three questions, asked in 2002, reveal that oil drilling off Santa Barbara receives the least support (29%), drilling in ANWR receives somewhat more (34%), and drilling in a remote area off the California coast receives the most support (46%). These results show that nimbyism may play a role because opposition to drilling is greatest for the most populated and developed area, Santa Barbara. This follows from the argument that if environmentalists want to protect unspoiled nature, they should object most strongly to drilling either in ANWR or in a remote area along the California coast. Alternatively, it may be the case that drilling for oil in Santa Barbara and ANWR receive the least support because they have received the most media attention from the environmental movement. At the times of the two surveys, there were no oil industry efforts to drill in remote areas along the coast.

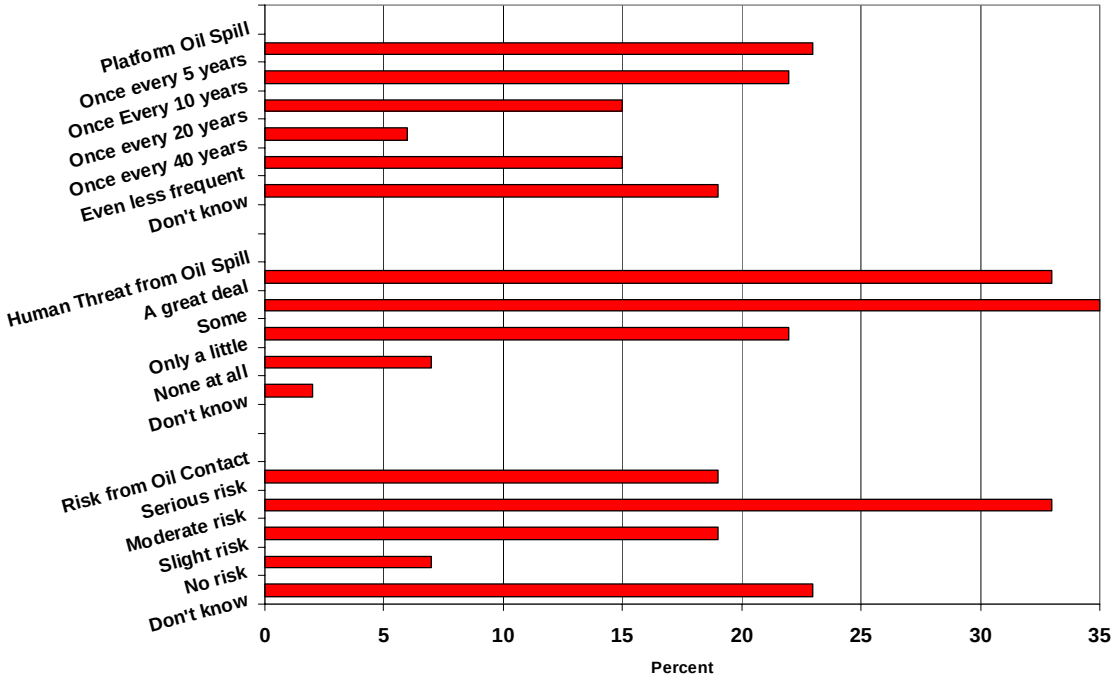
[8] These percentages are based on the representative, statewide sample. They exclude the extra Santa Barbara respondents.

Our three 2002 questions about drilling can be combined into a scale by adding the number of locations in which respondents favor drilling. The Cronbach's alpha for the scale, 0.78, shows a high level of reliability.[9]

The next set of questions asks about possible risks associated with oil drilling--the frequency of oil spills, and whether spills pose risks to people. The first two questions were asked both in 1998 and 2002; the last question on cancer was asked only in 2002.

> "How often do you think a typical offshore oil platform is likely to have a major oil spill--every five years, every ten years, every twenty years, every forty years, or is it even less frequent than that?" [1998, 2002]
>
> "When a major oil spill occurs, how much threat does it pose to human life- a great deal, some, only a little, or none at all?" [1998, 2002]
>
> "Does contact with raw, unrefined petroleum cause a serious risk of getting cancer, a moderate risk of getting cancer, a slight risk of getting cancer or no risk of getting cancer at all?" [2002]

**Figure 24.** Perceived Risks Associated with Oil Drilling.




[9] The drilling items also work well as a Guttman scale. The coefficient of reproducibility for the scale is 0.90 (see Torgerson 1958, 318-24).

The factual answers to the questions are that major oil spills from platforms are extremely rare (occurring far less than once every forty years on average), that oil spills pose only an extremely small threat to human life (although they do cause major ecological damage), and that exposure to unrefined petroleum does not cause cancer (Anderson and LaBelle 1994; Burger 1997). Figure 24 shows the results for 2002, which are similar to those for 1998. In every case, respondents exaggerate the risks. Only fifteen percent responded correctly that oil spills occur less often than once every forty years, while forty-five percent thought that they occurred once every five or ten years. Only seven percent responded correctly to the other two questions. Sixty-eight percent of the respondents incorrectly believed that there was a "great deal" or "some" threat to humans from an oil spill, and fifty-two percent incorrectly thought that contact with raw petroleum caused a "serious" or "moderate" risk of getting cancer.

The final set of questions asks about trust in oil industry and environmental group scientists. The 1998 questions asked about confidence in oil industry and environmental group scientists' statements about potential risks. The 2002 questions were part of an experiment designed to look at the influence of both message sources (oil industry vs. environmental group scientists) and message content (oil drilling is either risky or safe). For our purposes, however, the questions offer an opportunity to measure trust. The questions [with the 2002 experimental variations in brackets] are:

> "How much confidence do you have in statements made by oil industry scientists about potential health risks associated with living near an oil drilling site? Do you have a great deal of confidence, a moderate amount of confidence, only some confidence, or almost no confidence at all?" [1998]
>
> "How much confidence do you have in statements made by environmental group scientists about potential health risks associated with living near an oil drilling site? Do you have a great deal of confidence, a moderate amount of confidence, only some confidence, or almost no confidence at all?" [1998]
>
> "A team of [oil industry/environmental group] scientists recently reported the results of their research showing that because of new technology, offshore oil drilling is far [safer/riskier] than previously thought. How much confidence do you have in that claim--a great deal, a moderate amount, only some, or almost none at all?" [2002]

The four variations of the question (oil industry-safer, oil-industry-riskier, environmental group-safer, and environmental group-riskier) were each asked of randomly selected subsamples in the 2002 survey.[10] Both the 1998 and 2002 questions allow us to look at

[10] The full design of the experiment was actually 3 groups x 2 messages. The third group, which we omit from the discussion here, was "government scientists."

trust in both sides of the dispute, rather than just at trust in project advocates--which is what most of the Nimby literature does.

## Models

We begin our search for nimbyism and environmentalism by examining support for oil drilling. We do so by constructing a set of logistic regression models explaining oil-drilling support as a function of known causes of environmentalism and measures of proximity to oil drilling sites.

An alternative research strategy would be to use measures of environmentalism, rather than measures of its causes, as independent variables in our models. The problem with that approach is that we would be using a set of general environmental attitudes to explain specific environmental attitudes. That might raise questions about causal direction or possibly spurious effects in our results. To avoid those difficulties, we use only variables that are recognized as causes of environmental attitudes.

For independent variables, we begin with three demographic variables that have been shown to cause environmentalism--education, age, and gender.[11] 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 also add commuting distance for those who drive their cars to work. This is a measure of self-interest. The greater their driving distance, the more respondents may favor new oil drilling to reduce gasoline prices. We also use three variables that measure respondents' political orientations. The first two are well known--party identification and liberal-conservative ideology. Numerous studies show that Democrats and liberals in the general public are more likely than Republicans and conservatives to support environmental causes (Smith 2002). Moreover, many Democratic and Republican leaders have taken clear stands on opposite sides of oil development questions in recent years. Studies of roll call voting in Congress have shown that Democratic politicians lean toward environmental positions, while Republicans lean against them (Kamieniecki 1995). In addition, during the 2000 presidential election, Governor Bush argued in favor of oil development (most prominently in Alaska), while Vice President Gore opposed it (Bruni 2000; Mitchell 2000).

An additional set of independent variables is suggested by scholars who have argued that individualism and egalitarianism are core American values, which explain people's attitudes on a wide range of issues (Feldman 1988; Feldman and Zaller 1992). In related work, Douglas and Wildavsky have claimed that the rise of egalitarianism and, to a lesser extent, the decline of individualism, explain the spread of environmentalism in the 1960s and 1970s (Douglas and Wildavsky 1982; Douglas 1992; Wildavsky and Dake 1990).

[11] We also tested family income, race, and ethnicity (White, Black, Latino, other) as potential causes of attitudes on oil development. Other studies have found that these variables have effects on some environmental variables. We did not find any effects in any of our analyses.

They argue that egalitarians are especially concerned with potential threats from what they see as inegalitarian institutions - big government and large corporations. According to Douglas and Wildavsky, egalitarians use environmental laws and regulations as vehicles to allow them to fight these enemies. Individualists, in contrast, defend large corporations and the profit motive as essential aspects of free markets. As we did in the previous section, we treat individualism and egalitarianism as a single "cultural values" variable.

In order to handle missing data in the political-orientation variables in our models, we have also added three dummy variables. Each dummy variable is scored '1' for respondents who did not answer an orientations question, and '0' for respondents who did. We then recode each DK (Don't Know) response to the midpoint of the political orientation scale. For example, a respondent who did not answer the party identification questions is scored as a '0' for party identification (the midpoint) and as a '1' for party identification DK. The coefficient for the DK variable tells us where the group of DK respondents stands on oil drilling. Adding these variables allows us to keep the respondents who did not answer the party identification, ideology, or cultural orientation questions in our sample. Given that we are searching for potentially small Nimby effects, maintaining a large sample is important.

Finally, we use measures of proximity to offshore oil drilling to tap into nimbyism. The measure we use in the 1998 models is residence in Santa Barbara County--the center of anti-oil political activity in California. This is our small-scale, precise measure of potential nimbyism. Residents of Santa Barbara County live near both offshore oil drilling and the site of the 1969 oil spill. We can compare them to respondents living elsewhere in the state. In the 2002 models, we use a dummy variable indicating whether respondents lived within twenty miles of the coast in a county with offshore oil drilling - San Luis Obispo, Santa Barbara, Ventura, Los Angeles, and Orange counties. This measure is a large-scale measure because it distinguishes people who live in the general area of offshore oil drilling from those who live farther away from oil in California. The 2002 survey also includes the questions about drilling in remote areas of California and Alaska, so we can compare the attitudes of respondents toward oil developments that are fairly close (those in oil-producing areas), toward moderately distant sites (remote areas of California), and toward sites thousands of miles away (ANWR). We also tested several other possible measures of proximity, but we will discuss them after presenting our findings.

## Findings

We can summarize our key results about support for oil drilling quite easily. All of the expected causes of environmental views were statistically significant in one or more of the equations explaining support for drilling. Proximity to oil drilling - our measure of nimbyism - did not increase opposition to oil development in any equation. Living near the coast (the 2002 measure) was not significant in any equation. Living in Santa Barbara had a significant effect, but it was the opposite of the one predicted by the

Nimby syndrome. Controlling for the other independent variables, Santa Barbara residents were actually more supportive of oil development than people living elsewhere in the state.

**Table 7:** Logistic Regression Models of Support for Oil Drilling

| Variable | Santa Barbara | Alaska's ANWR | Remote Calif | 1998 Calif |
|---|---|---|---|---|
| **Intercept** | - | - | - | 0.16 (0.26) |
| **Intercept** | - | - | - | **-0.99 (0.26)** |
| **Intercept** | **-1.19 (0.34)** | **-1.91 (0.38)** | -0.22 (0.29) | **-2.34 (0.27)** |
| **Education** | **0.09 (0.03)** | 0.04 (0.07) | -0.06 (0.06) | -0.09 (0.06) |
| **Age (decades)** | 0.08 (0.05) | **0.28 (0.05)** | **0.10 (0.04)** | -0.03 (0.04) |
| **Women** | **-0.62 (0.15)** | **-0.76 (0.15)** | **-0.31 (0.14)** | -0.21 (0.13) |
| **Commute Distance** | **0.09 (0.04)** | 0.03 (0.04) | 0.04 (0.04) | -0.04 (0.03) |
| **Party ID (Republican High)** | **0.16 (0.04)** | **0.24 (0.04)** | **0.17 (0.04)** | 0.07* (0.04) |
| **Party ID DK** | 0.21 (0.24) | **-0.87 (0.30)** | **-0.95 (0.26)** | -0.04 (0.36) |
| **Ideology (Conservative High)** | **0.21 (0.06)** | **0.28 (0.05)** | **0.18 (0.05)** | **0.14 (0.05)** |
| **Ideology DK** | 0.21 (0.24) | -0.07 (0.24) | 0.04 (0.20) | -0.39 (0.43) |
| **Cultural Values Scale** | **0.13 (0.02)** | **0.13 (0.02)** | **0.11 (0.02)** | **0.08 (0.02)** |
| **Cultural Values DK** | 0.09 (0.19) | 0.14 (0.18) | -0.01 (0.16) | 0.04 (0.17) |
| **Live in Oil County near Coast** | -0.18 (0.18) | -0.03 (0.18) | 0.03 (0.16) | - |
| **Live in Santa Barbara County** | - | - | - | **0.39 (0.15)** |
| N | 1168.0 | 1212.0 | 1190.0 | 945.0 |
| Predicted v. Observed Tau-a | 0.23 | 0.30 | 0.25 | 0.16 |

Coefficients significant at $p < 0.05$ are in bold font

The results of our models explaining support for oil drilling are shown in Table 7. In brief, years of education had a significant effect in only one equation, and not in the expected direction. The better educated respondents, the more likely they were to favor drilling for oil off the Santa Barbara coast. Age had significant effects in both the ANWR and Remote California equations in the expected direction. Older respondents were more supportive of oil drilling than younger respondents. Women were less likely than men to support oil drilling in any location in 2002, but the coefficient failed to reach significance in 1998. As expected, the greater the distance respondents commuted to work, the more they supported oil drilling - but only in the Santa Barbara area in 2002 (a year of high gasoline prices). All three of our political orientations variables had significant, expected effects in all three 2002 equations, two of the three had the expected effects in 1998. Republicans, people who identified themselves as conservatives, and people who held individualist cultural values were more likely to favor oil drilling than Democrats, liberals, or egalitarians.

In 2002, people who lived near the coast in a county with oil drilling were neither more nor less likely to favor more oil drilling. The variable was not statistically significant - or even close to significant - in any equation. Nimbyism did not appear. In 1998, however, living in Santa Barbara County did influence attitudes, but not in the direction predicted by the Nimby syndrome. Santa Barbarans were actually *more* likely than people living elsewhere to support oil drilling - controlling for the other independent variables.

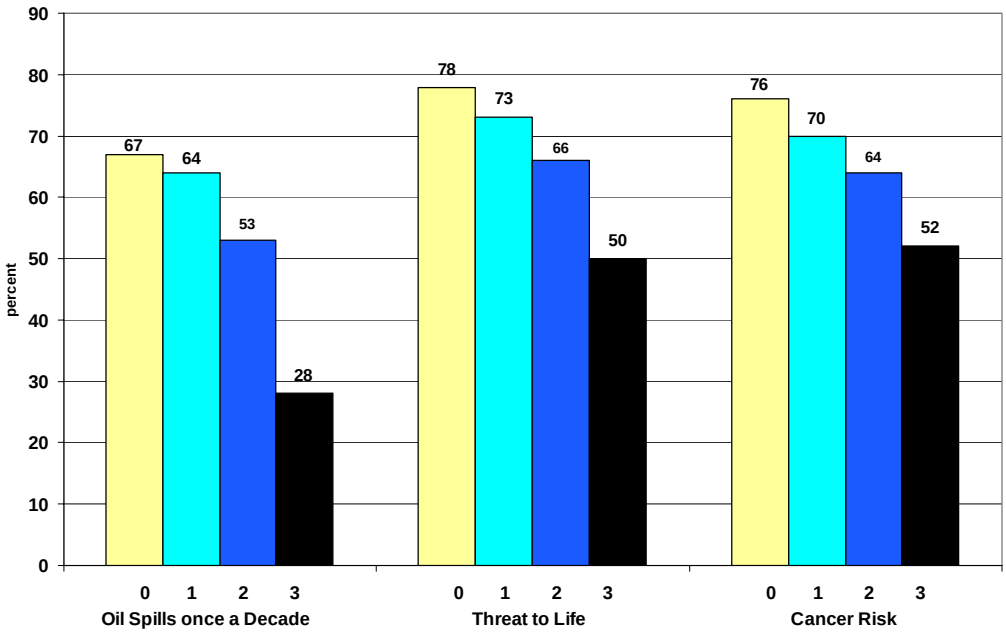
So as to be more confident about the finding that proximity to offshore oil development or to the coast does not increase opposition to people's attitudes on oil development, several different measures of proximity were tested to see whether any measure of proximity would work. We first looked at differences between those living in coastal counties and noncoastal counties. Second, we separated the more rural/suburban oil-producing, coastal counties (San Luis Obispo, Santa Barbara, and Ventura) from the more urban oil-producing counties (Los Angeles and Orange) to see if those two regions differed. Third, using zip codes, we looked at differences between those living within twenty miles of the coast and those living outside that coastal band. No Nimby effects appeared in any of these data.[12] The only significant coefficient we found was the one reported in Table 7, that people living in Santa Barbara supported drilling more than people living elsewhere. We will discuss the implications of this finding in the next section.

We now turn our attention to perceptions of risks associated with oil drilling. We approach the question in the same way we approached support for oil drilling. We hypothesize that environmentalism and nimbyism cause risk perceptions. The more strongly pro-environment respondents are, and the closer they live to offshore oil drilling, the more likely they are to believe that it is risky.

[12] We should note that we were not able to test for the effects of living in a remote area on support for drilling (presumably the coast between San Luis Obispo and Monterey, and the north coast above the San Francisco Bay area) because there were not enough respondents in our surveys to examine attitudes in these areas.

We begin by examining the relationship between support for oil drilling and perceptions of the risks associated with it. Figure 25 shows our 2002 respondents' beliefs about three risks by their level of support for drilling, as measured by the number of areas in which people support drilling (Santa Barbara, ANWR and remote areas of California). On the left side of Figure 25, we see that whereas 67 percent of the respondents who did not favor drilling anywhere believed that oil platforms were likely to have a major spill at least once a decade, only 28 percent of those who favored drilling in all three locations believed that oil spills were that frequent. The group of columns in the middle of the figure shows that as support for drilling increases, the percentage of people who believe that major oil spills pose some or a great deal of threat to human life falls. The columns on the right of the figure show that as support for drilling increases, the percentage of people who believe that contact with unrefined petroleum poses a moderate to serious risk of causing cancer declines. In sum, people who support drilling tend to think it is safe, and people who oppose it tend to think it is risky.

**Figure 25.** Perception of Risk by Level of Oil Drilling Support.




The next question is, to what extent are these perceptions of risk caused by environmentalism and nimbyism. To answer that, we use logistic regression models similar to the models used to analyze support for oil drilling. The only difference between the models is that because the dependent variables have several categories, rather than just two, the models have several intercepts. The intercepts indicate the breakpoints between the dependent variable categories (e.g., a major oil spill once every five years vs. a major spill once every ten years, etc.). The dependent variables are coded so that low values indicate riskiness and high values indicate safety.

The results of analysis, shown in Table 8, are similar to the results of the models explaining support for oil drilling. Education has significant effects on beliefs about oil spills threatening human lives, and about whether contact with oil causes cancer. In both cases, the more years of education the respondents had, the more likely they were to get the answers right--that is, risks were low. The belief that oil drilling is safe also increased with age, and men were more likely than women to believe that drilling was safe.

**Table 8:** Logistic Regression Models of Risk Perceptions

| Variable | 2002 Platform Spill Frequency | 2002 Oil Spill Threat | 2002 Oil Cancer Risk | 1998 Platform Spill Frequency | 1998 Oil Spill Threat |
|---|---|---|---|---|---|
| **Intercept 1** | **0.59 (0.26)** | **-0.48 (0.24)** | 0.23 (0.27) | **-1.80 (0.25)** | **4.33 (0.28)** |
| **Intercept 2** | **-0.66 (0.26)** | **-2.25 (0.25)** | **-1.72 (0.27)** | **-1.25 (0.25)** | **2.30 (0.25)** |
| **Intercept 3** | **-1.56 (0.26)** | **-4.19 (0.28)** | **-3.48 (0.29)** | -0.36 (0.25) | 0.53 (0.24) |
| **Intercept 4** | - | - | - | **0.95 (0.25)** | - |
| **Education** | 0.00 (0.05) | **0.24 (0.05)** | **0.13 (0.05)** | -0.08 (0.05) | **0.31 (0.05)** |
| **Age (decades)** | **0.12 (0.04)** | **0.20 (0.03)** | **0.20 (0.04)** | **0.12 (0.04)** | **0.13 (0.04)** |
| **Women** | **-0.31 (0.12)** | **-0.80 (0.11)** | **-0.57 (0.12)** | **-0.51 (0.13)** | **-0.53 (0.12)** |
| **Commute Distance** | 0.04 (0.03) | 0.02 (0.03) | 0.01 (0.03) | 0.03 (0.03) | 0.01 (0.03) |
| **Party ID (Republican High)** | 0.03 (0.03) | 0.06 (0.03) | **0.09 (0.04)** | **0.10 (0.04)** | 0.02 (0.04) |
| **Party ID DK** | -0.18 (0.21) | -0.17 (0.20) | -0.42 (0.23) | 0.48 (0.36) | **-1.36 (0.37)** |
| **Ideology (Conservative High)** | **0.09 (0.04)** | 0.01 (0.04) | -0.04 (0.05) | 0.04 (0.04) | 0.04 (0.04) |
| **Ideology DK** | -0.17 (0.18) | **-0.41 (0.18)** | -0.13 (0.09) | -0.22 (0.40) | 0.02 (0.39) |
| **Cultural Values Scale** | **0.03 (0.01)** | **0.09 (0.01)** | **0.07 (0.01)** | 0.00 (0.02) | **0.12 (0.02)** |
| **Cultural Values DK** | -0.14 (0.15) | -0.15 (0.13) | -0.24 (0.15) | 0.08 (0.17) | 0.15 (0.15) |
| **Live in Oil County near Coast** | 0.11 (0.13) | -0.01 (0.13) | 0.08 (0.14) | - | - |
| **Live in Santa Barbara County** | - | - | - | 0.22 (0.15) | **0.41 (0.15)** |
| N | 1044.0 | 1285.0 | 1001.0 | 849.0 | 975.0 |
| Predicted v. Observed Tau-a | 0.16 | 0.25 | 0.21 | 0.17 | |

Coefficients significant at $p < 0.05$ are in bold font

Commuting distance, our measure of self-interest, did not have any effect on views about the riskiness of oil drilling. Republicans in 2002 were more likely to believe that contact with raw petroleum does not cause cancer, and in 1998 to believe that platform spills were infrequent. Conservatives were more likely than liberals to believe that oil platform spills were uncommon in 2002. And, as the cultural values coefficients indicate, respondents leaning in an individualist direction were more likely to believe that all aspects of oil drilling were safer than were those leaning in an egalitarian direction in 2002, and they were more likely to think that oil spills did not threaten human lives in 1998. Our measure of potential nimbyism, living near the coast in a county with offshore oil production, had no effect on perceptions of risk in 2002. In 1998, however, living in Santa Barbara County made respondents substantially more likely to believe that oil spills posed no threat to human beings. Again, this result is the opposite of the one predicted by the Nimby literature.

Overall, the results of this analysis are that the causes of environmentalism also cause heightened perceptions of oil-drilling risks, but living near drilling sites either does not have any effect (2002) or makes people feel safer (1998). Nimbyism does not appear.

We now turn to the last of our three elements of nimbyism, trust. To do so, we make use of the trust experiment embedded in our 2002 survey, described above, in addition to two questions from our 1998 survey. We use the same set of independent variables with logistic regression models for each equation. Each 2002 question was asked in a randomly selected subset of our sample, so we divide the sample into four parts and analyze each one separately.[13] Again, we hypothesize that environmentalism and nimbyism cause trust (or distrust) in oil companies and environmental groups. The more strongly pro-environmental respondents are, and the closer they live to offshore oil drilling, the more likely they are to believe environmental groups, and the less likely they are to believe the oil industry.

Our results, shown in Table 9, are consistent with our earlier findings. Fewer variables have statistically significant effects in 2002, but this may be due to the fact that the sample sizes are much smaller, ranging from 202 to 221 respondents.

[13] An alternative methodological approach would have been to combine the four subsamples and estimate a single equation using a set of independent variables with dummy variables to identify the different questions asked and interaction terms to allow the independent variables to have different effects depending on the version of the question asked. This would have resulted in an equation with 44 independent variables. We chose our approach because it is simpler to understand, and yields essentially the same results.

**Table 9**: Logistic Regression Models of Trust in Oil Industry and Environmental Group Scientists

| Variable | 2002 Oil Industry Safer | 2002 Oil Industry Riskier | 2002 Environ Group Safer | 2002 Environ Group Riskier | 1998 Oil Industry | 1998 Environ Group |
|---|---|---|---|---|---|---|
| **Intercept 1** | **1.38 (0.61)** | 1.16 (0.62) | **1.30 (0.57)** | **1.58 (0.67)** | 0.02 (0.24) | **1.61 (0.24)** |
| **Intercept 2** | 0.20 (0.61) | -0.49 (0.61) | -0.24 (0.56) | 0.26 (0.65) | **-1.52 (0.52)** | 0.18 (0.24) |
| **Intercept 3** | **-1.75 (0.62)** | **-2.25 (0.63)** | **-2.16 (0.59)** | **-1.75 (0.67)** | **-3.24 (0.28)** | **-1.64 (0.24)** |
| **Education** | -0.13 (0.11) | 0.08 (0.12) | -0.01 (0.12) | 0.07 (0.13) | 0.02 (0.05) | 0.09 (0.05) |
| **Age (decades)** | 0.04 (0.08) | 0.01 (0.08) | 0.10 (0.08) | -0.06 (0.09) | 0.01 (0.04) | -0.06 (0.04) |
| **Women** | -0.37 (0.27) | **0.64 (0.27)** | **-0.55 (0.27)** | 0.03 (0.29) | 0.07 (0.12) | **0.30 (0.12)** |
| **Commute Distance** | -0.04 (0.07) | 0.09 (0.07) | 0.07 (0.07) | 0.08 (0.08) | 0.03 (0.03) | 0.02 (0.03) |
| **Party ID (Republican High)** | 0.09 (0.08) | -0.05 (0.08) | **0.22 (0.08)** | **-0.23 (0.08)** | **0.08 (0.04)** | **-0.11 (0.04)** |
| **Party ID DK** | -0.17 (0.52) | 0.48 (0.46) | **-1.03 (0.48)** | 1.27* (0.65) | 0.12 (0.33) | -0.15 (0.32) |
| **Ideology (Conservative High)** | **0.26 (0.10)** | -0.06 (0.10) | 0.16 (0.09) | -0.13 (0.09) | **0.12 (0.04)** | **-0.15 (0.04)** |
| **Ideology DK** | -0.76 (0.44) | -0.01 (0.47) | 0.28 (0.46) | -0.22 (0.45) | 0.09 (0.39) | 0.64* (0.37) |
| **Cultural Values Scale** | **0.08 (0.03)** | **-0.08 (0.03)** | 0.05 (0.03) | **-0.12 (0.04)** | **0.04 (0.02)** | **-0.13 (0.02)** |
| **Cultural Values DK** | -0.01 (0.32) | 0.39 (0.36) | -0.52 (0.34) | 0.03 (0.31) | -0.25 (0.16) | -0.26 (0.15) |
| **Live in Oil County near Coast** | -0.10 (0.31) | 0.19 (0.30) | 0.17 (0.32) | 0.18 (0.33) | - | - |
| **Live in Santa Barbara County** | - | - | - | - | **0.56 (0.15)** | -0.09 (0.14) |
| N | 221.0 | 202.0 | 208.0 | 202.0 | 964.0 | 973.0 |
| -2 x Log Likelihood | | | | | | |
| Predicted v. Observed Tau-a | 0.28 | 0.19 | 0.30 | 0.36 | 0.15 | 0.26 |

Coefficients significant at $p < 0.05$ are in bold font

We begin by focusing on the 2002 data in the four equations on the left of Table 9. Although we are primarily interested in our respondents' trust in oil industry and environmental group scientists, the content of the message clearly has an effect, and we cannot describe the results without discussing it. Going down our list of independent variables, we see that the first significant variable is gender. Women are more likely to believe oil industry scientists when they say that oil drilling is riskier than previously believed, and less likely to believe environmentalists when they say it is safer. Republicans are more likely to believe environmental scientists when they say drilling is safer, and less likely to believe them when they say drilling is riskier. Democrats, of course, are the opposite. Respondents who label themselves as conservative are more likely than those who label themselves as liberal to believe oil industry scientists.

Finally, the cultural values coefficients indicate that individualists are likely to believe oil industry scientists saying that drilling is safer, and not to believe either oil industry or environmental group scientists who say that drilling is riskier. In all of these instances, the content of the messages seems to be governing whether they are believed. Groups leaning in a pro-environment direction are more likely to trust messages saying that oil drilling is risky, while groups leaning in a pro-development direction are more likely to trust messages saying that oil drilling is risky.

Nimbyism, however, does not seem to play any role in explaining our respondents' attitudes in 2002. No measure of proximity to the coast or oil-drilling sites that we tested produced a statistically significant result.

In the 1998 questions, on the right-hand side of Table 9, the content of the message was not specified. The questions merely asked about trust in oil industry and environmental group scientists, so respondents reacted only to the sources of the messages. Again, the results fit with our expectations. Women trust environmentalists. Republicans are more likely to trust oil industry scientists and distrust environmental group scientists than are Democrats. Ideology and cultural values follow a similar pattern.

Again, residents of Santa Barbara County not only failed to act in the predicted Nimby, anti-oil fashion, they were significantly more likely to trust oil-industry scientists than were people living outside of the county. Nimbyism did not appear.

**Concluding Comments on Nimbyism and Environmentalism**

The fact that people's environmental values influence their attitudes toward oil drilling should come as no surprise. The fact that living near the coast or near oil drilling sites does not cause people to oppose oil drilling in their areas, to be concerned about the risks, or to distrust the oil industry - that is, to respond with nimbyism - might surprise some readers. Yet that is what our data show.

We certainly see many aspects of what would appear to be Nimby reactions against offshore oil drilling among communities along the oil-producing region of the California coast. These communities have been the sites of massive protests, of anti-oil rhetoric by

politicians, of anti-oil letters to the editor in local newspapers, and of anti-oil, grassroots, political organizations (Molotch and Freudenburg 1996; Sollen 1998). Yet proximity to oil drilling does not seem to change opinion, risk perceptions, or trust in the two sides in the dispute - except that residents of Santa Barbara County lean in favor of oil development and the oil industry.

What happened to the Nimby syndrome? One possibility that might occur to readers is that the oil industry employees in Santa Barbara County balanced out the environmentalists. That is not the case. Economic reports show that "mining," which includes the oil and gas industry and several other types of unrelated mining operations, accounted for only 800 jobs, or about 0.4% of employment, in Santa Barbara County in 2002. In a county with a population of 480,000 people, the oil industry employs a miniscule number of people (Watkins 2003, 56, 74).

Another possibility is that Nimby responses may be geographically smaller than most observers believe. That is, people's opinions might change if a drilling facility were, say, a hundred yards away, but not if it were a few miles away. The term Nimby - "not in my backyard" - may be more accurate than we suspect. In order to test this speculation, we would need to have a survey with a large number of respondents living close to a proposed drilling site or other controversial development.

That explanation may be correct, but it does not fully explain the appearance of large-scale protests and other community-wide resistance to oil development. If objectionable developments such as oil drilling facilities only influence opinion among people living in the immediate neighborhood of the facility, why does political activity spread all over a region? Why are there large-scale protests, anti-oil groups, and other signs of Nimby behavior?

The answer may be that nimbyism has not been accurately characterized. Perhaps nimbyism causes changes in political activism, not in public opinion. That is, having an objectionable facility in one's community may cause residents who were already inclined to object to such facilities to become politically active. The outward evidence of nimbyism, after all, is political activism. People talk about nimbyism when they see protests, activists testifying at government hearings, letters to the editor, and other forms of political participation. There is almost never any observable evidence that people changed their minds about issues, or changed their perceptions about risks or the trustworthiness of anyone. In the case of anti-oil protesters, for example, they may well have been environmentalists who opposed offshore oil development for years, but only became active when an oil company proposed looking for oil along their coast.
Our surveys do not include any questions about political activism, so we cannot test our speculations about nimbyism and political activism. Yet we suspect that the Nimby syndrome is really a pattern of political activism, not a pattern of public opinion.

## 6. Final Observations

We will begin our concluding comments with a brief summary of our findings. We will then offer some suggestions for future research.

Contrary to the claims of some observers, the public's attitudes toward oil and gas development have varied over a wide range over the last twenty-five years. As recently as 1981, a majority of Californians favored more offshore oil drilling. Support for more drilling reached a low point of only twenty percent in 1998, but then it bounced back again, rising to forty-five percent in 2001. Support for drilling in California's forests and parklands followed a similar path, although with more shallow swings.

Self-interest clearly played a role in causing the changes in support for oil development. Support for more drilling rose and fell with gasoline prices. In addition, support for more drilling rose most sharply between 1998 and 2001 among those who were most hurt by rising prices - people who were young, who had low incomes, and who commuted long distances to work.

Political leadership and the political orientations of the public also played a major role in causing the changes over time. The people who shifted most sharply in favor of more oil development were Republicans and conservatives, whose political leaders were calling for more development starting in the 2000 presidential election.

When we turned our attention to attitudes toward the oil industry, environmental groups, and the government officials who regulate the oil industry, we found that environmental groups were liked and trusted far more than government regulators or the oil industry. In the case of the oil industry and environmental groups, we again found that political orientations play a major role causing attitudes. Although government regulators were not as well liked or trusted as environmental groups, the public does not react to government regulators as strongly in political terms. That is, people's political party affiliations and ideologies only slightly influence their views of government administrators.

Our examination of the claim that oil companies were falsely claiming shortages in order to increase gasoline prices showed that an overwhelming percentage of the public believes the accusation. In addition, belief in the price-fixing conspiracy does not seem to be caused by people's political orientations. The evidence indicated that belief in oil industry conspiracies are shared by people of all political views.

The last part of this report examined the effect of living in the proximity of an oil well on attitudes toward the oil industry. Although we searched for Nimby ("Not in My Backyard") effects in several different ways, using two data sets from 1998 and 2002, we found nothing. Controlling for other causes of attitudes, we found that people who live near oil-drilling sites were not more likely than people living elsewhere to oppose drilling, to believe that drilling is risky, or to distrust the oil industry. To the contrary,

despite its anti-oil reputation Santa Barbara residents in 1998 were more likely to support oil drilling and trust the oil industry than people living elsewhere in the state.

**Future Research**

Although this report explains a good deal regarding public opinion about oil and gas development, there are some areas that remain poorly understood, and that merit further investigation.

First, researchers have yet to explain why the public exaggerates the risks associated with oil development, and what steps can be taken to explain the risks to the public so that they better understand them. Risk perceptions and risk communication, of course, have been the subject of a great deal of research. Progress is being made, but more work clearly needs to be done in this area. The exaggerated perceptions of the risks associated with offshore oil drilling, shown in Figure 24, show how much remains to be done. While policy makers may dismiss the perceptions as wildly wrong, they nevertheless have important policy implications.

Second, researchers have yet to explain the nature of Nimby responses. The concept of nimbyism is in wide public use, but many questions about when Nimby responses occur and what causes them remain unanswered. Although Santa Barbara, California is often described as a hotbed of nimby-driven opposition to oil development, we found no evidence of nimbyism in our data. One important question that should be addressed is whether nimbyism should be described as a pattern of public opinion or as a pattern of political activism. Most previous research has ignored questions about the relationship of nimbyism to political participation. Another important question that should be addressed is how the "backyard" in nimbyism should be described. How close do people have to be to a potential hazard to become concerned or to become politically active? Again, most previous research has measured proximity to a hazard crudely or not at all.

Third, researchers have only begun to explore changes in attitudes toward oil and other energy sources over time. A number of studies, including ours, look at cross-sections of opinion, or in some cases, trends over time. So far, however, no studies have examined how individuals change their views about energy issues over time. This sort of research would require the use of panel surveys (repeatedly interviewing the same respondents over years), but no such surveys have been conducted.

When researchers begin addressing these issues, they should gain a far better understanding of the rise and fall of support for oil development and other energy sources. That understanding should be very useful for policymakers in crafting policies that the public supports, and that satisfy America's energy needs.

## APPENDIX 1. Data Sources

Data from the surveys listed below were used in this report. All of these data are publicly available from the University of California, Berkeley's UCDATA.

The Field Institute is located at 222 Sutter Street, San Francisco, California 94108; e-mail: fieldpoll@field.com. Data from all the Field Polls used in this report are archived at the University of California's UCDATA, located at the U.C. Berkeley campus. Its web site is: http://srcweb.berkeley.edu/. The Social Science Survey Center is located on the U.C. Santa Barbara campus. Its web site is: http://www.survey.ucsb.edu/. None of these organizations is responsible for the analysis or interpretation of the data appearing in this report.

| Survey | Dates | Sample Size |
|---|---|---|
| 7703 | 6/17-7/2/77 | 1,034 |
| 7801 | 1/7-15/1978 | 1,003 |
| 7902 | 5/3-15/1979 | 485 (random half; total sample n=979) |
| 8002 | 4/2-8/1980 | 501 (random half; total sample n=1,012) |
| 8006 | 10/15-18/1980 | 506 (random half; total sample n=1,018) |
| 8104 | 10/26-11/1/1981 | 1,102 |
| 8401 | 2/1-9/1984 | 743 (random half; total sample n=1,511) |
| 8903 | 7/12-23/1989 | 993 |
| 9004 | 8/17-27/1990 | 614 (random half; total sample n=1,235) |
| COODEPS* | 3/5-18/1998 | 810 |
| 0102 | 5/11-20/2001 | 448 (random half; total sample n=1,015) |
| COODEPS2 | | 1,285 |

*California Offshore Oil Drilling and Energy Policy Survey

## APPENDIX 2. Survey Questions used in this Analysis

**Age:** "What is your age?"

**Commute:** Distance to work for those who drive - (1) 1-5 miles; (2) 6-10 miles; (3) 11-15 miles; (4) 16-20 miles; (5) 21-25 miles; (6) 26 miles or more

**Cultural Values Index:** The index is built from the following eight questions. Respondents were asked to agree strongly, agree slightly, disagree slightly or disagree strongly with each statement below. Scores were assigned to each answer, and the answers were summed into a simple additive scale. For the individualism questions the scores ranged from 4= strongly agree to 1 = strongly disagree; for the egalitarianism questions, the scores were reversed.

**Individualism Questions**

1. Competitive markets are almost always the best way to supply people with the things they need.

2. Society would be better off if there were much less government regulation of business.

3. People who are successful in business have a right to enjoy their wealth as they see fit.

4. Competition, whether in school, work, or business leads to better performance and desire for excellence.

**Egalitarianism Questions**

5. The world would be a more peaceful place if its wealth were divided more equally among nations.

6. We need to dramatically reduce inequalities between the rich and the poor, whites and people of color, and men and women.

7. What our country needs is a fairness revolution to make the distribution of goods more equal.

8. "Government regulation of business is necessary to keep industry from becoming too powerful."

**Education:** (1) Less than high school; (2) High school graduate or trade school; (3) Some college; (4) College graduate; (5) Post-graduate education

**Ethnicity:** "Are you a Latino or of Hispanic origin, such as Mexican-American, Latin American, South American, or Spanish-American?"

**Feeling Thermometers:** Scores ranged from 0 to 100. The questions were:

> I'd like to get your feelings toward different groups which are in the news these days. I'll read the name of a group and I'd like you to rate that group using something we call the "feeling thermometer". The feeling thermometer can rate groups of people from 0 to 100 degrees. Ratings between 50 degrees and 100 degrees mean that you feel favorable and warm toward the group I mentioned. Ratings between 0 degrees and 50 degrees mean that you don't feel favorable toward that group. Rating the group at the midpoint, the 50 degree mark, means you don't feel particularly warm or cold toward that group. If we come to a group whose name you don't recognize, you don't need to rate them. Just tell me and we'll move on to the next one. . . .
>
> The oil industry
> Environmental groups
> Government officials who regulate the oil industry

**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?"

**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?"

**Oil Drilling Support:** Support for drilling scored high:

> **California:**
>
> "I would like to start by reading you a series of statements about the energy situation. I'd like you to tell me whether you agree strongly, agree slightly, disagree slightly, or disagree strongly with each of the statements as I read it. Here's the first one ... Oil companies should be allowed to drill more oil and gas wells in state tidelands along the California seacoast." (1) Disagree strongly; (2) Disagree; (3) Agree; (4) Strongly agree.

**ANWR:**

"Do you think the federal government should or should not allow oil drilling in the Arctic National Wildlife Refuge in Alaska?" (1) Not allow drilling; (2) Allow drilling

**Oil Industry Price Fixing:**

"Do you think the high price of gasoline last year was caused by shortages of oil, or were we just being told there were shortages so oil companies could charge higher prices?" (1) Shortages; (2) So oil companies could charge higher prices.

**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?"

**Political Knowledge Index**: "Last, here are a few questions about the government in Washington. Many people don't know the answers to these questions, so if there are some you don't know, just tell me and we'll go on."

"Do you happen to know what job or political office is now held by Dick Cheney?"

"Whose responsibility is it to determine if a law is constitutional or not . . . is it the president, the Congress, or the Supreme Court?"

"How much of a majority is required for the U.S. Senate and House to override a presidential veto?"

"Do you happen to know which party has the most members in the House of Representatives right now?"

"Would you say that one of the parties is more [conservative/liberal] than the other at the national level? Which party is more [conservative/liberal]?"

**Race:** "For classification purposes, we'd like to know what your racial background is. Are you White, Black or African-American, Asian, or are you a member of another race?"

**Trust in Government:** Trusting answers scored high.

> "How much of the time do you think you can trust the government in Washington to do what is right--just about all of the time, most of the time, or only some of the time?" (0) Only some of the time; (1) Most of the time; (2) Just about all of the time
>
> "Would you say that the government is pretty much run by a few big interests looking out for themselves or that it is run for the benefit of all people?" (0) For the big interests; (1) For the benefit of all
>
> "Do you feel that almost all the people running the government are smart people who usually know what they are doing or do you think that quite a few don't seem to know what they are doing?" (0) Don't seem to know; (1) Smart people

**Trust in Government Regulators**

> "How much confidence do you have in Department of Interior officials in Washington to regulate oil drilling along the coast of California and ensure that it is safe--a great deal, a moderate amount, only some, or almost none at all?' (1) Almost none; (2) Only some; (3) Moderate amount; (4) Great deal.
>
> "How much confidence do you have in the local Department of Interior staff, based here in California, to regulate oil drilling along the coast of California and ensure that it is safe-a great deal, a moderate amount, only some, or almost none at all?" (1) Almost none; (2) Only some; (3) Moderate amount; (4) Great deal.

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**The Department of the Interior Mission**

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.


**The Minerals Management Service Mission**

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Royalty Management Program** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.